

THE “INCOMPLETE CONTRACTS” LITERATURE AND EFFICIENT PRECAUTIONS

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By now, most contracts scholars are familiar with at least some of the conclusions of the economic analysis of contract law. At a minimum, the concept of “efficient breach” is now established in both the literature and the casebooks, with even a cameo appearance in the *Second Restatement*,¹ and the idea of the most efficient risk-bearer may also be familiar.² At present, though, the legal academy has been much less affected by the economic writings whose topic is usually referred to as “incomplete contracts.”

Part of my goal, in this Essay, is to present this economic literature in a more easily accessible form. My more important goal, however, is to highlight one shortcoming of that literature, at least as it has developed to date. While that literature has had a good deal to say about some decisions that contracting parties must make—for example, the decision to perform or breach, or the decision about how heavily to rely on a contract—it has had little or nothing to say about other decisions, including decisions about precautions that might reduce the likelihood of an accidental breach. In this respect, the recent economic literature has been (if anything) too single-minded in its commitment to one particular mathematical model.

I begin, though, with a discussion of the similarities between the newer literature and the older law-and-economics analysis.³ Section I

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¹ RESTATEMENT (SECOND) OF CONTRACTS ch. 16, introductory note (1981).

² For an early discussion, see Richard A. Posner & Andrew M. Rosenfield, *Impossibility and Related Doctrines in Contract Law: An Economic Analysis*, 6 J. LEGAL STUD. 83 (1977).

³ For convenience, and for want of a better label, I will use the phrase “law-and-economics analysis” to refer to the older literature that predates the newer “incomplete contracts” literature. The label is misleading, since the newer “incomplete contracts” literature could also be described (quite literally) as a form of “law-and-economics” analysis. My only defense is that I have not been able to come up with a better label for the older literature and, in

points out that, despite its perhaps unfortunate label, the newer literature does not depend, in any interesting way, on the fact that contracts are “incomplete.” Instead, the more important features of the newer literature are its assumption that courts are unable to evaluate key factual claims (discussed in Section II below), and its assumption that the parties are almost always in a position to renegotiate their contracts after new information comes to light (discussed in Section III). These assumptions allow the newer literature to say important things about two incentives of interest: the incentive of one party to perform or to breach the contract, and the incentive of the other party to rely on the first party’s possible performance. But the newer literature has so far ignored the incentive of either party to take precautions, as I discuss in Section IV.

I. DEFINING THE PROBLEM

It is unfortunate that the newer literature has acquired the label “incomplete contracts.” That label suggests a distinction: if some contracts are *incomplete* then other contracts, presumably, must be *complete*. And to many legal readers, that distinction will naturally suggest a difference in how the legal system might treat these two kinds of contracts. That is, the term “incomplete” suggests that a contract has gaps in its terms, which will leave its content undefined unless the law supplements it with some gap-filling rule, such as a default rule or a maxim of interpretation. By contrast, a “complete” contract would not seem to need any such supplemental legal rules, as a truly complete contract could always be enforced according to its (complete) terms.⁴

Indeed, this understanding of the distinction between complete and incomplete contracts might well be useful for other purposes—for example, in evaluating rules of contract interpretation—that do not concern me here.⁵ Whatever the merits of that distinction for other purposes, it is simply irrelevant to understanding the economic literature that goes under the name “incomplete contracts.” Despite what that label might suggest, this literature does not posit any distinction

any event, nothing of substance should turn on these labels.

⁴ See, e.g., Juliet P. Kostritsky, *Taxonomy for Justifying Legal Intervention in an Imperfect World: What To Do When Parties Have Not Achieved Bargains or Have Drafted Incomplete Contracts*, 2004 WIS. L. REV. 323 (2004).

⁵ For a recent economic article on contract interpretation, which adopts a distinction very similar to the one just described, see Steven Shavell, *On the Writing and the Interpretation of Contracts*, J. LAW ECON. & ORG. (forthcoming).

between contracts that are complete and contracts that are incomplete. Instead, this literature begins by *assuming* that contracts are incomplete (in a sense to be made clear below), and proceeds to ask how the parties' incentives might be optimized by the careful design of *other* legal rules: not rules governing the interpretation of contracts, but rules defining the measure of damages (for example), or rules governing the process of renegotiation. In other words, as I explain below, this newer economic literature takes as its task the design of efficient legal *alternatives* that do not require completely specified contracts.

To demonstrate this point, it will help to be (slightly) more concrete. Consider two parties, *S* and *B*, who sign a contract under which *S* is to deliver a good to *B* at some future time. To make the contract interesting, suppose that there is some uncertainty about what the future will hold. For instance, suppose *S* is not certain that she will be able to produce the good at all, or is unsure how much it will cost to do so.⁶ But suppose that *B* is unwilling to wait for that uncertainty to be resolved. Instead, *B* wants *S* to agree to a contract now, so that he (*B*) can make plans that rely on the good's timely delivery.

From the standpoint of efficiency, there are many things we might want a contract (or a body of contract law) to accomplish, even in this relatively simple example. If there is uncertainty about the cost of producing the good, we might want *S* *not* to produce in some circumstances, if it turns out that the cost of production far exceeds whatever the good is worth to *B*. This is the so-called efficient breach question: is it more efficient for *S* to perform (i.e., to produce and deliver the good), or is it more efficient to breach?⁷ But however this question is answered, an efficient set of rules would also give both parties an incentive to make all earlier decisions in an efficient manner. For example, if *B* chooses whether and how heavily to rely on the promised delivery, we might want *B* to rely only to the extent that it is efficient to do so, taking account of the potential benefits and the potential costs of greater or lesser reliance.⁸ And if *S* has any control over her costs of production, we might want her to take efficient precautions against any risks that would unduly increase her costs—taking

⁶ For convenience in the use of pronouns, all of my examples will assume a female seller and a male buyer.

⁷ The earliest nontechnical analyses are Robert L. Birmingham, *Breach of Contract, Damage Measures, and Economic Efficiency*, 24 RUTGERS L. REV. 273 (1970); John H. Barton, *The Economic Basis of Damages for Breach of Contract*, 1 J. LEGAL STUD. 277 (1972). The first mathematical analysis is Steven Shavell, *Damage Measures for Breach of Contract*, 11 BELL J. ECON. 466 (1980).

⁸ The earliest mathematical analyses of this issue were Shavell, *supra* note 7; William P. Rogerson, *Efficient Reliance and Damage Measures for Breach of Contract*, 15 RAND J. ECON. 39 (1984).

account, of course, of both the cost of those precautions and their potential value in increasing the likelihood of successful delivery to *B*.

Viewed from this standpoint, a “complete” contract might be defined as one that specified exactly what *S* and *B* should do, in order to achieve maximal efficiency, in every possible state of the world. For example, such a contract would specify the exact conditions under which *S* would have to deliver the good to *B*, as well as the exact conditions under which she would be excused from delivery. A complete contract (in this sense) would also specify the exact steps that *B* would be allowed to take in reliance on the promised delivery—or, perhaps, a range of different steps that *B* could take in different circumstances, depending on just how likely delivery appeared to be at any given time. The contract would also specify the exact precautions that *S* was required to take—or, again, it might specify different precautions in different circumstances, depending on various circumstances that might affect either the cost or the value of particular precautions.

There are, however, several reasons why no real contract will ever be this complete.⁹ Some of the reasons are obvious ones having to do with transaction costs. The world is a complicated place; drafting contract terms takes time and effort; and if the contract is to have a real-world effect, at some point the parties will have to stop refining the language of their contract and begin their actual performance. Indeed, in many cases there are an *infinite* number of possible states of the world, so no contract could possibly be complete in the sense of listing every possible contingency.

Less obviously, perhaps, the completeness (in this sense) of any real contract will also depend on the rules of interpretation that are applied.¹⁰ For example, a contract that says *S* will deliver 100 widgets on July 1 could be considered “complete” (in the sense of not leaving any gaps) if it is interpreted to mean that the seller must deliver those widgets on July 1 *regardless of anything else that might happen*. But this contract could also be described as “incomplete” if it is instead interpreted as not saying anything one way or the other about what happens if (for example) the closure of the Suez Canal prevents the seller from delivering the widgets on time. Under that interpretation, the contract leaves a “gap” by failing to specify a result in those future states of the world in which the Suez Canal is closed. Thus, if

⁹ For a recent survey of these reasons, see Kostritsky, *supra* note 4.

¹⁰ As a number of authors have observed, for example, Alan Schwartz, *Relational Contracts in the Courts: An Analysis of Incomplete Agreements and Judicial Strategies*, 21 J. LEGAL STUD. 271, 272-73 (1992).

incompleteness is defined by whether the contract leaves gaps, we cannot even classify a contract as “complete” or as “incomplete” without first choosing between the various competing interpretations.¹¹

As noted earlier, though, the economics literature that bears the label “incomplete contracts” is not really concerned with distinguishing between contracts that are complete or incomplete in the sense described above. Instead, this literature is concerned with a narrower and more specific problem: the problem of designing a set of rules, to be adopted either by contract or by the legal system itself, that can simultaneously optimize both parties’ incentives in a world subject to two important limitations: (a) courts are imperfect decision-makers, and (b) parties can always renegotiate their contracts. As each limitation is central to the “incomplete contracts” literature, I will address them separately.

II. IMPERFECT COURTS

Return to my example of a contract between *S* and *B*, entered into at a time when there was some uncertainty about *S*’s future cost of production. Suppose now that, if all the relevant incentives were taken into account, it would be efficient to grant *S* an excuse whenever her costs increased by more than 127 percent. If courts were able to measure *S*’s costs with no risk of error, achieving the ideal result would simply be a matter of granting an excuse whenever her costs in fact went up by more than 127 percent.

In practice, though, courts may not always be in a good position to measure *S*’s costs, especially if some of those costs involve hard-to-quantify variables. More generally, there are many other things that courts also may be poor at measuring. In some cases, the most efficient outcomes may depend on factors that are completely unobservable (for instance, the efficiency of completing a consumer transaction may depend on whether the consumer’s *tastes* have changed in some unobservable way). In other cases, the efficient outcome may depend on factors that are observable to the contracting parties, but that cannot be proved to the satisfaction of a reviewing court (for ex-

¹¹ In this respect, Kostritsky unduly limits her focus when she distinguishes (1) judicial decisions that fill the gaps of an incomplete contract, which she refers to as judicial “interventions” that require justification, from (2) judicial decisions that merely “giv[e] the express terms their ordinary meaning,” which she treats as unproblematic. Kostritsky, *supra* note 4, at 324 n.3. Giving terms their “ordinary meaning” is, of course, *one* way to resolve the question as to how those terms should be interpreted—but that particular solution requires justification just as much as any other.

ample, the seller's costs may include opportunity costs that a court would find hard to evaluate). In the newer literature on incomplete contracts, these two difficulties are often referred to (respectively) as involving information that is either *unobservable* or *nonverifiable*.¹²

As is probably obvious, these judicial imperfections complicate the task of designing an efficient legal regime. After all, if courts could perfectly evaluate the efficiency of any private action, it would then be trivially easy to design a legal regime that optimized every incentive. For instance, we could create incentives to choose an efficient level of reliance by adopting a rule that favored any party who relied efficiently, and/or a rule that penalized any party who relied inefficiently.¹³ Similarly, we could encourage efficient breaches (and discourage inefficient breaches) by penalizing breachers if, but only if, a court decided that their breach was inefficient. In this respect, a hypothetical perfect court system—that is, a system capable of costlessly and perfectly determining the efficient action in every possible state of the world is the *ex post* equivalent of a perfectly complete contract, in which the parties themselves are capable of costlessly and perfectly specifying the efficient action in every possible state of the world. Either of these systems, if they actually existed, would allow us to achieve the first-best efficient results.

As noted earlier, though, it is not very realistic to expect our court system to be perfect. In particular, the recent literature on incomplete contracts generally assumes that the efficiency of key decisions *cannot* be evaluated perfectly by courts. After all, evaluations of efficiency generally depend on comparing various costs and benefits. If some of those costs or benefits are either unobservable or nonverifiable, that bodes ill for any legal regime that expects the courts to evaluate the efficiency of private actions.

As a consequence, the legal regimes that are analyzed in the incomplete contracts literature are usually those that do not directly reward or penalize a party based on the efficiency or inefficiency of her decisions. Instead, that literature assumes these first-best regimes to be infeasible, so it seeks to identify regimes that can create good incentives without requiring courts to evaluate the efficiency of any actual decision of the parties. In this respect, the literature on incom-

¹² For a further discussion of these terms see, for example, Schwartz, *supra* note 10, at 279-80. Of course, if the parties are aware that certain variables are hard for courts to measure, they are unlikely to write a contract that depends on those variables, which is yet another reason why truly "complete" contracts are rarely if ever observed. For a more extensive discussion of this point, see Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 *YALE L.J.* 541 (2003).

¹³ For an early discussion of such a rule, see Charles J. Goetz & Robert E. Scott, *Enforcing Promises: An Examination of the Basis of Contract*, 89 *YALE L.J.* 1261, 1280 (1980).

plete contracts might just as accurately be referred to as the literature on “incomplete courts.”

It is worth mentioning, though, that similar assumptions have often been present (though not always explicitly) in more traditional law-and-economics analyses. Consider, for example, the early analyses of the problem of efficient breach. In many circumstances, the expected value of a relationship can be maximized if one party does *not* carry out her promise if something happens to make performance of that promise inefficient. Creating just the right incentives to breach is not easy, though, for the value of the parties’ relationship is also maximized if the party *does* carry out her promise whenever it is still efficient to perform. In principle, one way to give the performing party both of these incentives—that is, to perform when performance is efficient, and to breach when breach is efficient—would be to adopt the equivalent of a negligence rule, which holds the breaching party liable if (but only if) a court found that her breach was inefficient. Indeed, if courts could perfectly evaluate the efficiency of a party’s breach (perhaps using something like the Learned Hand formula from negligence cases¹⁴), such a rule would create exactly the right performance incentives.

Significantly, though, the earliest analyses of efficient breach rarely even considered the possibility of a rule that required courts to evaluate the efficiency of the breach.¹⁵ Instead, the early analyses pointed out that optimal breach incentives could also be created by using a particular damage measure—specifically, a measure that captured all of the harms inflicted by the breach—and by applying that measure to all cases, regardless of whether or not the breach was efficient. In effect, the earliest analysts were recommending an approach that corresponded more to strict liability than to negligence—and an approach that would be efficient for the same reasons that strict liability is sometimes efficient. That is, if courts could calculate the appropriate damage measure, this would force breachers to internalize all of the costs of their breaches, thus, deterring them from any breaches whose costs outweigh their benefits. At the same time, this regime would still leave breachers with an affirmative incentive to breach in any case where the benefits of breach outweigh its costs (i.e., in any case where breach would be efficient). Implicitly, then, the early analyses assumed that courts

¹⁴ *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947) (Hand, J.).

¹⁵ Shavell briefly considered the possibility that the parties themselves could specify the exact conditions under which breach would be efficient, but assumed (for purposes of his analysis) that neither the courts nor the parties would be able to implement such an approach. Shavell, *supra* note 7, at 468-69.

could *not* evaluate whether the breach itself was efficient, but that courts *could* measure all of the damages that the breach inflicted.¹⁶ The failure of earlier law-and-economics scholars to consider the possibility of a “negligence” rule for efficient breaches is particularly striking in light of the fact that, in the contemporaneous economic analysis of tort law, the choice between strict liability and negligence was one of the most frequently analyzed issues.¹⁷

In short, assumptions about the limits of the court system have been a hallmark of all economic analyses, not just the most recent literature on “incomplete contracts.” To be sure, the assumption that courts cannot evaluate the efficiency of a particular action *at all* will sometimes be too extreme. In many cases, courts may be able to evaluate particular actions *imperfectly* (which is to say, with some risk of error), and sometimes even an imperfect evaluation will be enough to alter the parties’ incentives.¹⁸ As this possibility is being discussed elsewhere, I will not dwell on it here.¹⁹

III. EX POST RENEGOTIATION

Instead, I turn now to another important aspect of the “incomplete contracts” literature. That literature usually takes it as given that the parties are capable of renegotiating their contract at any time. The possibility of renegotiation makes it easier for a legal regime to give parties the right incentives to make an efficient choice between performance and breach. At the same time, though, the possibility of renegotiation makes it significantly harder for a legal regime to give parties the right incentives to make various other choices efficiently.

A. *Efficient Performance or Breach*

Consider again the hypothetical contract between *S* and *B*, entered into at a time when *S* is still unsure what her costs of production will turn out to be. The “efficient breach” argument discussed earlier

¹⁶ For a subsequent discussion emphasizing this aspect of the “efficient breach” analysis, see Robert Cooter, *Prices and Sanctions*, 84 COLUM. L. REV. 1523, 1544-47 (1984).

¹⁷ See, e.g., John Prather Brown, *Toward an Economic Theory of Liability*, 2 J. LEGAL STUD. 323 (1973).

¹⁸ For an early model of this possibility, see Gillian K. Hadfield, *Judicial Competence and the Interpretation of Incomplete Contracts*, 23 J. LEGAL STUD. 159 (1994). See also Richard Craswell, *Offer, Acceptance, and Efficient Reliance*, 48 STAN. L. REV. 481, 501-03 (1996); George G. Triantis, *The Efficiency of Vague Contract Terms: A Response to the Schwartz-Scott Theory of U.C.C. Article 2*, 62 LA. L. REV. 1065 (2002).

¹⁹ See Robert E. Scott & George E. Triantis, *Incomplete Contracts and the Theory of Contract Design*, 56 CASE W. RES. L. REV. 187 (2005).

implies that the most efficient outcome is for *S* to produce and deliver the product if, but only if, her cost of production and delivery turns out to be less than the value of the product to the buyer, *B*. As noted earlier, one way to give the seller the right incentive is to make her internalize (if she fails to deliver) the buyer's entire losses from nondelivery.

If the parties can renegotiate, though, the damage rule becomes much less important (insofar as this particular incentive is concerned), because—as the law-and-economics literature noted early on—renegotiation should create efficient incentives to perform or breach under virtually *any* damage rule.²⁰ For example, if the threat of a high damage remedy would otherwise deter the seller from breaching, even when it would no longer be efficient for the seller to perform, the seller should be able to avoid delivery by renegotiating and buying her way out of the contract, paying the buyer an amount that is less than her own cost of performance but exceeds the value the buyer would get from delivery. Indeed, many of the early criticisms of the “efficient breach” analysis rested on just this point: as long as renegotiation is possible, breach (or performance) should be efficient under *any* damage remedy.²¹

Nevertheless, while the efficient breach problem becomes easy to solve as long as the parties can renegotiate, there are other relevant incentives that are not so easy to optimize. In particular, the incentive that has received the most attention in the incomplete contracts literature is the incentive each party has to *rely* on a proposed transaction.

B. Efficient Reliance

The stylized example discussed earlier involved only one key variable: the amount it would cost *S* to perform. Suppose now that the buyer, *B*, can increase (or decrease) the value that performance will have for his business, by spending more (or less) in *reliance* on the contract.

For example, suppose that the contract calls for *S* to deliver a piece of complicated machinery to *B*, and suppose that *B* must decide whether to spend money customizing his existing equipment to work

²⁰ See, e.g., Charles J. Goetz & Robert E. Scott, *Liquidated Damages, Penalties and the Just Compensation Principle: Some Notes on an Enforcement Model and a Theory of Efficient Breach*, 77 COLUM. L. REV. 554 (1977). For a formal mathematical analysis, see Rogerson, *supra* note 8.

²¹ For a survey of the early law-and-economics literature on this point, see Richard Craswell, *Contract Remedies, Renegotiation, and the Theory of Efficient Breach*, 61 S. CAL. L. REV. 630, 633-40 (1988).

with the new machine. In particular, suppose that the value of the new machine will be greater if *B* does spend the money to customize his workplace—but suppose that if *S* fails to deliver the promised machine, most of these customization expenditures will be wasted. And finally, suppose, that *B* must decide whether to spend this money before he knows whether *S* will actually deliver the machine, because (as noted earlier) there is some uncertainty about whether *S*'s costs will be low enough to make it in her interest to perform.

This, in a nutshell, is the efficient reliance problem. If *B*'s customization expenses could all be recovered if *S* failed to deliver, or if they could then be converted to some other equally valuable use, the problem would become trivial, for in that case the expenditure would be riskless to *B*. But as long as there is some chance that the expenditure will be lost if *S* fails to deliver, or if there is some chance that not all of its value will be recovered, the expenditure then becomes risky.

In that case, the *efficient* level of reliance expenditure will depend on the various factors that affect the risk. Roughly speaking, the efficient level of reliance will be higher if the downside is relatively low (that is, as long as some or most of the expense can be recovered if the seller fails to deliver). A higher level of reliance will also be efficient when the upside is particularly high—for example, if spending the money to customize the workplace would *significantly* enhance the value of the new machine. Finally, the efficient level of reliance will also be higher if there is a high probability that the seller will, in fact, perform (for in that case, there is less risk that the reliance expenditure will be wasted). As we saw in the preceding Section, if renegotiation is possible then the seller should decide to perform whenever her cost of performing is less than the value the buyer would get from the machine. But if (as I have been assuming here) there is some uncertainty over just how much it will cost the seller to perform—and if the buyer must make his decision before that uncertainty has been resolved—then the efficient level of reliance must be defined relative to the *ex ante likelihood* that the seller will perform.

Of course, if the courts could themselves identify the efficient level of reliance, it would be easy to design a legal regime that would give the buyer the right incentives.²² But if we continue to assume that courts lack the information needed to identify efficient reliance—for example, if the value the buyer would get from performance is either unobservable or nonverifiable—it then becomes rather more difficult to design a legal regime that gives buyers their own incentive to rely efficiently. Indeed, this very question (how can buyers be

²² See discussion *supra* Section II.

given an incentive to rely efficiently?) has been the concern of much of the most recent work on incomplete contracts.

For example, the earlier literature had noted that, if the parties could somehow be blocked from renegotiating, any of several damage remedies might optimize the buyer's reliance incentives. In particular, as long as the measure of damages did not itself depend on the buyer's level of reliance, the buyer's reliance incentives might then be efficient.²³ Under such a regime, the buyer would bear all of the extra costs of any additional reliance expenditures, because any damages the buyer might collect would not increase (by hypothesis) to cover those extra expenditures. At the same time, the buyer would also reap all of the extra benefits from any additional expenditures (in the event that the seller decided to perform). And since the buyer would thus capture both the marginal costs and the marginal benefits of additional reliance expenditures, this meant that the buyer's reliance incentives would be optimal.

If renegotiation is possible, however, the buyer's reliance expenditures will almost always have some impact on the amount the buyer recovers if the seller fails to perform. Recall, for example, that if the seller's costs turn out to be higher than expected, the seller may have to buy her way out of the contract by offering the buyer enough money to buy her release.²⁴ However, a buyer who has relied heavily will lose a more valuable performance (more valuable precisely because of his additional reliance expenditures) if he agrees to release the seller from the contract. As a consequence, such a buyer will normally be able to demand a higher sum as the price of his release. This, in turn, means that such a buyer will no longer be bearing the full cost of his reliance expenditures, as some of that cost will (in some cases) be recoverable in the form of a higher payment from a defaulting seller. In short, when renegotiation is possible, it is harder to design any simple regime to optimize buyers' reliance incentives.²⁵

Building on this analysis, some of the incomplete contracts literature has tried to design solutions that make it harder (or impossible) for the parties to renegotiate.²⁶ Indeed, if the parties could make an

²³ Shavell proved this result for two particular damage rules that did not depend on the buyer's level of reliance: a rule of no liability at all (damages always equal to zero), and a rule allowing the buyer to recover only his purchase price ("restitution" damages, in Shavell's terminology). Shavell, *supra* note 7, at 480-87. For a less technical and more general analysis, which considers *all* damage measures that do not depend on the buyer's reliance—including, for example, stipulated damage clauses set at a constant amount—see Robert Cooter, *Unity in Tort, Contract, and Property: The Model of Precaution*, 73 CAL. L. REV. 1 (1985).

²⁴ See discussion *supra* Section III.A.

²⁵ For an early demonstration of this difficulty, see Rogerson, *supra* note 8.

²⁶ See, e.g., Matthias Dewatripont, *Commitment Through Renegotiation-Proof Contracts*

enforceable agreement in which they committed not to renegotiate, this might actually enhance the value of their relationship, if the gains from improving their reliance incentives exceeded whatever they gave up in flexibility by agreeing not to renegotiate.²⁷ Under current law, however, it is difficult if not impossible to make an agreement not to negotiate that cannot itself be renegotiated.²⁸

Other contributions to the incomplete contracts literature have pointed out that, if the buyer can capture all of the surplus in any renegotiation, the buyer's incentives may become optimal again, because the ability to capture all of the surplus means that the buyer will realize all the gains (as well as all the costs) of his reliance.²⁹ As a result, some analysts have tried to define legal regimes in which the buyer (or, more generally, the party choosing to rely) does, in fact, have all of the bargaining power, by setting up special institutions in which the buyer can make a "take it or leave it" offer.³⁰ In still other situations, the buyer's reliance incentives might be optimized by structuring the contract so that the buyer (not the seller) is the party most likely to breach in which case the damages could be based on the seller's expected profits rather than on the buyer's reliance expenses.³¹

As these branches of the incomplete contracts literature are already well developed, I will not pursue them here. Instead, the next Section

with *Third Parties*, 55 REV. ECON. STUD. 377 (1988). On the role of renegotiation generally in the incomplete contracts literature, see Oliver Hart & John Moore, *Incomplete Contracts and Renegotiation*, 56 ECONOMETRICA 755 (1988).

²⁷ Dewatripont, *supra* note 26. For a similar model, in which the parties to a contract might benefit by making it more costly for them to renegotiate later, see Alan Schwartz & Joel Watson, *Economic and Legal Aspects of Costly Recontracting* (Yale Law School, Law & Economics Working Paper No. 242, 2000), available at http://papers.ssrn.com/paper.taf?abstract_id=224444.

²⁸ For a useful discussion of this issue, see Christine Jolls, *Contracts as Bilateral Commitments: A New Perspective on Contract Modification*, 26 J. LEGAL STUD. 203 (1997).

²⁹ Rogerson, *supra* note 8; Georg Nöldeke & Klaus M. Schmidt, *Option Contracts and Renegotiation: A Solution to the Hold-Up Problem*, 26 RAND J. ECON. 163 (1995).

³⁰ E.g., Philippe Aghion, Mathias Dewatripont & Patrick Rey, *Renegotiation Design with Unverifiable Information*, 62 ECONOMETRICA 257 (1994); Hart & Moore, *supra* note 26; Eric Maskin & Jean Tirole, *Unforeseen Contingencies and Incomplete Contracts*, 66 REV. ECON. STUD. 83 (1999). Of course, these renegotiation mechanisms will not have the desired effect unless they themselves cannot be avoided by subsequent renegotiation.

³¹ E.g., Aaron S. Edlin, *Cadillac Contracts and Up-Front Payments: Efficient Investment Under Expectation Damages*, 12 J.L. ECON. & ORG. 98 (1996). Perhaps significantly, this latter approach suggests a possible justification for supra-compensatory stipulated damage clauses—a remedy that was difficult if not impossible to justify in the earlier law-and-economics analyses. Compare Aaron S. Edlin & Alan Schwartz, *Optimal Penalties in Contracts*, 78 CHI.-KENT L. REV. 33 (2003) (defending, at least as a matter of theory, supra-compensatory damage clauses), with Samuel A. Rea, Jr., *Efficiency Implications of Penalties and Liquidated Damages*, 13 J. LEGAL STUD. 147 (1984) (rejecting any efficiency justification for damage clauses that are known in advance to be supra-compensatory).

highlights another relevant incentive that has received much less attention in the modern economics literature. Putting it in terms of the stylized model sketched earlier, what if *S* has some control over the probability that her costs will (or will not) be low enough to make it in her interest to perform the contract? To put it in less formal language, what if the seller's ability to perform may be affected by the *precautions* that she takes?

IV. EFFICIENT PRECAUTIONS

In some cases, a party's ability to perform may be affected by the risk of events over which she has no control. In many cases, though, the performing party has a good deal of control over those risks, in that she can reduce their likelihood by taking appropriate precautions. The builder in *Jacob & Youngs v. Kent*,³² for example, might have reduced the likelihood of using the wrong brand of pipe if it had spent more time and effort monitoring its purchase of supplies. Similarly, a product manufacturer can usually reduce the frequency of defective products by spending greater amounts on quality control. In this Section, I will use "precaution" to refer to any costly step that reduces the probability of an event that would make it harder to perform under a contract.³³

The very earliest law-and-economics analyses had little to say about precautions, for they focused instead on a party's incentives to make a deliberate choice between performing and breaching.³⁴ To be sure, those analyses did posit some probability of an event that would make performance more difficult, such as an increase in the seller's costs (if the seller was the party whose incentives were being analyzed) or a reduction in the buyer's demand (when analyzing the buyer's incentives). In these early models, however, the event that made performance more difficult was treated as being completely beyond the control of either party. Instead, the focus of these models was on the choice either party might make *after* the bad event occurred: would the party have an incentive to perform the contract anyway, or would she have an incentive to breach?

It did not take long, though, for other analysts to explore the incentives for efficient precautions. For example, in a relatively early article, Lewis Kornhauser modeled the incentives of a manufacturer to spend money on quality control in order to reduce the probability of a

³² 129 N.E. 889 (N.Y. 1921).

³³ For a similar usage, see Cooter, *supra* note 23.

³⁴ See, e.g., Birmingham, *supra* note 7; Barton, *supra* note 7; Shavell, *supra* note 7.

defective product that would violate the manufacturer's warranty.³⁵ Kornhauser concluded that, under the assumptions of his model, the manufacturer would have an incentive to choose an efficient level of precautions if she were held liable (in the event of a defect) for all of the losses actually caused by the defect. This conclusion paralleled a familiar result in the economics of tort law, where strict liability can give potential tortfeasors an incentive to take efficient precautions against accidents as long as the tortfeasors are held liable for the full costs each accident imposes.³⁶ But it also paralleled (in a way) the results of the early analyses of efficient breach, where strict liability for all resulting losses can give potential breachers an incentive to breach when, but only when, breach would be more efficient.³⁷ In spite of these similarities, though, the analysis of precautions in contract law continued to receive less attention than did the analysis of deliberate decisions to perform or breach.³⁸

Perhaps for this reason, the early literature on incomplete contracts adopted the same focus on deliberate choices between performance and breach. As noted earlier, the typical "incomplete contracts" model posits some uncertainty about the seller's costs (or, in some models, uncertainty about the buyer's valuation) so that, depending on how the uncertainty is resolved, the seller (or buyer) may later be faced with a deliberate choice between performing or breaking the contract. In mathematical terms, the seller is assumed to know that there is a distribution of *possible* costs, each with an associated probability; and that at some point the seller's actual costs will be drawn from that distribution, just as if "nature" were spinning a roulette wheel or drawing a ball from an urn. However, the literature also typically assumes that the seller can do nothing to influence that draw—say, by spending more money on precautions that will reduce the odds of an outcome that will make the seller's costs high. Instead, in these models the seller passively waits to find out what her costs turn out to be, and only then does she make her key decision: the decision between performing the contract, or breaching and paying damages.

To be sure, the models of incomplete contracts usually do model at least one other decision, in which the other party to the contract

³⁵ Lewis A. Kornhauser, *Reliance, Reputation, and Breach of Contract*, 26 J.L. & ECON. 691 (1983).

³⁶ E.g., Steven Shavell, *Strict Liability Versus Negligence*, 9 J. LEGAL STUD. 1, 12-17 (1980).

³⁷ See *supra* text accompanying note 7.

³⁸ There are though, plenty of exceptions to this generalization, which are far too numerous to cite. Representative examples include Posner & Rosenfield, *supra* note 2; Cooter, *supra* note 16; and Craswell, *supra* note 21.

chooses a level of “investment.”³⁹ If the seller, for example, is the party whose costs may increase, the buyer may be modeled as choosing how much to invest in reliance on the contract, by spending money to increase the value that performance will have to him.⁴⁰ This sort of reliance investment has at least some similarities with what I am calling an investment in precautions, for one way to take precautions against injury from breach is to reduce the extent of one’s reliance on the contract.⁴¹

A. Precautions and Ex Post Renegotiation

There are, however, some important differences between reliance investments and other kinds of precautions. For one thing, some precautions involve contracts where ex post renegotiation is not likely to occur, because the precaution concerns an all-or-nothing risk. As noted earlier, if ex post renegotiation can be eliminated, it is then usually easier to optimize the incentives of the party who is choosing the investment.

That is, the real difficulty in optimizing precaution incentives comes (not surprisingly) when ex post renegotiation is possible. If renegotiation is impossible, a damage rule of full liability for the resulting losses is efficient because it requires the seller to internalize all of the benefits of precaution investments, as well as bear all the costs of those investments.⁴² If renegotiation is possible, however—say, if a fire in the seller’s factory makes widgets more expensive to produce, but not so expensive as to eliminate the possibility of trade entirely—the seller may then be able to renegotiate the price of performance (or the price of her release from the contract) in ways that leave the seller bearing less than the full costs of the accident or reaping less than the full benefits of her precautions.⁴³ In that case, a rule of full liability may no longer optimize the seller’s precaution incentives.⁴⁴

³⁹ Thus, Alan Schwartz and Robert Scott recently described the “canonical” contracting problem as one of “ensuring both efficient ex post trade and efficient ex ante investment.” By “ex post trade,” they refer to the efficient perform-or-breach decision, and by “ex ante investment,” they refer to efficient reliance. Schwartz & Scott, *supra* note 12, at 545 & n.4. Nowhere does the article even mention investments in precautions, as I use that term here.

⁴⁰ See discussion *supra* Section III.B.

⁴¹ Cooter, *supra* note 23, discusses this similarity.

⁴² Kornhauser, *supra* note 35. In Kornhauser’s model, ex post renegotiation was assumed to be impossible.

⁴³ The analogous point for reliance investments was discussed *supra* in the text accompanying note 25.

⁴⁴ For an early recognition of this point in the law-and-economics literature, see Varouj A. Aivazian, Michael J. Trebilcock, & Michael Penny, *The Law of Contract Modifications: The*

Significantly, though, some precautions involve risks that effectively eliminate the possibility of ex post renegotiation. Suppose, for example, that widgets carry some risk of spontaneously exploding. The seller may, of course, be able to reduce that risk by taking more care in her production process—but whether that risk materializes or not, in neither case is there likely to be any ex post renegotiation. (If the widget does not explode, there will be no reason for the parties to renegotiate their original contract; and if the widget does explode, there will be nothing left to negotiate over.) In this case, then, Kornhauser's conclusion remains valid: the seller's incentive to take precautions will be optimized by holding her liable for the full value of the product in the event that it explodes. Indeed, in this situation, damage measures that are too large might be counterproductive by inducing the seller to take too high a level of precautions.⁴⁵

B. Precautions as Cooperative Investments

A second difference between precaution investments and reliance investments—which is relevant if ex post renegotiation is possible—stems from the fact that most investments in precautions are chosen by one party, but their effect is to benefit the other party to the contract. In the terms used by the incomplete contracts literature, an investment in reliance is a *self*-investment (i.e., an investment whose benefits accrue to the investor himself) while an investment in precautions is a *cooperative* investment (i.e., an investment whose benefits accrue to the other party).⁴⁶ For example, if a seller decides to spend more money on quality control, the *buyer* is the party who potentially benefits from this expenditure, because the buyer's chance of receiving a nondefective (or nonexploding) product will thereby increase. By contrast, if the buyer invests more in reliance on a contract, the buyer himself will be the one who reaps the potential benefit from that expenditure.

The reason this matters is that, when ex post renegotiation is possible, it is much harder to create incentives for one party to choose an efficient level of a cooperative investment. With a self-investment, the investing party already reaps most of the benefits of the investment (as well as bearing all of its costs), so that party's incentives can

Uncertain Quest for a Bench Mark of Enforceability, 22 OSGOODE HALL L.J. 173 (1984).

⁴⁵ Compare the suggestion, discussed *supra* in note 31, that supra-compensatory damage measures might be used to create efficient incentives for a buyer's reliance investment.

⁴⁶ Yeon-Koo Che & Donald B. Hausch, *Cooperative Investments and the Value of Contracting*, 89 AM. ECON. REV. 125 (1999).

be optimized if she can somehow be allowed to capture the rest of her investment's benefits.⁴⁷ With a cooperative investment, though, the investing party typically captures none of the investment's benefits (while still bearing all of the investment's costs). This makes it more difficult to optimize the investing party's incentives.⁴⁸

V. CONCLUSION

In the early days of a scholarly literature, it is perfectly natural for scholars to focus on a particular subset of issues. No paper can analyze every issue at once, and a careful analysis of some issues may pave the way, in succeeding papers, to an equally careful analysis of others.

If one is drawing real-world implications from a body of scholarship, though, it is important to keep track of which issues have been analyzed and—perhaps even more important—which issues have not. The literature on incomplete contracts provides a useful reminder of this point, for (as I have argued here) that literature is far more advanced on some issues than it is on others. In particular, that literature is still at a very early stage in its analysis of parties' incentives to take efficient precautions.

Indeed, once one approaches the issue from this standpoint, one can think of any number of other issues that have yet to be analyzed. For example, the incomplete contracts literature generally takes the parties' information about the relative risks and probabilities as given—yet one effect of contract law and contracts is to alter the parties' incentives to gather information in the first place.⁴⁹ The incomplete contracts literature also typically treats the identity of the contracting parties as given—but contract law can also affect the parties' incentives to select or search for the parties with whom they contract.⁵⁰

⁴⁷ See *supra* text accompanying note 30.

⁴⁸ As demonstrated by Che & Hausch, *supra* note 46. For a slightly less technical discussion, see Edlin & Schwartz, *supra* note 31, at 49-52.

⁴⁹ For discussions of this incentive see, for example, Anthony T. Kronman, *Mistake, Disclosure, Information, and the Law of Contracts*, 7 J. LEGAL STUD. 1 (1978); Richard Craswell, *Precontractual Investigation as an Optimal Precaution Problem*, 17 J. LEGAL STUD. 401 (1988).

⁵⁰ For some (highly technical) analyses of this issue, see Peter A. Diamond & Eric Maskin, *An Equilibrium Analysis of Search and Breach of Contract, I: Steady States*, 10 BELL J. ECON. 282 (1979); P.A. Diamond & Eric Maskin, *An Equilibrium Analysis of Search and Breach of Contract II: A Non-Steady State Example*, 25 J. ECON. THEORY 165 (1981). For a more recent example drawing on the incomplete contracts literature (and considering yet another form of "cooperative" investment), see Harold L. Cole, George J. Mailath & Andrew Postlewaite, *Efficient Non-Contractible Investments*, Federal Reserve Bank of Minneapolis Research Department Staff Report #253 (Aug. 1998), available at <http://research.mpls.frb>.

In short, contracts and contract law affect many choices along many different margins, and it is important not to lose sight of those choices that have not yet been thoroughly analyzed. To be sure, this may make the resulting analysis even more complex than it already is. But the world is, in fact, a complex place, and—to some of us, at any rate—that's part of what makes it so interesting.