

TWO CULTURE PROBLEMS IN LAW AND ECONOMICS

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This Article briefly reviews where law and economics has been and then sets out important problems it now faces. My primary theme is that law and economics faces two two-culture problems. The first is between scholars who self-identify as being in a field—torts, contracts—and who do not use economics in their work and scholars who self-identify as being in the same field but who do. The second is between “field scholars” and technically trained scholars who are not in any particular legal field but who rather look for problems their techniques can solve. The second problem seems easier to ameliorate than the first. Both law and economics types make less progress with implementation issues than they should because they do not access the insights that rational actor political science can yield, a third two-culture problem that seems easier to solve than the others.

It is a pleasure to participate in this celebration of Tom Ulen’s retirement. This Article looks more to the future than the past, so it does not cite to much of Tom’s work. The Article, however, is instinct with Tom’s influence. He taught us to take nothing for granted, and he also sought to build bridges. I have tried to take as little for granted here as I could and to suggest how to carry on the bridge-building task.

I. INTRODUCTION

A positive take on the future of law and economics predicts what will happen next. A normative take asks what should happen next. This Article sets out a normative take because prediction is too hard. The Article initially reviews a little history. Because the future often is like the past, the review may be taken partly as prediction. The Article next briefly notes some methodological concerns. It then relates these concerns to current issues in order to suggest problems that our field should attempt to solve.

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My primary theme is that law and economics is experiencing two versions of a two-culture problem. One gulf is between scholars in particular legal fields who do and do not use economics. The other gulf is between both types of “field scholar” and the technically trained lawyer economist. Both gulfs are the consequence of a strength: economics is becoming more technical, which requires law and economics to be more technical as well. Increasing technical facility improves scholarly work but also may flaw it. The improvement may be obvious. The flaws arise because subfields in economics and law are becoming increasingly remote from each other. Normatively desirable and politically feasible solutions to legal problems often require knowledge of more than one thing, however. In the absence of such knowledge, the scholar may recommend a technically feasible solution that attempts to implement a normatively questionable goal or recommend a normatively desirable goal that is technically unfeasible. Technical advances that accompany—perhaps made possible by—increasing specialization thus risk producing better-grounded but less-relevant articles. This danger is illustrated below with examples drawn from contracts, bankruptcy, and torts. Much of the analysis is on a high level of abstraction, but that is the nature of the genre: a short paper or a book are the choices, and a book is precluded by my charge. I conclude that some aspects of the two-culture problem can be materially ameliorated. Other aspects may be intractable.

II. HISTORY: EARLY PRIVATE LAW ANALYSES

An early private law treatment is the Blum and Kalven article dealing with automobile accidents.¹ The authors made an incentive analysis of various liability regimes;² they and Calabresi were intellectual adversaries in the early 1960s. Law and economics was pretty much limited to torts and antitrust then. Coase’s famous paper³ was not well known in the legal academy and had just made its way into Stigler’s 1966 price theory textbook.⁴

Three aspects of the early work deserve remark. First, scholars had a rudimentary knowledge of incentives. This permitted them to analyze optimizing behavior, such as how strict liability would affect a firm’s precaution level. There was no equilibrium analysis, however. As a famous example, Stigler’s 1961 paper, that began the field of information economics, explained price dispersion as a response to positive consumer search costs. His model, however, was a partial equilibrium analysis; that is, he did not include in the model the response of firms to consumer search behavior. Because firms alter prices in response to consumer

1. Walter J. Blum & Harry Kalven, Jr., *Public Law Perspectives on a Private Law Problem—Auto Compensation Plans*, 31 U. CHI. L. REV. 641 (1964).

2. *See id.*

3. R.H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

4. GEORGE J. STIGLER, *THE THEORY OF PRICE* 110–14 (3d ed. 1966).

search strategies, and consumers respond to the price distribution,⁵ Stigler could not characterize market behavior. Scholars in the law schools did much less than Stigler.

The second aspect of the early work was its intuitive, or discursive, character. The papers had no mathematics. When an incentive problem had received no analysis at all, it was an advance to explain, for example, that the efficient safety level was not infinity, but rather that tradeoffs had to be made between safety and amenities. Without math, there was a limit to how much optimizing analysis of this type could achieve.

Third, early scholars made a major advance by including the legal system in the agent's optimization problem. Agents were understood to respond to prices, costs, *and laws*. The laws can be considered prices or sanctions. Put another way, because laws affect behavior, a law could be evaluated by the behavior it produces. Without equilibrium analysis, however, this insight could not be pursued very far. A way to explain this problem is that an equilibrium is the predicted outcome a model permits the analyst to derive. To change the law is to change the equilibrium. Because early analysts could not calculate equilibria, they seldom could precisely characterize their current world or identify the effect of law reform proposals.

These limitations, however, did not prevent early authors from analyzing a variety of legal fields. Prompted by his colleagues' challenge to show what economic analysis could do, a little-known part of Calabresi's famous 1961 risk allocation paper briefly analyzed several areas of law in addition to torts.⁶ This part of the article is unjustly neglected. For example, the first, and for a long time the only, economic analysis of negotiable instruments law was Calabresi's brief treatment. Similarly, *The Cost of Accidents: A Legal and Economic Analysis*, published in 1970, had a brief but sophisticated section on the economics of contracts,⁷ and Posner's famous 1972 law and economics book included informal, but very insightful, analyses of many private law areas.⁸

III. METHODOLOGY AND LIMITS

The lack of both equilibrium analysis and of sophisticated optimizing techniques had a common cause. In the 1960s, economic tools were unsuited to the analysis of many problems that law and economics scholars wanted to solve. Economists then used only price theory: market

5. See, e.g., Louis L. Wilde & Alan Schwartz, *Equilibrium Comparison Shopping*, 46 REV. ECON. STUD. 543, 551-52 (1979).

6. See Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499, 549-53 (1961).

7. GUIDO CALABRESI, *THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 228 (1970).

8. See RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* (1972).

models of competition, oligopoly, and monopoly. Game theory was not yet in the economics mainstream. Many private law problems, however, required game theory to solve for two reasons. First, these problems did not concern market behavior but rather involved a small number of players: two for a contracts problem and not many more for others. Second, the players often had private information about payoff-relevant variables, such as costs and values. How such privately informed agents could coordinate their behavior for their common good is an issue that price theory does not address.⁹

As an illustration of the misfit between the problems and the tools, a negligence or contributory negligence problem could be modeled as a simultaneous or a sequential move game. A game is simultaneous if a player cannot observe the actions of the other players before the player chooses his own action. A contributory negligence rule likely yields different outcomes if a party must choose his precaution level in ignorance of the choice of the other party or with knowledge of that choice. Neither game type was then familiar to torts scholars or to many economists, however, so this modeling choice was made accidentally or not at all.

Turning to contracts, parties often make agreements in environments in which they cannot observe payoff-relevant information about each other—e.g., a buyer's valuation for performance—and in which a court cannot observe relevant information about the parties. Contract theory was then not sufficiently advanced to permit the analyst to explain how a party's expectation interest could be protected or what should be awarded in its place, when parties were asymmetrically informed about payoff-relevant information.¹⁰ In sum, early law and economics analyses often seemed unrealistic because they were; that is, the problems were approached with tools unsuited to the task.

The early work also was normatively naïve, and this produced a large body of anti-law and economics literature. The early criticism was valid but shallow. Critics observed that any legal change produced losers as well as winners. It followed, for the critics, that a proposed reform could not be evaluated without making an interpersonal utility comparison. Because law and economics scholars denied that such comparisons could be made while also urging reforms that required the comparisons to be made, much of their work appeared to contradict itself. More sophisticated critiques focused on the Scitovsky paradox: that either of two reforms could be optimal, depending on where one started.¹¹

9. For an early illustration of how such problems can be analyzed, see generally ROBERT GIBBONS, *GAME THEORY FOR APPLIED ECONOMISTS* (1992).

10. For example, a buyer's expectation is his or her value less the price, a sum that is difficult for a court to award when the court does not know the valuation.

11. See generally AMARTYA K. SEN, *COLLECTIVE CHOICE AND SOCIAL WELFARE* 31–34 (1970). Normative concerns are extensively analyzed in Symposium, *Symposium on Efficiency As a Legal Concern*, 8 HOFSTRA L. REV. 485 (1980).

These criticisms were overdrawn. Analysts could make weighted utility comparisons and only advocate reforms that passed. For example, some reforms could survive weighing the losses a reform produced three times more heavily than gains. More importantly, law and economics analysis moved into business fields. Companies maximize profits; that is, their utility functions are linear in money. When the relevant actors maximize these functions, normative evaluations can be made by comparing profits across various institutional alternatives. The deeper problem was that the analysis itself was insufficiently persuasive. Perfect market solutions were sometimes offered when markets were not perfect.

Much changed through the 1980s and 1990s. Scholars with formal training entered the field. These scholars were trained in game theory and finance and could make progress with problems earlier scholars either ignored or misconceived. The new focus on business law, together with the collapse of the critical legal studies movement, had two important implications. First, early critics who were concerned with issues of distributive justice, gender, and race equality began to ignore the field. Business law analyses neither threatened nor interested them. As a consequence of (1) the agents that the scholars came to model—i.e., firms—, (2) the technical and therefore often inaccessible analysis, and (3) changing fashions elsewhere in the academy, law and economics could proceed largely in a positivist vein. The stress on positive analysis was almost unique to the legal academy. A positive consequence of this stress is that the field became more professional and more accepted; a negative consequence is that law and economics began to risk marginalization.

IV. CURRENT ISSUES: THE PROBLEMS WE FACE

A. *Two Cultures and Implementation*

1. *The Gap*

Today, law and economics has the advantages and disadvantages of success. There now are at least six professionally refereed journals.¹² Also, leading law reviews solicit the views of faculty when deciding what to publish, which has increased the receptivity of those reviews to moderately technical work. As a result, both the theory and the empirical work are more professionally done.

The professionalization of the field has produced a number of problems, however. The first, which is the basis of others, is that law and

12. These journals include: *The Journal of Law, Economics, & Organization*; *The Journal of Legal Studies*; *American Law and Economics Review*; *The Journal of Law and Economics*; *International Review of Law and Economics*; and *Journal of Empirical Legal Studies*.

economics faces two versions of the two-culture problem. At the beginning, there were tort and contract scholars using economic techniques to analyze tort and contract problems. The audience for their work was other tort and contract scholars. There was little math in the work so it was accessible to a general legal audience. Today, two kinds of scholars do law and economics. There still are private law scholars using economics, who want to talk to other private law scholars. This is becoming increasingly difficult as the economic techniques become more sophisticated.

There also are law and economics scholars. Many recent entrants have a law degree and a PhD in economics, but they lack familiarity with the professional world outside the law schools. These scholars have clerked for a year or so but have not practiced. They look for problems their techniques can illuminate, and their search is across legal fields. This is a marked departure from the older practice of working on problems within a legal field with the techniques one has. Much of the work that the technique-driven scholars do sometimes is inaccessible to judges and to scholars “doing torts.” Thus, there are *two* two-culture problems: (1) between the field scholars in torts, contracts, and property who use economics and the other scholars in their fields who do not; and (2) between the economically sympathetic field scholars and the law and economics scholars who are technique driven.

The contracts field provides examples of the difficulties these gaps can yield. Regarding the first two-culture problem, an economic contract theorist asks two related questions: (1) what economic problem are private agents using a contract to address, and (2) why did the agents write the contract that is observed rather than some other apparently feasible contract? There is a contracts “list serve” that many contracts professors in law schools use. I have been reading the contributions on it for several years. My observations are as follows: (1) the sometimes extensive debates among participants concern doctrinal issues and exam suggestions; these issues and suggestions relate almost exclusively to concerns that the first-year contracts course raises; (2) peripheral issues sometimes emerge and spark considerable interest—recently, many participants seriously debated the question whether political conservatives or political liberals are more likely to support a hard parole evidence rule;¹³ and (3) the two questions that organize economic contract theory are *never* asked. Participants on the contracts list serve appear neither to write for nor be an

13. The parole evidence rule is most frequently invoked in disputes between firms, where it has no political content at all. Whether Corporation *A* can successfully sue Corporation *B* on a supply contract almost never raises the distributional and class issues that politics addresses. The rule, however, mysteriously raises those issues for a number of contracts professors. In addition to the list serve, see Jay M. Feinman, *Un-Making Law: The Classical Revival in the Common Law*, 28 SEATTLE U. L. REV. 1 (2004), which is quoted extensively in EMMA COLEMAN JORDAN & ANGELA P. HARRIS, *ECONOMIC JUSTICE: RACE, GENDER, IDENTITY AND ECONOMICS* 154–67 (2d ed. 2011).

audience for work by scholars who also self-identify as being in the contracts field but who use economic techniques.¹⁴

Regarding the second two-culture concern, much economic contract theory is difficult for scholars without formal training to use. Patrick Bolton and Mathias Dewatripont wrote an excellent contract theory book that sets out the state of the art in the field circa 2005.¹⁵ Few law review articles analyzing transactions cite this book.

Closing these gaps is a major challenge. The gap among the field scholars and the technical scholars seems easier to address because people in economics departments want to talk to lawyers and economically interested law professors want to talk to economists. Thus, the task is to create bridge-building institutions. An excellent example is the Contracts Center that Robert Scott runs at Columbia Law School. There is a joint workshop with the economics department, and there are programs in which scholars from both fields participate. Vanderbilt Law School now offers a PhD in law and economics, and Yale is offering joint courses toward a PhD in economics with a law and economics specialization. Recognition of the problem, a little money, and some determination help. As to how much, disaggregating the problem a little more may tell.

The second gap, between either type of law and economics scholars and professors who identify with particular fields but who are not interested in economics, can induce despair. Articles cannot be simplified sufficiently to communicate to people who do not know the directional slope of a demand curve. This innocence is puzzling. Contract law regulates transactions. A rudimentary knowledge of economics yields a reasonable understanding of transactions, and thus how the law likely affects them. To teach “contracts” while remaining ignorant of economics is like teaching basic human anatomy without knowing where the major organs are. Time may bring all of the field scholars closer together, however. Graduates of leading law schools are coming to populate law schools at all ranks. Perhaps in this respect, the future belongs to our students.

14. Readers who would like documentation in addition to this informal survey can compare two contemporaneously published contracts readers, one by a traditional field scholar and one by two law and economics scholars. There is very little overlap between the two books. *Compare* PETER LINZER ET AL., *A CONTRACTS ANTHOLOGY* (2d ed. 1995), *with* RICHARD CRASWELL & ALAN SCHWARTZ, *FOUNDATIONS OF CONTRACT LAW* (1994).

15. PATRICK BOLTON & MATHIAS DEWATRIPONT, *CONTRACT THEORY* (2005).

2. *The Legal Future*

The different legal cultures have different views about how traditional courses should be taught. The economic types believe that much in the current curriculum is irrelevant, while many field scholars think that radical changes are unnecessary. A brief look at modern contract theory illustrates this divide. As an illustration, contract law protects the promisee's expectation interest. To do this is to put the promisee in the same position that performance would have done. Because this is impossible, the goal is to require the promisor to transfer to the promisee the sum that would make him or her indifferent between performance and breach.

Scholars have asked why the law protects the expectation interest. The original economic answer is that it is ex post efficient to protect the expectation. A promisor will breach only if he or she would be better off after making the requisite transfer than he or she would have been performing. Hence, breach is pareto efficient. This turns out to be a poor explanation. To see why, realize that a common and sometimes plausible assumption holds that uncertainty concerning the economic variables of interest resolves ex post; that is, the parties then come to know the values of those variables. Such well-informed parties bargain to the ex post efficient state regardless of the initial legal assignment of rights. For example, parties would renegotiate away from specific performance if performance turned out to be inefficient. Given renegotiation, which often is feasible, no contract remedy is more ex post efficient than any other.¹⁶ Protecting the expectation interest thus remains a rule in need of justification.

For a second example, early analyses did not take into account interim (after the contract is made) party investments in the contract's subject matter, and this raises a concern. The legally required transfer—the protected expectation interest—is the profit the promisee would have earned conditional on the investment level in the contract that the promisee chose. The promisee thus invests until the marginal return equals the marginal cost. This is too much because in some states of the world, the promisor's cost may turn out to exceed the promisee's value; in those states, the promisee receives the monetary equivalent of the value his or her investment generated, but the investment was wasted. Put another way, the legal default chooses insurance rather than incentives: the promisee is fully insured and so behaves inefficiently.¹⁷ Recognition that contract remedies can produce overinvestment has produced a large volume of literature in the law and economics and economics journals, asking

16. See Daniel Markovits & Alan Schwartz, *The Myth of Efficient Breach: New Defenses of the Expectation*, 97 VA. L. REV. (forthcoming 2011).

17. Steven Shavell first identified this problem. See Steven Shavell, *Damage Measures for Breach of Contract*, 11 BELL J. ECON. 466, 469–72 (1980).

how particular contract terms may improve party incentives. Contract scholars who are not interested in economics ignore this important literature.

Under the assumptions field contract scholars commonly make, the investment problem goes away, but at the expense of relevance. Common analyses of the expectation interest suppose that courts can recover party costs and values; these variables must be observable for a court to award a party the profit it would have made. If the variables are observable, however, parties could write simple forcing contracts, requiring the promisee to invest efficiently.¹⁸ The overinvestment problem would then vanish. To summarize, on the standard assumptions, the expectation interest remedy is irrelevant to ex post efficiency, and there is no investment problem. Therefore, the contract remedies in the Restatement apparently respond to no economic problem that actual parties may have. Contract law professors who do not use economics continue to teach those remedies.

Relaxing the standard assumptions does not make contract law any more relevant. To see why, realize that the solutions to many contracting problems are parameter specific. As an example, a liquidated damage clause is parameter specific; particular contracting parties fill in the blank with their own number. The remedial implication, given the parameter-specific nature of many efficient solutions to contracting problems, is that specific performance, viewed broadly, should be the standard remedy.¹⁹ Courts cannot do better than enforce the parties' deal. But if courts should only enforce the deal, there is too much contract law. The rules are supposed to embody solutions to contracting problems, but legal rules must function on levels of generality that make them unsuited to the parameter-specific solutions that particular contracting relationships prefer.²⁰ Law professors continue to teach the rules, however, as if they affected behavior.

The standard doctrine goes further, to review contract terms for "reasonableness." The liquidated damage clause provides an example. Such a clause must reflect either a reasonable prediction of the promisee's expectation or a reasonable relation to the realized expectation. Neither the courts nor the lawyers involved in the cases understand the economic problems that parties attempt to solve when they specify re-

18. For example, a contract could pay the promisee a price that would be acceptable to the promisee only if he or she made the efficient investment choice.

19. As an example of the phrase "viewed broadly," parties often can be taken to prefer the expectation remedy when their contracts are silent on the remedy issue. See Markovits & Schwartz, *supra* note 16. Hence, to protect the expectation is to specifically enforce the contract's remedy term.

20. See Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 YALE L.J. 541, 606-09 (2003).

quired transfers, however.²¹ Thus, a large transfer whose function is to deter entry into a market by outsiders is bad; a transfer whose function is to induce efficient relation-specific investment may be good. There is a question whether courts can regularly make such distinctions. A strong move in Europe among contracts scholars would extend fairness and reasonableness review to just about every term in a contract.²² This movement has adherents here, especially among participants in the contracts list serve.

Field contract scholars who ignore economics thus function in a world that is remote from the world that economically oriented scholars analyze. The concern is that the field scholars' world is unreal: it presupposes views of transactions and how legal rules may affect them that is confused. Improvement should come from two directions. The economists should communicate better with the economics-minded lawyers. The field scholars should acquire more human capital. A happy next step would be better communication all around. The most likely possibility in the contracts area is unhappy: the lawyers will continue to teach meaningless rules, while economics minded people will talk to each other.

3. *Examples from Other Fields: Generalization and Implementation*

Bankruptcy supplies similar examples. Business bankruptcy traditionally was a narrow professional specialty. Lawyers and judges, in a litigation-centered set of procedures, liquidated or reorganized distressed firms. In the 1980s, scholars came to understand that bankruptcy law solved a collective action problem among the creditors of the distressed firm. In the usual informal model, creditors were numerous, held small claims relative to the total debt, and were unknown to each other. The most reasonable equilibrium, on these assumptions, is for every creditor to sue its debt to judgment and seize assets to satisfy its claim. As a consequence, every debtor is liquidated, though the going concern value of some of the debtors would have exceeded their liquidation values. The normative response is to create a procedure that stops collection efforts so that firms that should continue are sorted from firms that should disappear.²³

This scholarship was an advance, but it had two problems that became obvious with time. First, the animating model is restrictive. Some

21. As one example, a liquidated damage clause that takes the form of a down payment can be used to price discriminate. The policy danger here is not that the specified damages are higher than the promisor's expectation—they commonly are lower—but that price discrimination contracts exclude parties from the market. See Alan Schwartz, *Price Discrimination with Contract Terms: The Lost-Volume Problem*, 12 AM. L. & ECON. REV. 394 (2010).

22. See generally STUDY GRP. ON EUR. CIV. CODE & RES. GRP. ON EC PRIVATE L. (ACQUIS GRP.), DRAFT COMMON FRAME OF REFERENCE (Christian von Bar et al. eds., 2010).

23. This theory was first introduced by Thomas Jackson and is explicated in THOMAS H. JACKSON, *THE LOGIC AND LIMITS OF BANKRUPTCY LAW* 7–19 (1986).

firms have few creditors and so private solutions are possible: renegotiation or foreclosure can efficiently end many insolvencies. The bankruptcy code, however, applies to all of them. Scholars did not recognize that such a law is in need of explanation and, more importantly, justification. Second, the only requirement for solving the collective action problem is to stay private collection efforts. A variety of substantive bankruptcy procedures are consistent with the existence of an automatic stay, however. Analysis of a bankruptcy code thus requires an additional premise. Put another way, what should the goal of the law be? Apart from largely indeterminate suggestions that bankruptcy law should respect state law entitlements, except when it should not respect state law entitlements, law and economics scholars had little to say about this question for a long time. Analyses of specific bankruptcy rules was left to the pure lawyers.

In the 1990s, it came to be realized that a bankruptcy code can be analyzed as the set of implied terms that govern when the borrower is in the default state. This insight converts bankruptcy problems into contract theory problems. The normative issue is whether parties would contract for the laws that are observed or other laws. The answers, though tentative, are troubling: there is no reason to believe that one set of bankruptcy procedures is optimal for every insolvent and its creditors. This is unsurprising because contract theory solutions to bankruptcy problems, like contract theory solutions elsewhere, have a strong parameter-specific element. Bankruptcy law thus should supply default procedures and enforce private contracts that concern bankruptcy issues.²⁴ The law today, in contrast, supplies two mandatory procedures and often restricts free contracting.²⁵ This partly is a consequence of the field bankruptcy scholars, who are not interested in the ideas of scholars who think about bankruptcy in an economic vein.

Recent bankruptcy practice has changed materially because transaction and mergers and acquisitions lawyers have entered it. The lawyers have developed a variety of techniques to respond to the collective action and strategic behavior problems that attend large insolvencies. Lawyer economists have described and discussed these new techniques, but the field still is in an unsatisfactory state.²⁶

This is so for familiar reasons. Contract theory in the finance area is as technical as it is elsewhere. The empirical finance papers also are difficult for lawyers to access. In addition, partly the cause and also the consequence of new professional players entering the area is that many

24. See, e.g., Alan Schwartz, *A Contract Theory Approach to Business Bankruptcy*, 107 YALE L.J. 1807 (1998); Alan Schwartz, *A Normative Theory of Business Bankruptcy*, 91 VA. L. REV. 1199, 1238–60 (2005) [hereinafter Schwartz, *A Normative Theory*].

25. See Schwartz, *A Normative Theory*, *supra* note 24, at 1238–60.

26. See generally Douglas G. Baird & Robert K. Rasmussen, *The End of Bankruptcy*, 55 STAN. L. REV. 751 (2002); Douglas G. Baird & Robert K. Rasmussen, *Reply: Chapter 11 at Twilight*, 56 STAN. L. REV. 673 (2003).

more insolvent firms are auctioned to the market than once were. Auctions are required in many debtor in possession financing contracts if an insolvent firm does not meet the performance benchmarks those contracts set. This raises the question of whether the required auction procedures are socially optimal and whether bankruptcy rules can improve them. Auction theory, however, is among the most technical fields in economics.²⁷ Thus, bankruptcy exhibits familiar problems: the technical scholars know little about the procedure; the law and economics scholars cannot easily communicate with the technical scholars; and the pure lawyers act as if economics, finance, and contract theory are unnecessary parts of the scholars' apparatus.

These problems are not limited to commercial fields. The products liability area also exhibits them, and with possibly greater consequence. Under the doctrine, a product is defectively designed if the design creates risks in excess of benefits. It is possible to make economic sense of this test. Benefits can be translated into the consumer buyer's willingness to pay for a safe design. Then the firm should invest in safety until the marginal cost of a safety improvement equals the marginal willingness to pay of a representative consumer. It is not possible to apply this test in a lawsuit. Willingness to pay data is famously hard to get, and courts cannot easily access firms' production functions.

Economists recognize that product safety often is a matter for regulation. An agency has the expertise to evaluate data and the resources to get it. In contrast, lawyers think design defect cases are routine tort issues that a well-instructed jury can decide. Juries thus "weigh" risks against benefits to decide whether a product is defectively designed. If a regulator has approved the design, a jury may still find it defective: the regulation is evidence the jury can consider but is free to overrule. In some cases, juries award punitive damages for design defect violations. The gap between economists, lawyers who use economics on the one hand, and lawyers and courts who do not, on the other hand, is very wide.²⁸

The products liability example is intended to identify an additional concern: how analytical results can be applied. There is today too little attention paid to implementation problems. The pure lawyers understand the limitations of courts, but they seldom fully understand how the tasks that doctrine assigns to courts are constrained by those limitations. The lawyers thus think that juries can apply the risk-benefit test because the issue is whether a particular design is "reasonable." The result is an arbitrary and costly body of law. There is a concern on the other side,

27. See generally VIJAY KRISHNA, AUCTION THEORY (2002); PAUL MILGROM, PUTTING AUCTION THEORY TO WORK (2004).

28. The corporate field is an important exception to the analysis here. In this field, the lawyers talk to the finance economists; and both groups talk to the business bar and the investment bankers. The depth and sophistication of corporate scholarship reflect these interactions. An interesting project in academic sociology would be to explain the "corporate exception."

however. The law and economics scholars who have tools but not fields sometimes slight implementation problems because they are less aware of what courts and other legal institutions can do.

Implementation concerns seem better addressed in contracts than elsewhere. Illustrations are the sharp distinctions drawn, in economic contract theory, between actions and outcomes that are verifiable and those that are not, and between renegotiation costs that are infinite and those that are costless. Regarding verifiability, courts can use proxies that correlate with the real variables of interest and enforce index clauses.²⁹ Neither proxies nor these clauses are studied much by lawyer economists. Also, parties can affect renegotiation costs, and so make contract incentives more precise.³⁰ On the other hand, analyzing which contract law rules are implementable and which not, and what reforms would be useful are not topics of serious interest to field contract scholars who do not use economics in their work.

There are two possibly promising responses to the implementation concern. The first is to access the resources political science provides. Law and political science is in its infancy. Many good law schools do not have rational actor political scientists on their faculties, there is no law and political science journal, and there are few law and political science conferences. There is a natural affinity between the two disciplines: political scientists and economists use the same game theory models and use similar empirical techniques.³¹ Thus, communication and interdisciplinary work is apparently possible.

Rational actor political scientists study legislatures, primarily Congress, and sometimes the courts. They do not seriously address the implementation issues that law and economics scholars slight. Law and economics scholars neglect these issues primarily because they are unfamiliar with modeling legal institutions. A helpful next step would be to increase collaboration between the disciplines. There is a two-culture problem between law and economics and political science, but it is closing, and it is possible to make it close faster. Here, paying attention may do the job.

Second, law and economics scholars of both types should become more interested in legal theory as such. A central concern of legal theory is to develop criteria for what legal institutions can, and should attempt to, implement.³² Law and economics could benefit from the fundamental institutional and normative insights that basic legal theory can provide.

29. See Robert E. Scott & George G. Triantis, *Anticipating Litigation in Contract Design*, 115 *YALE L.J.* 814, 840–44 (2006).

30. See Alan Schwartz & Joel Watson, *The Law and Economics of Costly Contracting*, 20 *J.L. ECON. & ORG.* 2, 6 (2004).

31. See generally DENNIS C. MUELLER, *PUBLIC CHOICE III* (2003).

32. See Hanoch Dagan & Roy Kreitner, *The Character of Legal Theory*, 96 *CORNELL L. REV.* 671 (2011).

B. *Realism and Behavioral Economics*

As said above, early law and economics analysis was criticized for its lack of realism. There were two causes. First, scholars used price theory models to study problems for which price theory was ill suited. This reduced the relevance of the analysis. Second, much price theory used perfect information models when information was not perfect. The game theory revolution responded to the first problem. Game theory permits scholars to model asymmetric information environments, and this enables modelers to make more realistic assumptions about what parties know about each other in contractual and similar small number environments.³³

In the 1970s and 1980s, search theory responded to the second problem: the perfect information assumptions in price theory models. Stigler first focused on the existence and causes of price dispersion in markets.³⁴ A number of papers followed that made more realistic assumptions about how market participants acquire costly information. The models generated equilibrium predictions and so could be the basis for policy proposals. The predictions also were sufficiently precise to permit laboratory testing so policy recommendations could be tried out.³⁵

This genre of model generated two implementable policy strategies. Both follow from the primary insight that markets become more competitive as the cost to consumers of comparing market alternatives falls. There are two cost-reducing methods. First, firms should set out typical terms in contracts, such as prices and warranties, in standard formats. The annual percentage rate is a good example. There is a major role for the state here because creating standard formats is a public good; it often takes regulation to create efficient disclosure formats. Second, the state should provide comparative price information. Private firms provide much of this, but a role for the state remains. This is because price provision equilibria can be dynamically inconsistent. To see why, let there be price dispersion in period one. A firm then has a market for providing information and so enters to supply it in period two. As a consequence, the dispersion materially shrinks in period three. But then the market

33. For an extended review, see COLIN F. CAMERER, *BEHAVIORAL GAME THEORY: EXPERIMENTS IN STRATEGIC INTERACTION* (2003).

34. See George J. Stigler, *The Economics of Information*, 69 J. POL. ECON. 213 (1961).

35. See, e.g., David M. Grether et al., *Price, Quality and Timing of Moves in Markets with Incomplete Information: An Experimental Analysis*, 102 ECON. J. 754 (1992); John Morgan et al., *An Experimental Study of Price Dispersion*, 54 GAMES & ECON. BEHAV. 134 (2006). Realism problems nevertheless remain. For example, models assume that parties can optimize over distributions of the relevant variables, but decision theorists question whether this assumption is realistic for “large worlds” in which variables can take many forms, some of which agents have trouble evaluating. See generally KEN BINMORE, *RATIONAL DECISIONS* (2009) (analyzing difficulties with expected utility models). Also, revealed preference theory is difficult to implement in environments in which there is considerable private information. Inferring preferences from choices in these environments sometimes (often?) cannot be done. Law and economics scholars will have to wait for the economic theorists to make progress with these problems.

for the firm's information shrinks as well: if sellers charge the same or very similar prices, the identity of a firm from which the consumer buys does not matter. Dispersion then may return in period four, but the supplying firm may have vanished. The state endures through time and can supply information in all periods.

Standardization reforms are becoming common, but comparative price information provisions are less so. This is a seemingly solvable implementation problem. Setting up a price monitoring agency and sending out data seem easy to do. There likely are political economy reasons for this lack.³⁶ So here we have a concrete example of how better collaboration between political scientists and lawyer economists would be fruitful.³⁷

Reducing information costs in markets is still a fruitful line of research, but it has been partly supplanted by behavioral economics. An assumption of the search theory models is that consumers can evaluate and compare prices and contract terms and make savings or consumption choices that are in the consumers' best interests. This assumption is being seriously called into question.³⁸ Rather, consumers are assumed to make systematic cognitive errors that materially flaw market performance. The problem is not so much to reduce the costs to consumers of acquiring payoff relevant information. Rather, the goals are to improve the consumer's ability to process the information that markets provide or to supply reforms that ameliorate the cognitive problems that flaw decision making.

The policy conclusions from this line of research seem to have far outrun the social science. There are two reasons. First, the experiments show that some agents do not make cognitive errors. This suggests that a nontrivial portion of agents in markets do not make errors. Then there is an analogy between the search theory models and the cognitive models. If the smart agents will reject contracts intended for the dumb agents, then firms have an incentive to compete for the business of the smart agents. The analogy is that firms sometimes compete for agents who shop rather than exploit agents who do not shop. Thus, a next step is to understand how markets react when consumers have heterogenous cognitive skills. This is an area of research that the behavioral economists and their law school followers neglect. Economists are beginning to enter here, so lawyer economists may profit from their efforts.³⁹

36. Firms dislike reforms that reduce shopping costs because price is driven closer to cost as comparison shopping becomes easier.

37. The internet may be materially reducing the costs of comparison shopping. Relating the ease of internet search to policy proposals seems an understudied area.

38. See Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CALIF. L. REV. 1051, 1060-75 (2000).

39. Early efforts to understand how markets function when sophisticated and naïve agents interact include Brian D. Kluger & Steve B. Wyatt, *Are Judgment Errors Reflected in Market Prices and*

The second concern with behavioral economics is more serious. Psychologists have identified over forty biases. Each of them is exposed in an experiment designed to see whether typical persons are prey to the bias. An implication of these experiments is that the “typical agent” is prey to over forty biases. Policy implementation requires the analyst to identify what agents will do in the current institutional environment and then to predict what agents will do when the state changes the environment. Thus, the policy analyst must know how an agent with forty or more biases will act when faced with a decision. It is customary, in contrast, for behavioralists to make policy recommendations on the assumption that the agent has the bias under consideration, or perhaps two of them.

As illustrations of how this methodology is questionable, an overconfident consumer may underestimate his or her need for a warranty—he or she thinks any losses suffered will be minor—while a consumer prey to the availability heuristic may overestimate the need for a warranty because he or she easily recalls newspaper reports of product recalls or dramatic product failures. What is the warranty demand of overconfident consumers who also ignore base rate data? As another example, agents have been shown in experiments to be present biased: their discount rates between adjacent periods are greater than their discount rates between distant periods. Present biased consumers undersave. On the other hand, agents develop mental rules to guide their behavior and tend not to adjust these rules sufficiently when they see current nonconforming data. A consumer who wants to govern his or her affairs prudently actually may oversave; that is, the consumer acts as if he or she is future biased.⁴⁰ How much does the agent save when he or she is a hyperbolic discounter with a rigid rule about overspending?

The credit card issue may show why questions such as these are serious. Households, until recently, held substantial amounts of credit card debt. Several commentators argued that cognitive biases were responsible for this debt load. Consumers are bemused by teaser rates, are too present biased, are too overconfident, and are too optimistic.⁴¹ A contrary view held that total consumer saving was positive because the value of homes and 401(k) accounts increased during the same period.

The Great Recession is a relevant case. During it and after, consumer behavior regarding credit cards changed substantially. Consumer savings rates increased materially, credit card debt fell, and consumer balance sheets greatly improved. Do the biases that caused consumers to

Allocations? Experimental Evidence Based on the Monty Hall Problem, 59 J. FIN. 969 (2004); John A. List, *Does Market Experience Eliminate Market Anomalies?*, 118 Q.J. ECON. 41 (2003); Alan Schwartz, *How Much Irrationality Does the Market Permit?*, 37 J. LEGAL STUD. 131 (2008).

40. See Roland Bénabou & Jean Tirole, *Willpower and Personal Rules*, 112 J. POL. ECON. 848, 861–76 (2004).

41. See, e.g., Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373, 1395–1411 (2004); John A. E. Pottow, *Private Liability for Reckless Consumer Lending*, 2007 U. ILL. L. REV. 405, 431–34.

make irrational credit card decisions only manifest during good economic times? Were those biases overcome by a yet-to-be-identified benign new bias? Or were consumers prudently adjusting to their current financial situation all along?

The credit card example counsels caution in assuming that particular laboratory biases cause particular real world behaviors. Rather, policy analysts must seriously confront the external validity issue. Along this line, there is a small but promising literature considering how two biases—e.g., status quo and overconfidence—interact.⁴² How forty plus simultaneous biases influence consumer choice is unknown. Policy proposals resting on the premise that one or two agent biases exist, however, are ubiquitous. A major task for research is to understand bias interaction. Behavioral economics may be following the path of earlier law and economics scholars who thought economic insights could solve everything. Learning the limits has been a part of growing up. It would be good if behavioral economics would grow up as well.

C. Empirical Research

There has been a major turn in economics toward empirical research; published empirical papers now outnumber theory papers. The same phenomenon is occurring in law and economics, a trend that the formation of the Society for Empirical Legal Studies has ratified and furthered. It is good to know facts, but there are concerns.

In science, empirical research either tests theoretical predictions or gathers data that could support theory creation. These are standards for research that empirical papers could meet. It is my impression that too few papers meet the theory testing criterion; that is, many papers neither test formal models nor develop models to test.⁴³ I suggest that this is a variant of the two-culture problem noted above. Given recent advances in computer programming, scholars can write and test regressions without having mathematical skills. Recent economic theory requires mathematical skills. As a consequence of these factors, current empirical researchers do not develop their own models to test and cannot easily access the economists' models. The result is a number of empirical pa-

42. See, e.g., Oliver Compte & Andrew Postlewaite, *Confidence-Enhanced Performance*, 94 AM. ECON. REV. 1536 (2004); Manju Puri & David T. Robinson, *Optimism and Economic Choice*, 86 J. FIN. ECON. 71 (2007).

43. Relevant here, Robert Gibbons recently remarked that:
There are . . . benefits of formal modeling. First, formal models can check the internal consistency of informal arguments, including providing boundary conditions under which the informal argument holds. Second, formal models can help specify and interpret empirical tests of informal arguments. . . . [Finally,] formal models can help diagnose what is amiss in a theory when new evidence proves the original to be flawed"
Robert Gibbons, *Transaction-Cost Economics: Past, Present, and Future?*, 112 SCANDINAVIAN J. ECON. 263, 282 (2010).

pers that exhibit facts but do not seem to advance knowledge. Thus, the current challenge is to move theory closer to empirical work.

V. CONCLUSION

This Article has identified problems that law and economics now faces. These problems have a common source: the legal academy is insufficiently interdisciplinary. A major divide is between professors who identify with a legal subject—torts, contracts—but who do not use economics in their work and economically oriented scholars. The former field scholars have become increasingly remote from law and economics as it has become increasingly technical. Scholars who write law and economics torts and contracts articles thus talk to other scholars who write law and economics torts and contract articles, but do not talk to “torts professors” or “contracts professors.” It is hard to see how this gap can be closed.

A second divide is between, as an illustration, torts professors who use economic tools in their work and lawyer economists who think about torts. The torts professors tend to have only law degrees. The lawyer economists, who have economics PhDs, tend to work in a number of legal fields; their goal is to solve problems with modern techniques. These techniques can be difficult for even economically minded law professors to understand. This lack of communication has produced two problems: the law professors, though well motivated, sometimes lack the technical ability to solve the problems that occupy them; the lawyer economists lack the institutional and real-world knowledge to develop implementable policy proposals.⁴⁴

There are possible solutions to the two-culture problem among different types of law and economics scholars, some of which we observe today. First, there should be more collaborative work. Today, technical scholars tend to work with technical scholars and law professors tend to work with law professors. There should be a more conscious effort by both sides to work together: lawyers should look for technical people they can talk to, and technical people should look for lawyers. Second, there should be more bridge-building institutions. Joint JD/MBA and JD/PhD programs yield students who can cross fields and create opportunities for faculty to teach and work with professors in allied fields. Institutes also can help. The Yale Law School Center for the Study of Corporate Law and the Columbia Law School Center for the Study of Law and Business bring together scholars of all types and sometimes practitioners as well. These institutes may spark creative work across

44. An excellent review of products liability scholarship, by two technical scholars, that responds to the accessibility concern is Andrew F. Daughety & Jennifer F. Reinganum, *Economic Analysis of Products Liability: Theory*, in RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS (Jennifer H. Arlen ed., forthcoming 2011).

disciplines. There probably will be more of them. Third, scholars of all types should recognize that the acquisition of human capital is a lifelong task. Joint reading groups, attending classes, and reading books all help.

Law and economics work of just about any type tends to be insufficiently attentive to what legal institutions can and cannot achieve. This implementation concern has not been seriously addressed. The most promising solution is to treat rational actor political science as a part of law and economics. The political scientists have much to teach us about implementation if they become interested in it. It would be a good next step for our field to interest them.

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