ISSN 1045-6333

CONTRACTS AS BILATERAL COMMITMENTS: A NEW CONCERN ABOUT CONTRACT MODIFICATION

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Discussion Paper No. 128

6/93
(Revised 10/93)

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The Program in Law and Economics is supported by a grant from the John M. Olin Foundation.

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Draft of October 20, 1993

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ABSTRACT

Contracts traditionally have been regarded as means by which individuals may commit themselves to specified courses of conduct. However, contracts are not means by which the parties *collectively* may achieve such commitment: contract law permits parties to modify contractual terms by mutual agreement. This Article exposes the problems with that failure to see contracts as devices for bilateral as well as individual commitment. It explains that commitment to stick with an original contract, even if both parties later want to modify that contract, may improve contractors' welfare. It identifies specific types of contracting relationships in which such bilateral commitment to an original contract may enhance welfare and then describes reported cases and other empirical evidence that suggest the practical significance of these relationships. Based on the analysis, the Article offers recommendations for the legal rules governing contract modification. The primary recommendation, which appears to be consistent with noninstrumental as well as instrumental theories of contract, is that courts alter the practice of refusing to enforce contractual terms constraining modification.

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CONTENTS

INTRODUCTION

A contract traditionally has been regarded as a means by which an individual may commit herself to a specified course of conduct.[1] However, a contract is not a means by which the parties *collectively* may achieve such commitment: contract law permits parties to modify contractual terms by mutual agreement. Contracts are individual commitments, courts seem to say, but nothing more: each party's commitment is only as strong as her contracting partner's desire to hold her to her original promise.

This paper offers a broader vision of contracts, viewing them as potential bilateral commitments as well as individual commitments. It explains that commitment to stick with an original contract, even if both parties later want to modify that contract, may improve contractors' welfare. It provides examples from contracts cases of situations in which such bilateral commitment can be expected to be beneficial. Based on the analysis, it identifies ways in which contract law might better facilitate bilateral commitment among contractors. The paper adopts the normative perspective of welfare maximization at the outset[2] but addresses additional normative considerations in its final Part.

The prerogative of contractors to modify their original contract by mutual agreement is an article of faith for contract law. As between two competing expressions of consent -- the original contract and the modification -- the latter is chosen.[3] "Those who make a contract, may unmake it."[4] Courts and commentators have viewed only potentially coerced modifications as appropriate subjects of legal censure and have never questioned the basic premise that voluntary modifications always should be given effect.[5]

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1 *See, e.g.*, CHARLES FRIED, CONTRACT AS PROMISE 13 (1981).

2 More specifically, the paper (until Part VI) adopts the perspective that desirable contract law rules are ones that maximize contractors' welfare, measured by the sum of their utilities.

3 *See, e.g.*, PLC Landscape Constr. v. Piccadilly Fish & Chips, Inc., 502 P.2d 562, 563 (Utah 1972).

4 Beatty v. Guggenheim Exploration Co., 122 N.E. 378, 387-88 (N.Y. 1919) (opinion of Cardozo, J.).

5 *See* sources cited *infra* note 27. For example, two contributors to a recent law-and-economics symposium on contracts write: "[I]f the parties to a contract should subsequently wish to modify it due to some change in economic circumstances . . . or simply a change of mind, then modifications freely entered into by both parties should yield [a] Pareto improvement and should be enforceable." Daniel A. Graham & Ellen E. Peirce, *Contract Modification: An Economic Analysis of the Hold-Up Game*, 52 LAW & CONTEMP. PROBS. 9, 9 (1989).

This paper reexamines that basic premise. It explains that the ability to enter into modifications that are mutually beneficial to parties at the time of modification -- "ex post profitable modifications" -- may reduce the parties' overall welfare in the presence of such common economic phenomena as moral hazard and adverse selection. In these and other situations, the ability to modify may reduce the parties' welfare because *anticipation* of the modification opportunity by rational parties may interfere with these parties' ability to create desirable incentives. Anticipation of the modification opportunity means that incentives no longer will be determined by the original contract, and, as explained below, this may make it more difficult to structure incentives properly.[6]

A very important category of contracting relationships in which ex post profitable modification opportunities may reduce contractors' welfare consists of what economists call "principal-agent" relationships (not to be confused with legal relationships of agency).[7] Ex post profitable modification opportunities also may reduce contractors' welfare in other contracting relationships discussed below -- in particular, in relationships in which contracting is motivated by strategic considerations and relationships in which, unlike in the standard economic framework, contractors have changing preferences. Furthermore, as detailed below, patterns of

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[6] The welfare effects of opportunities for ex post profitable modification have been the subject of a number of recent publications in the economics literature. *See* JEAN-JACQUES LAFFONT & JEAN TIROLE, A THEORY OF INCENTIVES IN REGULATION AND PROCUREMENT (forthcoming 1993) [hereinafter INCENTIVES IN REGULATION AND PROCUREMENT]; Mathias Dewatripont, *Renegotiation and Information Revelation Over Time: The Case of Optimal Labor Contracts*, 104 Q. J. ECON. 589 (1989) [hereinafter *Renegotiation and Information Revelation*]; Mathias Dewatripont, *Commitment Through Renegotiation-Proof Contracts with Third Parties*, 55 REV. ECON. STUD. 377 (1988) [hereinafter *Commitment Through Contracts*]; Drew Fudenberg & Jean Tirole, *Moral Hazard and Renegotiation in Agency Contracts*, 58 ECONOMETRICA 1279 (1990); Oliver Hart & John Moore, *Incomplete Contracts and Renegotiation*, 56 ECONOMETRICA 755 (1988); Oliver Hart & Jean Tirole, *Contract Renegotiation and Coasian Dynamics*, 55 REV. ECON. STUD. 509 (1988); Jean-Jacques Laffont & Jean Tirole, *Adverse Selection and Renegotiation in Procurement*, 57 REV. ECON. STUD. 597 (1990) [hereinafter *Adverse Selection and Renegotiation]*.

Ex post profitable modification opportunities are not the only types of contracting opportunities that may interfere with incentives under the parties' original contract. Opportunities for side-contracting between one of the parties and an outsider, or among proper subsets of the set of parties to the original contract, also may alter incentives. *See generally* Christine M. Jolls, Side-Contracting in Economic Relationships: Legal Solutions (Discussion Paper No. 129, Program in Law and Economics, Harvard Law School). For examples, see *infra* notes 130 and 179.

[7] The economists' principal-agent relationship is described below. *See infra* text accompanying note 45. The agent in the economists' principal-agent relationship may or may not be an agent of the principal in the legal sense.

contracting revealed by contracts cases and other empirical evidence (such as evidence on compensation of corporate executives) can be explained by reference to the modification problem with which this paper is concerned.

Both theory and practice, then, point to a concern about contract modification apart from the standard concern about coerced modification: the opportunity for ex post profitable modification may reduce contractors' welfare. Contrary to the traditional wisdom, in some settings parties may be better off if the law enables them to tie their hands, or ties their hands for them, in a way that prevents them from taking advantage of ex post profitable modification opportunities (or, at least, certain of these opportunities).[8] The implication, from the normative perspective of welfare maximization, is that a contract should be viewed as a potential bilateral commitment as well as an individual commitment.

However, the existing legal rules governing contract modification had their genesis in the traditional concern about coercion and make no conscious attempt to address the new concern about ex post profitable modification. This paper reexamines the legal treatment of contract modification in light of that new concern and suggests ways in which contract law might respond. The governance of contract modification is a matter of considerable importance, as modification is extremely common in practice.[9]

One way in which contract law might respond to the concern about ex post profitable modification is by enforcing contractual terms designed to limit parties' ability to modify their agreement once their relationship is underway. As explained below, such terms are not

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[8] The hands-tying to which I refer here differs from the sort of hands-tying discussed by Professors Henry Hansmann and Reinier Kraakman in a recent article. *See* Henry Hansmann & Reinier Kraakman, *Hands-Tying Contracts: Book Publishing, Venture Capital Financing, and Secured Debt,* 8 J. L. ECON. & ORGANIZATION 628 (1992). That article explains that contracts that commit a party to invest, even if information that later comes to light reveals that investment is unprofitable for the party, may improve the contractors' joint welfare. Such contracts "tie the hands" *of the investing party.* In contrast, my paper is concerned with contracts that tie the hands *of both parties,* in the sense of constraining their ability to modify their contract. As noted in the text, this sort of hands-tying, like the hands-tying with which the article by Professors Hansmann and Kraakman is concerned, may improve the contractors' joint welfare.

[9] *See, e.g.,* Robert A. Hillman, *Contract Modification Under the* Restatement (Second) of Contracts, 67 CORNELL L. REV. 680, 681 & n.10 (1982).

enforceable under current law. However, enforcement of them would allow contractors whose welfare would be enhanced by tying their hands to do so. Meanwhile, enforcement of the terms would seem not to be objectionable, at least a priori, from noninstrumental perspectives. More subtly, though, there is a very real question about whether such terms, even if legally enforceable, would actually enable contractors to achieve bilateral commitment to an original contract. For if modification is ex post profitable, will contractors ever bring such terms to courts' attention? As explained below, it is plausible that they will wish to do so in certain settings, but enforcement by contractors is not assured.

Enforcement of contractual terms constraining modification, as just outlined, involves allowing parties to design their own modification rules. Other ways in which contract law might respond to the concern about ex post profitable modification involve the "default rules" specified by the law itself.[10] As explained below, one potential response in this category is subjecting all contract modifications to the requirement of section 89(a) of the *Restatement (Second) of Contracts* that a modification be in response to an unanticipated change in circumstances.[11] Another potential response is judicial caution in enforcing modifications on the basis of reliance[12] in types of situations in which bilateral commitment may enhance contractors' welfare. Once again, the question arises whether contractors will wish to bring the unenforceability of an ex post profitable modification to courts' attention. As before, action by contractors is plausible but not assured.

Part I below describes how and why the law traditionally has policed contract modification. Part II makes the basic case for a reconsideration of modification doctrine. It identifies contracting relationships in which opportunities for ex post profitable modification may reduce contractors' welfare and discusses contracts cases and other empirical evidence

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[10] Dean Robert Clark usefully analogizes default rules in law to those in computer programs: default rules are rules that govern in the absence of any valid instruction to the contrary. *See* Robert C. Clark, *Contracts, Elites, and Traditions in the Making of Corporate Law*, 89 COLUM. L. REV. 1703, 1706 n.11 (1989).

[11] *See* RESTATEMENT (SECOND) OF CONTRACTS § 89(a) (1979).

[12] *See, e.g., id.* § 89(c) ("[A modification is binding] to the extent that justice requires enforcement in view of material change of position in reliance on the promise.").

that illustrate the point. Part III identifies and assesses various ways in which contract law might respond to the concern identified by Part II. Part IV explains that bilateral commitment to an original contract may enhance welfare in a further category of contracting relationships, those in which contractors have changing preferences. Part V examines alternatives to legal rules as means of achieving bilateral commitment and explains that these alternatives leave important gaps in parties' ability to commit and would be importantly complemented by legal counterparts. Finally, Part VI discusses how noninstrumental considerations bear on the paper's analysis and conclusions.[13]

I. How and Why the Law Polices Contract Modification

This Part describes the legal rules governing contract modification and the traditional rationales for these rules. Section A focuses on the case in which the contractors make no attempt to design their own modification rules, so that contract law's default rules apply. Section B examines whether modification rules designed by the contractors themselves are enforced by courts.

A. *Default Rules.*

This section describes how (sub-section 1) and why (sub-section 2) contract law's default rules police contract modification. In this section and the next, "non-sales contracts" are contracts that fall without the scope of Article 2 of the U.C.C.[14]

[13] The paper uses the term "bilateral commitment," though a contract may involve more than two parties, simply because the vast majority of contracts involve only two parties. The paper's analysis and conclusions apply equally to contracting relationships involving more than two parties.

[14] "Transactions in goods" are governed by the provisions of Article 2 of the U.C.C. *See* U.C.C. § 2-102 (1987). "Goods" means "all things (including specially manufactured goods) which are movable . . . ." *Id.* § 2-105(1). Non-sales contracts (in the sense defined in the text) are governed by state common law (and, where applicable, statutory law). This paper focuses on the *Restatement (Second) of Contracts* as the source of law for such contracts.

1. *Limits on Contract Modification.*

a. ***Non-Sales Contracts.*** Under the *Restatement (Second) of Contracts*, a modification of a contract lacks consideration if one party promises merely to perform a duty that is already owed to the other party.[15] Ordinarily, agreements lacking consideration are unenforceable.[16] Thus, the general rule under the *Restatement (Second) of Contracts*, which mirrors the common law preexisting duty rule, is that a modification under which one party promises nothing new is unenforceable.[17]

The *Restatement (Second) of Contracts* supplements its general rule with provisions that address the widely-recognized infirmities of the preexisting duty rule. To begin, avoiding application of the preexisting duty rule is a simple matter: a token change in the performance promised by the party seeking modification is enough to take the case out of the rule.[18] The *Restatement (Second) of Contracts* prevents this result by specifying that a modification lacks consideration, not only when the promised performance is a preexisting duty, but also when the promised performance differs from the performance already owed in a way that reflects only "a pretense of a bargain."[19]

A more important problem with the preexisting duty rule is that it denies enforcement to modifications that may well reflect desirable adjustments to changed circumstances.[20] The overinclusiveness of the preexisting duty rule in this regard has led courts applying the rule to adopt various legal fictions to validate otherwise unenforceable modifications.[21] The

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[15] RESTATEMENT (SECOND) OF CONTRACTS § 73 (1979).

[16] *See id.* § 17(1).

[17] For the classic statement of the preexisting duty rule, see Lingenfelder v. Wainwright Brewery Co., 15 S.W. 844 (Mo. 1891).

[18] *See* United States v. Stump Home Specialties Mfg., Inc., 905 F.2d 1117, 1122 (7th Cir. 1990); Wisconsin Knife Works v. Nat'l Metal Crafters, 781 F.2d 1280, 1285 (7th Cir. 1986); Charles J. Goetz & Robert E. Scott, *The Mitigation Principle: Toward a General Theory of Contractual Obligation*, 69 VA. L. REV. 967, 1007 n.106 (1983); Hillman, *supra* note 9, at 685.

[19] RESTATEMENT (SECOND) OF CONTRACTS § 73 (1979); Hillman, *supra* note 9, at 686.

[20] *See* RESTATEMENT (SECOND) OF CONTRACTS § 89 cmt. b (1979); Goetz & Scott, *supra* note 18, at 1007 n.6; Hillman, *supra* note 9, at 685.

[21] *See* Hillman, *supra* note 9, at 685-86. The most common tactic involves declaring that the original contract has been rescinded and a new contract agreed to. *Id.* at 685; *cf.* RESTATEMENT (FIRST) OF CONTRACTS § 406 cmt. a (1932) (stating that an agreement to rescind an executory contract is supported by consideration).

Restatement (Second) of Contracts limits the application of the preexisting duty rule by providing that a modification unsupported by consideration is enforceable as long as it is "fair and equitable in view of circumstances not anticipated by the parties when the contract was made."[22]

b. ***Sales Contracts.*** While the *Restatement (Second) of Contracts* retains the preexisting duty rule and relies on exceptions and refinements to avoid the problems associated with the rule, the U.C.C. dispenses completely with the requirement of consideration for modification of a contract.[23] The U.C.C. permits the parties to enforce any modification that satisfies the duty of good faith imposed by the U.C.C.[24] Like the *Restatement (Second) of Contracts*, the U.C.C. both rejects token consideration as a basis for enforcement of modifications[25] and seeks to ensure that parties can enforce modifications reflecting desirable adjustments to changed circumstances.[26]

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22 RESTATEMENT (SECOND) OF CONTRACTS § 89(a) (1979).

Several provisions of the *Restatement (Second) of Contracts* in addition to those mentioned in the text bear on the enforceability of contract modifications. First, sections 89(b) and 89(c) provide for enforcement of modifications unsupported by consideration where, respectively, a statute provides for enforcement and "justice requires enforcement in view of material change of position in reliance on the promise." *Id.* § 89(b), (c). Section 89(c) is revisited in Part III.C, which identifies potential problems with its application in types of situations in which bilateral commitment may be welfare-enhancing.

Provisions denying enforcement to contracts that result from duress also bear on the enforceability of contract modifications. Under these provisions, a modification (whether or nor supported by consideration) is voidable if assent to the modification was induced by "an improper threat by the other party that leaves the victim no reasonable alternative." *Id.* § 175(1). A threat to breach an existing contract is improper if it violates "the duty of good faith and fair dealing under a contract with the recipient." *Id.* § 176(1)(d). The comment accompanying this provision indicates that the standard for determining whether a violation of the duty of good faith and fair dealing has occurred coincides with the standard under section 2-209 of the U.C.C. *See id.* § 176 cmt. e (quoting at length from comment 2 to section 2-209 of the U.C.C.). Section 2-209 is discussed *infra* notes 23-26 and accompanying text.

23 "An agreement modifying a contract . . . needs no consideration to be binding." U.C.C. § 2-209(1) (1987).

24 *See id.* § 2-209 cmt. 2 (providing that modifications "must meet test of good faith imposed by [the U.C.C.]."). The U.C.C.'s good faith requirement is found in section 1-203. *See id.* § 1-203.

25 *See id.* § 2-209 cmt. 2 ("[A] mere technical consideration [cannot] support a modification made in bad faith.").

26 *See id.* (stating that the U.C.C.'s good faith test may be satisfied by a showing that the modification was motivated by "a market shift which makes performance come to involve a loss").

2. *Traditional Rationale for Limiting Modification.*

Courts' and commentators' exclusive concern about contract modification has been the prospect of coerced modification.[27] The concern is that a party may extract an agreement to modify by threatening to breach the existing contract if the agreement to modify is not forthcoming. Once a contracting relationship is underway, a party may be quite vulnerable to threats of breach: he may have limited outside options[28] and may be less than fully compensated by the legal remedies for breach.[29] The other party may be able to extract a favorable modification by exploiting this vulnerability: acceding to the modification may well be preferable for the vulnerable party to suffering the consequences of a breach.[30] This concern with coerced modification is clearly what motivated the drafters of the *Restatement (Second) of Contracts* and the U.C.C.[31]

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[27] *See* Alaska Packers Ass'n v. Domenico, 117 F. 99. 102 (9th Cir. 1902); Lingenfelder v. Wainwright Brewery Co., 15 S.W. 844, 848 (Mo. 1891); Angel v. Murray, 322 A.2d 630, 635 (R.I. 1974); RESTATEMENT (SECOND) OF CONTRACTS § 73 cmt. a (1979); *id.* § 89 cmt. b; U.C.C. § 2-209 cmt. 2 (1987); Varouj A. Aivazian et. al., *The Law of Contract Modifications: The Uncertain Quest for a Benchmark of Enforceability*, 22 OSGOOD HALL L.J. 173, 175 (1984); Goetz & Scott, *supra* note 18, at 1007 n.106; Graham & Peirce, *supra* note 5, at 9-10; Hillman, *supra* note 9, at 681 & n.6 (1982). For a recent statement, see United States v. Stump Home Specialties, Inc., 905 F.2d 1117, 1121-22 (7th Cir. 1990).

[28] *See Stump Home Specialties*, 905 F.2d at 1121; RESTATEMENT (SECOND) OF CONTRACTS § 175 illus. 5 (1979); Aivazian et. al., *supra* note 27, at 188-89; Goetz & Scott, *supra* note 18, at 1007 n.106.

[29] *See Stump Home Specialties*, 905 F.2d at 1122; RESTATEMENT (SECOND) OF CONTRACTS § 73 cmt. c (1979); Aivazian et. al., *supra* note 27, at 188-89.

[30] Judge Richard Posner puts the point well:

> [T]here is often an interval in the life of a contract during which one party is at the mercy of the other. A may have ordered a machine from B that A wants to place in operation on a given date [and] may have made commitments to his customers that it would be costly to renege on. As the date of scheduled delivery approaches, B may be tempted to demand that A agree to renegotiate the contract price, knowing that A will incur heavy expenses if B fails to deliver on time. A can always refuse to renegotiate, relying instead on his right to sue B for breach of contract if B fails to make delivery by the agreed date. But legal remedies are always costly and uncertain . . . .

Stump Home Specialties, 905 F.2d at 1121-22.

[31] *See* RESTATEMENT (SECOND) OF CONTRACTS § 73 cmt. a (1979) (stating that enforcement is denied to certain modifications "[b]ecause of the likelihood that the [modified] promise was obtained by an express or implied threat to withhold performance of a legal duty"); U.C.C. § 2-209 cmt. 2 (1987) (stating that the role of the duty of good faith is to foreclose "the extortion of a 'modification' without legitimate commercial reason").

Two important points about coerced modification appear to have been largely ignored in the literature. First, the threat to breach the existing contract if an agreement not to modify is not forthcoming must be *credible*. That is, the recipient of the threat must actually believe that the party making the threat would carry it through. Courts and commentators have, in the main, failed to address this point, although an exception is Graham & Peirce, *supra* note 5, at 23.

Coerced modification offends the normative prescription of welfare-maximization. The party who will be vulnerable to "hold-ups" by the other party down the road may refuse to enter into an otherwise profitable contracting relationship.[32] Alternatively, this party may go ahead with the transaction but protect herself against the prospect of threats of breach by inefficiently underinvesting in assets that are specific to the relationship.[33] Either way, the parties' welfare falls.

Because opportunities to extort modifications from contracting partners reduce contractors' welfare, the law's attempt to foreclose such opportunities can be understood as a species of a more general condemnation of welfare-reducing modification opportunities. From this perspective, the spirit of this paper's exploration of legal means of bilateral commitment to an original contract is completely akin to the spirit of the legal rules discussed just above: in both instances, the aim is to foreclose modification opportunities that reduce contractors' welfare.[34]

Second, because the recipient of the threat can be coerced only if his ability to turn elsewhere for performance is limited, situations in which there is a prospect of coerced modification are likely to overlap significantly with situations in which parties invest in what Professor Oliver Williamson has termed relationship-specific assets. *See generally* OLIVER WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM (1985) [hereinafter ECONOMIC INSTITUTIONS]; OLIVER WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS (1975) [hereinafter MARKETS AND HIERARCHIES]. Relationship-specific assets are assets (physical or human capital) that are more valuable when employed in a particular trading relationship than in any alternative use. *See* WILLIAMSON, ECONOMIC INSTITUTIONS, *supra*, at 30. The economics literature has emphasized the problems that *contractual incompleteness* poses in the presence of investment in relationship-specific assets: once a party has engaged in such investment, the party is extremely vulnerable to opportunistic behavior by the other party as to matters on which the parties' contract is silent. *See id.* at 21; Sanford J. Grossman & Oliver D. Hart, *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration,* 94 J. POL. ECON. 691, 692 (1986); Oliver Hart, *An Economist's Perspective on the Theory of the Firm,* 89 COLUM. L. REV. 1757, 1762-63, 1764 (1989). However, this literature on the implications of relationship-specific investing has ignored the distinct problem of coerced modification. This problem remains even when contracts are complete (cover all contingencies).

[32] "Hold-up game" was Professor Arthur Corbin's term for situations in which one party used the vulnerability of the other to extract a favorable contract modification. *See* 1A ARTHUR L. CORBIN, CORBIN ON CONTRACTS § 171 (1963).

[33] *See* Paul A. Grout, *Investment and Wages in the Absence of Binding Contracts: A Nash Bargaining Approach,* 52 ECONOMETRICA 449 (1984); *see generally* WILLIAMSON, ECONOMIC INSTITUTIONS, *supra* note 31; WILLIAMSON, MARKETS AND HIERARCHIES, *supra* note 31.

[34] Piecing together the case against coerced modification seems a bit more involved from normative perspectives other than that of welfare maximization. The leading types of noninstrumental theories of contract are autonomy-based theories and community standards-based theories. *See* FRIED, *supra* note 1, at 1-2, 5; David Charny, *Hypothetical Bargains: The Normative Structure of Contract*

B. *Contracting Around the Default Rules.*

Section A described the default rules governing contract modification and the traditional rationale for these rules. The present section is concerned with whether the parties can contract around the default rules. Specifically, the section examines whether contractual terms constraining modification are enforced by courts.

Interpretation, 89 MICH. L. REV. 1815, 1823-48 (1991); David Charny, *Nonlegal Sanctions in Commercial Relationships*, 104 HARV. L. REV. 375, at 380-390 (1990) [hereinafter *Nonlegal Sanctions*]. Under autonomy-based theories, a party should be held to an obligation only if the party assented to the obligation voluntarily. *See* FRIED, *supra* note 1, at 93. A party has not assented to an obligation voluntarily if she was compelled to consent by a "threat." *Id.* at 94. A threat (as distinguished from an "offer") is a proposition that worsens the recipient's position relative to the status quo, which in turn is defined in terms of "rights." *Id.* at 95-99. Thus, whether a party who assents to a modification in order to induce the other party not to breach his contractual obligations should be held to the modification turns on whether the first party has a "right" to the second party's performance of his contractual obligations. Does the first party have such a right? The answer would seem to be no under the rules of contract law, for, in general, the second party has the right to breach his duty to perform and be sued for damages. *Cf.* Swartz v. Lieberman, 80 N.E.2d 5 (Mass. 1948) (holding that there is valid consideration in a promisor's forbearance of the power to breach his original agreement and be sued in an action for damages). Is contract law the appropriate source of "rights" here? Unlike a person's right to her own "person, talent, and efforts," which Fried convincingly argues is rooted in moral theory ("liberal individualism, but other moral theories as well") and not merely convention, FRIED, *supra*, at 100, whether or not the first party has a right to the second party's performance of his contractual obligations seems difficult to trace to moral theory.

Under community standards-based theories, distributional considerations often play a leading role in determining contractual obligation. *See* ROBERTO M. UNGER, THE CRITICAL LEGAL STUDIES MOVEMENT 66-75 (1986); Duncan Kennedy, *Form and Substance in Private Law Adjudication*, 89 HARV. L. REV. 1685, 1717-22 (1976). Coerced modifications seem likely to be objectionable on the ground that they often benefit parties with superior bargaining power at the expense of those with inferior bargaining power. The reason that such modifications often benefit parties with superior bargaining power is that these modifications *always* favor the party with the superior *ex post* bargaining position, and the party with the superior ex post bargaining position often can be expected to be the party with superior bargaining power more generally.

For example, consider the contracting relationship between a large corporation that needs a certain input -- say -- General Motors -- and a much smaller corporation -- say, Fisher Body, a supplier of auto bodies -- that must, to serve GM's needs, customize its production process. *See generally* Hart, *supra* note 31, at 1759-60, 1767-71 (analyzing the GM-Fisher Body relationship); Benjamin Klein et. al., *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J.L. & ECON. 297, 308-310 (1978) (same); Benjamin Klein, *Vertical Integration as Organizational Ownership: The Fisher Body-General Motors Relationship Revisited*, 4 J.L. ECON. & ORGANIZATION 199 (1988) (same). The GM-Fisher Body relationship presents the prospect of coerced modification because, once Fisher Body has customized its equipment to GM's needs and, thus, is tied in to GM, GM may well enjoy the superior bargaining position. Meanwhile, GM almost certainly enjoys superior bargaining power more generally.

1. *Will Contractors' Own Rules Be Enforced?*

a. ***Non-Sales Contracts.*** One type of contractual term constraining modification is a term that flatly prohibits modification. Existing law denies enforcement to such a term: "The parties to a contract cannot by agreement preclude themselves from varying their duties to each other by subsequent agreement."[35]

A second type of contractual term constraining modification is a term that imposes formal requirements for modification.[36] Indeed, in the limit, with extremely cumbersome formal requirements, the original contract would be effectively non-modifiable. However, terms that impose formal requirements for modification, like terms that forbid modification altogether, are unenforceable under existing law.[37]

b. ***Sales Contracts.*** Because the U.C.C. is silent on the enforceability of terms that forbid modification, the common law governs enforceability of such terms in sales contracts.[38] Thus, such terms in sales contracts are unenforceable.[39]

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[35] RESTATEMENT (SECOND) OF CONTRACTS § 311 cmt. a (1979). For other statements, see Zumwinkel v. Leggett, 345 S.W.2d 89, 93-94 (Mo. 1961); Beatty v. Guggenheim Exploration Co., 122 N.E. 378, 387 (N.Y. 1919); Davis v. Payne & Day, Inc., 348 P.2d 337, 339 (Utah 1960); and 3A ARTHUR L. CORBIN, CORBIN ON CONTRACTS § 531 (1960).

[36] The default rule is that modification requires no special formalities. In particular, a modification of a written contract need not be in writing. *See, e.g.*, Zumwinkel v. Leggett, 345 S.W.2d 89, 94 (Mo. 1961). Note the distinction between oral modifications, on the one hand, and the oral agreements with which the parol evidence rule is concerned, on the other: the latter agreements are made *prior to* or *contemporaneous with*, not subsequent to, entry into the original written contract. *See, e.g.*, RESTATEMENT (SECOND) OF CONTRACTS § 215 (1979).

[37] The cases all concern requirements that modifications be written, but there is no reason to suspect that other formal requirements for modification would be treated any differently. For examples of cases refusing to enforce written modification requirements, see Westchester Fire Insurance Co. v. Earle, 33 Mich. 143, 153 (1876); Zumwinkel v. Leggett, 345 S.W.2d 89, 93-94 (Mo. 1961); Beatty v. Guggenheim Exploration Co., 122 N.E. 378, 387-88 (N.Y. 1919); Davis v. Payne & Day, Inc., 348 P.2d 337, 339 (Utah 1960). Compare RESTATEMENT (SECOND) OF CONTRACTS § 283 cmt. b (1979) (providing that a term requiring a writing for rescission is unenforceable). In some states, however, statutes provide for enforcement of a contractual term that forbids oral modification. *See* E. ALLEN FARNSWORTH, FARNSWORTH ON CONTRACTS § 7.6, at 231 n.13 (1990) (discussing New York statute). As well, in special contractual settings, alternative mechanisms for making modification cumbersome may be available. *See infra* note 186.

[38] *See* U.C.C. § 1-103 (1987) (providing that the common law supplements the provisions of the U.C.C. unless displaced by these provisions).

[39] *See* sources cited *supra* note 35.

However, terms imposing the formal requirement of a writing for modification are enforceable under section 2-209(2) of the U.C.C.,[40] in a reversal of the common law rule. On the other hand, section 2-209(2) is importantly qualified by section 2-209(4),[41] which a number of courts have interpreted to permit waiver of contractual terms without any writing even where the parties' original contract requires a writing for modification.[42]

2. *Courts' Reasoning About the Enforceability Question.*

As described in the preceding sub-section, contractual terms constraining modification are largely unenforceable. The reasoning behind this result is based on the idea that parties cannot take away their power to enter into future contracts as they see fit. Justice Cardozo's opinion in *Beatty v. Guggenheim Exploration Co.*[43] provides a classic example:

> Those who make a contract, may unmake it. The clause which forbids a change, may be changed like any other. . . . "Every such agreement is ended by the new one which contradicts it." . . . What is excluded by one act, is restored by another. You may put it out by the door; it is back through the window. Whenever two men contract, no limitation self-imposed can destroy their power to contract again.[44]

Justice Cardozo's logic makes *chronology* critical in the following sense. Where parties agree to be bound by their original contract notwithstanding any subsequent agreement to the contrary and then later agree not to be bound by that original contract, there are two competing agreements: the agreement to be bound by the original contract no matter what, and the

[40] *See* U.C.C. § 2-209(2) (1987). For examples of cases enforcing no-oral-modification clauses under section 2-209(2), see Leasing Service Corp. v. Diamond Timber Inc., 559 F.Supp. 972 (S.D.N.Y. 1983) and Elmsford Sheet Metal Workers, Inc. v. Shasta Industries, Inc., 477 N.Y.S.2d 391 (N.Y.App.Div. 1984).

[41] Section 2-209(4) provides in relevant part: "Although an attempt at modification . . . does not satisfy the requirements of [section 2-209(2)] . . . it can operate as a waiver." U.C.C. § 2-209(4) (1987).

[42] *See* Kropp v. Ziebarth, 601 F.2d 1348 (8th Cir. 1979); T & L Leasing Corp. v. General Electric Credit Corp., 516 F.Supp. 1131 (E.D.Pa. 1981); Pepsi Cola Bottling Co. v. Pepsico, Inc., 297 A.2d 28 (Del.Super.Ct. 1972); Linear Corp. v. Standard Hardware Co., 423 So.2d 966 (Fla.Dist.Ct.App. 1982); Nassua Trust Co. v. Montrose Concrete Products Corp., 436 N.E.2d 1265 (N.Y. 1982); C.I.T. Corp. v. Jonnet, 214 A.2d 620 (Pa. 1965). Judge Richard Posner has suggested that the applicability of section 2-209(4) to waivers by conduct when the contract contains a no-oral-modification clause be limited to situations in which the party asserting the waiver can show reliance on the asserted waiver. *See* Wisconsin Knife Works v. Nat'l Metal Crafters, 781 F.2d 1280, 1286-87 (7th Cir. 1986).

[43] 122 N.E. 378 (N.Y. 1919).

[44] *Id.* at 387-88 (citations omitted).

subsequent agreement to the contrary. Both agreements are valid expressions of the parties' consensual acceptance of specified arrangements. One must be chosen. Saying that the latter prevails over the former, as Justice Cardozo does, allows chronology to control the choice: as between two expressions of consent, the one "last in time" trumps. As explained in Parts II and IV, this application of the last in time rule may reduce contractors' welfare in many settings. This application of the rule thus contravenes the welfare-maximization principle that, as I argued earlier, the default rules governing contract modification can be understood as serving.

II. THE BASIC EFFICIENCY CASE FOR ENABLING BILATERAL COMMITMENT

As noted in the Introduction and just above, the opportunity to enter into modifications that are mutually profitable at the time of modification may reduce the overall welfare of the parties to a contract. This Part identifies specific types of contracting relationships in which this is the case. Sections A and B focus on the most important examples: what economists call "principal-agent" relationships (again, not to be confused with legal relationships of agency). "Principal-agent" relationships in the economic sense arise when one individual's -- the agent's -- action affects not only the agent herself but also another individual -- the principal.[45] The economists' "principal-agent" paradigm has been recognized to describe a virtually limitless array of economic relationships, including the relationship between a firm and a worker,[46] the relationship between an insurance company and an insured,[47] the relationship between a public

[45] *See* Kenneth J. Arrow, *The Economics of Agency*, *in* PRINCIPALS AND AGENTS: THE STRUCTURE OF BUSINESS 37, 37 (John W. Pratt & Richard J. Zeckhauser eds., 1985); Steven Shavell, *Risk Sharing and Incentives and the Principal and Agent Relationship*, 10 BELL. J. ECON. 55, 55 (1979).

[46] *See* Arrow, *supra* note 45, at 39; Dewatripont, *Renegotiation and Information Revelation*, *supra* note 6; Sanford J. Grossman & Oliver D. Hart, *Implicit Contracts Under Asymmetric Information*, 98 Q. J. ECON. 123 (1983); Oliver D. Hart, *Optimal Labour Contracts under Asymmetric Information: An Introduction*, 50 REV. ECON. STUD. 3 (1983).

[47] *See* Arrow, *supra* note 45, at 39, 40; Michael Rothschild & Joseph Stiglitz, *Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information*, 80 Q. J. ECON. 629 (1976); Steven Shavell, *On Moral Hazard and Insurance*, 93 Q. J. ECON. 541 (1979).

utility and its customers (represented by the regulator of the utility),[48] the relationship between a landowner and a sharecropper,[49] the relationship between a supplier and a purchaser of a good,[50] the relationship between the government (taxing jurisdiction) and taxpayers,[51] and, most controversially, the relationship between shareholders of a publicly-traded corporation and a top manager at the corporation.[52] Both theory and practice point to the welfare cost of ex post profitable modification opportunities in "principal-agent" relationships: as detailed below, the analytical predictions seem to well explain certain reported cases and other empirical evidence.

Section C of this Part turns from "principal-agent" relationships to an additional category of contracting relationships in which the opportunity for ex post profitable modification may reduce contractors' welfare. Specifically, it explains that the ex post profitable modification

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[48] *See* Arrow, *supra* note 45, at 40-41; LAFFONT & TIROLE, INCENTIVES IN REGULATION AND PROCUREMENT, *supra* note 6; Laffont & Tirole, *Adverse Selection and Renegotiation*, *supra* note 6.

[49] *See* Sanford J. Grossman & Oliver D. Hart, *An Analysis of the Principal-Agent Problem*, 51 ECONOMETRICA 7, 7 (1983); Joseph E. Stiglitz, *Incentives and Risk Sharing in Sharecropping*, 41 REV. ECON. STUD. 219, 220 (1974); *infra* part II.A.

[50] *See* LAFFONT & TIROLE, INCENTIVES IN REGULATION AND PROCUREMENT, *supra* note 6; Laffont & Tirole, *Adverse Selection and Renegotiation*, *supra* note 6; *infra* part II.B.

[51] *See* Arrow, *supra* note 45, at 42; James Mirrlees, *An Exploration in the Theory of Optimum Income Taxation*, 38 REV. ECON. STUD. 175 (1971).

[52] *See* Arrow, *supra* note 45, at 39; Fudenberg & Tirole, *supra* note 6; Grossman & Hart, *supra* note 49; Michael C. Jensen & Robert H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976); *infra* part II.A. The controversy over likening the shareholder-manager relationship to a "principal-agent" relationship in the economic sense stems from the fact that the shareholders of a publicly-traded corporation do not bargain directly with the corporation's managers. *See* Victor Brudney, *Corporate Governance, Agency Costs, and the Rhetoric of Contract*, 85 COLUM. L. REV. 1403 (1985); *see also* Robert C. Clark, *Agency Costs versus Fiduciary Duties*, *in* PRINCIPALS AND AGENTS: THE STRUCTURE OF BUSINESS 55, 62-71 (John W. Pratt & Richard J. Zeckhauser eds., 1985) (discussing limitations of contractual view of shareholder-manager relationship); Melvin A. Eisenberg, *Comment: Golden Parachutes and the Myth of the Web*, *in* KNIGHTS, RAIDERS, AND TARGETS: THE IMPACT OF THE HOSTILE TAKEOVER 155, 156-57 (John C. Coffee et. al. eds., 1988) (same). Economists have ignored this point. *See, e.g.*, Arrow, *supra* note 45, at 39; Fudenberg & Tirole, *supra* note 6; Grossman & Hart, *supra* note 49.

The fact that the shareholders are represented in negotiations by the board of directors, rather than negotiating with managers themselves, certainly casts doubt on the arms-length status of the bargaining. However, the fact that the board of directors may well be partial to managers' interests seems relevant primarily to the *distribution* of the gains from the shareholder-manager relationship. It would seem that, even with a board of directors that is partial to managers' interests, contracts between the corporation and its managers that maximize the joint welfare of shareholders and managers would emerge.

problem outlined above may arise in relationships in which contracting is motivated by strategic considerations.

A. *"Principal-Agent" Relationships with Moral Hazard.*

This section and the next are concerned with the effect of ex post profitable modification opportunities in "principal-agent" relationships of the sort described just above. There are two basic types of such relationships. First, the agent's actions may be unobservable to the principal and, thus, subject to *moral hazard*.[53] Second, the agent may have private information about the desirability of alternative courses of action, giving rise to what is often called *adverse selection*.[54] As explained below, the opportunity for ex post profitable modification may reduce contractors' welfare in both types of relationships.

This section discusses "principal-agent" relationships in which the agent's action is subject to moral hazard. While there are many examples of such relationships, the most important examples, and the ones on which this section focuses, are what I will term "owner-worker" relationships. In these relationships, the principal is a property owner, and the agent is a worker who is hired by the owner and whose actions affect the owner's profit from her property. The owner cannot observe (at least not very accurately) the actions taken by the worker and is better able to bear risk than the worker. Two examples of owner-worker relationships, which feature prominently in the discussion below, are the relationship between a landowner and a sharecropper[55] and the relationship between the shareholders of a publicly-traded corporation and a top manager at the corporation.[56] Moral hazard arises in the former relationship because a landowner cannot tell exactly how much effort a sharecropper puts into

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[53] *See* Arrow, *supra* note 45, at 38.

[54] *See id.* at 38, 39-40. The terminology here differs from that in Oliver Hart & Bengt Holmstrom, *The Theory of Contracts*, *in* ADVANCES IN ECONOMIC THEORY 71, 76 (Truman Bewley ed., 1987).

[55] *See* Grossman & Hart, *supra* note 49, at 7; Stiglitz, *supra* note 49, at 220.

[56] *See* Arrow, *supra* note 45, at 39; Fudenberg & Tirole, *supra* note 6; Grossman & Hart, *supra* note 49; Jensen & Meckling, *supra* note 52.

planting and cultivating the crops grown on the land[57] and in the latter relationship because the shareholders of a publicly-traded corporation (and, as well, the corporation's board of directors) cannot tell whether the actions taken by a top manager at the corporation are those that maximize the corporation's value.[58]

Sub-section 1 below describes welfare-maximizing contracts in owner-worker relationships in the situation in which modification of the contract is not possible. I will call such contracts welfare-maximizing "commitment" contracts. Sub-section 2 explains that modifying the welfare-maximizing commitment contract is mutually profitable for the owner and the worker ex post. Sub-section 3 describes the welfare cost associated with the opportunity for ex post profitable modification. Finally, sub-section 4 discusses observed patterns of owner-worker contracting that suggest the empirical significance of the ex post profitable modification problem in owner-worker relationships.

1. *Welfare-Maximizing Commitment Contracts.*

Contracting is a means by which parties may address the moral hazard problem described above.[59] In the owner-worker context, while the owner cannot observe the actions chosen by the worker, contracts tying the worker's compensation to the owner's profit, which typically is thought to be observable, give the worker an incentive to choose actions that increase this profit. One example of this sort of incentive contract is a typical sharecropping contract, under which the sharecropper's compensation consists of some share of the crop. Another example is a

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[57] *See* Stiglitz, *supra* note 49, at 242-43. Professor Stiglitz divides the sharecropper's "effort" into the following components: (1) the pace at which the sharecropper works; (2) the thoroughness with which the sharecropper works; (3) the degree to which the sharecropper equates the marginal cost of a particular action with its marginal benefit; (4) how well the sharecropper responds to unexpected amounts of rain, insects, etc.; and (5) the sharecropper's inventiveness. *Id.* at 242. The landowner cannot observe the sharecropper's effort without virtually shadowing the sharecropper and, in the process, incurring "prohibitive supervisory costs." *Id.* at 243 n.1.

[58] *See* Jensen & Meckling, *supra* note 52, at 309; Michael C. Jensen & Kevin J. Murphy, *Performance Pay and Top-Management Incentives*, 98 J. POL. ECON. 225, 225-26 (1990).

[59] *See* Arrow, *supra* note 45, at 37; Hart & Holmstrom, *supra* note 54, at 76; Bengt Holmstrom, *Moral Hazard and Observability*, 10 BELL. J. ECON. 73, 73-74 (1979).

managerial compensation contract that involves stock options or bonuses tied to the corporation's earnings (or some other measure of performance).[60]

Tying the worker's compensation to the owner's profit has a cost as well as a benefit, however. The owner's profit will reflect many factors that are beyond the control of the worker. For example, weather may ruin an otherwise promising crop and, thus, diminish the proceeds from the crop notwithstanding conscientious planting and cultivating by the sharecropper.[61] Likewise, factors outside the control of a corporate manager -- for example, industry-wide difficulties -- may reduce the corporation's stock price or earnings.[62] In short, the owner's profit is a noisy signal of the worker's action choices. Compensating the worker on the basis of this signal, rather than giving him a fixed wage, is costly because it shifts risk from the owner, who is the better risk-bearer, to the worker, who is the worse risk-bearer.

Tying the worker's compensation to the owner's profit is thus desirable from the perspective of creating incentives for the worker but undesirable from the perspective of risk-sharing. Welfare-maximizing commitment contracts are ones that trade off incentive and risk-sharing considerations.[63] Observed contracts in such owner-worker relationships as the

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[60] It is important to emphasize that alignment of the owner's and the worker's interests can be expected to help the worker as well as the owner. Such alignment increases the joint welfare of the two parties, and, thus, the worker will benefit as long as he captures some of the surplus from the alignment of interests.

In the case of sharecropping, while the incentive considerations discussed in the text may provide at least a partial explanation for the nature of sharecropping contracts, from a historical perspective other factors seem also to have played a role. For example, in the United States, sharecropping developed after the Civil War, when freed slaves lacked money to rent land and landowners lacked money to pay wages. *See* ALLAN NEVINS & HENRY S. COMMAGER, A POCKET HISTORY OF THE UNITED STATES 244 (5th ed. 1969). The historical circumstances, in which both prospective sharecroppers and landowners lacked ready cash (and, presumably, access to capital markets), made sharecropping an attractive arrangement without regard to the incentive considerations described above.

[61] *See* C. Hanumantha Rao, *Uncertainty, Entrepreneurship and Share Cropping in India*, 79 J. POL. ECON. 578, 580-81 (1971); Stiglitz, *supra* note 49, at 219.

[62] *See* Lucian A. Bebchuk, *Federalism and the Corporation: The Desirable Limits on State Competition in Corporate Law*, 105 HARV. L. REV. 1435, 1464 n.102 (1992); Lucian A. Bebchuk, *Limiting Contractual Freedom in Corporate Law: The Desirable Constraints on Charter Amendments*, 102 HARV. L. REV. 1820, 1842 n.29 (1989).

[63] *See* Holmstrom, *supra* note 59, at 79; Shavell, *supra* note 45, at 59. These and other standard economic analyses of "principal-agent" relationships with moral hazard do not characterize welfare-maximizing contracts as welfare-maximizing *commitment* contracts. These analyses have implicitly assumed that there is no opportunity to modify the contract down the road. *See* Fudenberg & Tirole, *supra* note 6, at 1279.

landowner-sharecropper relationship and the shareholder-manager relationship conform to the prediction that the worker's compensation will be tied to the owner's profit.[64]

2. *Ex Post Profitability of Modification.*

As discussed in the preceding sub-section, welfare-maximizing commitment contracts trade off incentive and risk-sharing considerations. However, the cost-benefit balance that obtains when the original contract is entered into changes as the relationship progresses. In particular, once most or all of the worker's action choices have been made, there is little reason to be concerned about creating incentives for the worker. Therefore, tying the worker's compensation to the owner's profit no longer carries the benefit that it did when the original contract was entered into. Thus, if there is a lag between the time at which most or all of the worker's action choices have been made and the time at which the owner's profit becomes known, then both the owner and the worker can gain by modifying a welfare-maximizing commitment contract during this period of time. In particular, both can gain by agreeing to a modified contract that is less incentive-oriented and less risky for the worker.[65]

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64 For examples of sharecropping contracts that tie the sharecropper's compensation to the crop proceeds (by providing that the sharecropper gets some share of the crop), see the contracts in Young v. Thomas, 785 P.2d 489 (Wyo. 1990), Knox v. Hanson, 408 P.2d 76 (Or. 1965), and Feldman v. Fox, 164 S.W. 766 (Ark. 1914), all of which are discussed below. Rao, *supra* note 61, presents empirical evidence consistent with the incentive-based explanation for the structure of sharecropping contracts. Meanwhile, in the case of shareholder-manager relationships, managerial compensation contracts that involve stock options or performance bonuses are extremely common in practice. *See* Jensen & Murphy, *supra* note 58; Subcommittee on Executive Compensation, ABA Section on Corporation, Banking, and Business Law, *Executive Compensation: A 1987 Road Map for the Corporate Advisor*, 43 BUS. LAW. 185 (1987).

65 *See* Fudenberg & Tirole, *supra* note 6, at 1280. The importance of the time lag is that once the owner's profit is known, the worker's compensation under the original contract is known. In this situation, modification would necessarily benefit either the owner or the worker at the other's expense.

There is an important subtlety here that the text does not bring out. The statement in the text is that the owner and the worker both can gain by agreeing to modify a welfare-maximizing commitment contract once the worker's action choices have been made. Assuming no informational asymmetry (and no transaction costs), the fact that both can gain from modifying is sufficient to ensure that modification will, in fact, occur. *See* Ronald H. Coase, *The Problem of Social Cost*, 3 J. L. & ECON. 1 (1960). In the case of the owner and the worker, the owner does not observe the worker's action choices directly. However, she knows the choices that the worker will make under a welfare-maximizing commitment contract because she knows what sorts of incentives such a contract will create for the worker. The implication is that a mutually profitable modification will, in fact, be agreed upon by the parties.

For example, in the landowner-sharecropper relationship, there will very likely be a lag between the time at which most of the sharecropper's planting and cultivating activity has taken place and the time at which the profit from the crop is realized.[66] Once this period has arrived, creating appropriate incentives for the sharecropper is no longer important. Thus, giving the sharecropper a stake in the proceeds of the crop, rather than, say, a fixed wage, no longer carries the benefit that it did when the original contract was entered into. Therefore, the landowner and the sharecropper can mutually profit by agreeing to a modified contract that provides the sharecropper with a higher fixed payment and a smaller share of the crop.

Likewise, in the shareholder-manager relationship, there may be a lag between the time at which the manager has taken most of the actions intended to be influenced by tying managerial compensation to the corporation's performance and the time at which the effects of the manager's actions on performance are fully realized.[67] Once this period has arrived, there is little benefit from tying managerial compensation to performance. Thus, there are mutual gains to be had from agreeing to a modification under which the manager's compensation is less sensitive to the corporation's performance than under the original contract. One example of such a modification is a "repricing" of stock options that involves reducing the number of options and lowering the exercise price.[68]

3. *Welfare Consequences.*

This sub-section describes the welfare consequences of the opportunity for ex post profitable modification in owner-worker relationships. It is useful to distinguish two

[66] *See* Fudenberg & Tirole, *supra* note 6, at 1308.

[67] *See id*. at 1279. For example, if the manager's compensation is tied to something like the corporation's annual earnings, then at a point in time, say, ten months into the year, the manager will have taken most or all of the actions that were intended to be influenced by the compensation scheme, yet there may well still be some uncertainty about the corporation's annual earnings. Where the actions intended to be influenced by the compensation scheme are, say, long-term investment decisions, the likelihood of a time lag seems even greater. *See id*.

[68] Such a repricing substitutes a less risky and less incentive-oriented claim for a riskier and more incentive-oriented one: the manager faces a smaller upside gain (because he has fewer options), but the probability of at least some profit from his options is higher (because the exercise price is lower).

possibilities. First, the owner and the worker may not take the opportunity for ex post profitable modification into account when they design their original contract. Second, they make take this opportunity into account in designing their original contract.

a. *Modification Opportunity Not Anticipated.* If the owner and the worker do not take the opportunity for ex post profitable modification into account at the outset, then they will choose as their original contract a welfare-maximizing commitment contract of the sort discussed above. However, as just explained, once their relationship is underway, both the owner and the worker can gain by switching to a modified contract that, relative to the original contract, rewards the worker less for choosing actions that increase the owner's profit. A rational worker, anticipating the nature of the modification, will have less incentive to choose such actions than under the original contract. This anticipation of the later modification *undoes* the original contract's alignment of the owner's and the worker's interests.

It is important to emphasize that the modification opportunity and its effect on the worker's incentives do not work to benefit the worker at the owner's expense. The reason is that a rational owner will understand that the worker's incentives are determined by the anticipated modification rather than by the original contract and, thus, will infer that the worker made action choices consistent with the former rather than the latter. As a result, the owner will offer the worker less at the modification stage than she would have offered in the absence of the diminution in incentives.

The reduction in incentives associated with the opportunity for ex post profitable modification means that less economic gain is created by the relationship: productivity is lower. The opportunity for ex post profitable modification thus reduces the joint welfare of the owner and the worker.[69]

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[69] As explained below, the joint welfare of the owner and the worker is lower under a welfare-maximizing "no-commitment" contract (defined below) than under a welfare-maximizing commitment contract when modification is not possible, and the former contract represents the *best* response of the owner and the worker to the opportunity for modification. Thus, welfare must fall in the case in the text.

b. ***Modification Opportunity Anticipated.*** Just as a rational worker's action choice will take into account any ex post profitable modification opportunities, the original contract between the owner and the worker may well take into account any such opportunities and their effect on the worker's incentives. I will refer to a welfare-maximizing contract in this category as a welfare-maximizing "no-commitment" contract.

Economists have identified two types of welfare-maximizing no-commitment contracts. First, the contract may be one under which ex post modification, involving a reduction in the sensitivity of the worker's compensation to the owner's profit, is mutually profitable in some circumstances.[70] Modification is mutually profitable in some circumstances but not others depending on characteristics of the worker that are unobservable to the owner and, thus, cannot be taken into account in crafting the original contract.[71]

The second type of welfare-maximizing no-commitment contract is one under which ex post modification will never be mutually profitable. Welfare-maximizing contracts in this category give the worker the option of several different compensation packages, at least some of which are less sensitive to the owner's profit than welfare-maximizing commitment contracts.[72] As above, differences in characteristics across the population of workers, and uncertainty on the part of the owner about the characteristics of the worker, imply that different types of worker behavior -- different choices among the options in the contract -- are possible.[73]

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70 *See* Fudenberg & Tirole, *supra* note 6, at 1293-94.

71 The interpretation of differences in the observed behavior of an individual as reflective of unobserved characteristics of the individual (where characteristics differ across a population of individuals) is standard. *See* DREW FUDENBERG & JEAN TIROLE, GAME THEORY 230-34 (1991). In the language of game theory, "mixed strategy" play is observationally equivalent to "pure strategy" play by a player whose "type" is unknown to her opponents. See John C. Harsanyi, *Games with Randomly Disturbed Payoffs: A New Rationale for Mixed Strategy Equilibrium Points*, 2 INT'L. J. GAME THEORY 1 (1973) for the original treatment.

72 *See* Fudenberg & Tirole, *supra* note 6, at 1290-91.

73 *See id.* at 1295-96; *supra* note 71.

Economic analysis does not offer any reason to expect that either of the two types of welfare-maximizing no-commitment contracts will be preferable to the other. Within the standard economic framework, there is no difference between the two: the expected gain from the transaction is the same in either case. However, in a richer model, where, for example, there is some uncertainty about whether nonlegal sanctions (discussed in Part V) will suffice to commit the parties to stick with their original contract, contracts that do not fully adjust for the prospect of modification may be preferable, as they leave the door open for nonlegal sanctions to deter modification.

Whether the owner and the worker settle on the first or the second type of welfare-maximizing no-commitment contract, their joint welfare is lower than it is under the welfare-maximizing commitment contract when modification is not possible.[74] Intuitively, modification introduces an additional constraint on the parties' ability to create desirable incentives. The opportunity for ex post profitable modification thus reduces contractors' joint welfare.

4. *Observed Contracting Patterns.*

Until now, this section has focused on theoretical reasons that ex post profitable modification may reduce welfare in owner-worker relationships. This sub-section describes observed aspects of landowner-sharecropper and shareholder-manager contracting that seem to be well explained by analysis above.

a. ***Sharecropping Contract Cases.*** The facts of several reported cases involving sharecropping contracts exhibit contracting patterns consistent with the analysis in the preceding sub-sections. For example, in *Knox v. Hanson*,[75] the original contract provided that the sharecropper was to operate the landowner's ranch, paying all operating expenses, and, in return, receive sixty percent of the proceeds from the operations.[76] Later, contemplating sale of

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[74] *See id.* at 1288-89, 1293, 1297. The welfare reduction result can be seen fairly easily in the simple model on which Fudenberg and Tirole focus. In this model, the worker chooses between a "high" level of effort and a "low" level of effort. *See id.* at 1282. The owner and the worker are assumed to agree to a contract that maximizes the owner's expected utility subject to a reservation utility for the worker. *See id.* The high level of effort is chosen by the worker under the welfare-maximizing commitment contract when there is no opportunity for modification. With opportunities for modification, however, it is not possible to ensure that the worker has an incentive to choose the high level of effort. *See id.* at 1288. Meanwhile, moving from the no-modification case to the modification case does *not* change the compensation scheme that best achieves each given incentive level. *See id.* at 1297. Thus, the owner pays the worker in accordance with the same compensation scheme as the scheme in accordance with which the owner would have paid the worker to create the same incentive level in the no-modification case. *See id.* But the owner preferred to create a different incentive level in the no-modification case: the worker always chooses the high level of effort under the welfare-maximizing commitment contract when there is no opportunity for modification. Thus, the owner is worse off once opportunities for modification are present. Meanwhile, with standard specifications of the worker's utility, the worker is equally well off in the two situations. *See id.* at 1293, 1297.

[75] 408 P.2d 76 (Or. 1965).

[76] *Id.* at 77. As well, the sharecropper had approximately a 10% interest in the landowner's ranch. *See id.*

the produce of the ranch, the parties modified their contract.[77] Under the modified contract, the sharecropper was to be responsible for only half of the operating expenses that he had incurred in running the ranch and was to receive half, rather than sixty percent, of the proceeds from the sale of the ranch's produce when these proceeds were realized.[78] Thus, the modification reduced the sharecropper's stake in the proceeds, a risky proposition, and provided the sharecropper with a flat amount (reimbursement of half of the operating expenses, a sure thing) in exchange. As well, the modification, in contemplation of sale of the ranch's produce, occurred after most of the sharecropper's actions had been chosen, but before realization of the proceeds from the operations.

The facts in *Knox* fit nicely with the analysis of the preceding sub-sections. One possibility is that the landowner and the sharecropper did not take the opportunity for ex post profitable modification into account when they designed their original contract, but did take advantage of this opportunity when it presented itself (by modifying their contract to reduce the sensitivity of the sharecropper's compensation to the proceeds from the ranch operations). Alternatively, the landowner and the sharecropper may have taken the opportunity for ex post profitable modification into account from the beginning and designed an original contract under which ex post modification turned out to be profitable. Either way, the modification in *Knox* is an observed instance of the sort of ex post profitable modification with which this paper is concerned.

The analysis of the preceding sub-sections makes predictions not only about contracting relationships in the course of which modification is likely to occur, but also about the effects of anticipated modification on the worker's effort level. Thus, the analysis predicts that the sharecropper in *Knox* should have exerted less effort than he would have had he thought that

[77] *Id.*

[78] The modified contract provided that the sale proceeds were to be applied against the accumulated operating expenses, with any remainder being divided equally between the landowner and the sharecropper. *Id.* The effect of this arrangement was to replace the sharecropper's right to sixty percent of the proceeds minus all of the operating costs with a right to fifty percent of the proceeds minus fifty percent of the operating costs.

his compensation would be determined under the original contract. Unfortunately, it is difficult to get practical corroboration of this part of the story: the sharecropper's effort level is unobservable by assumption. The proceeds from ranch operations provide a proxy for the sharecropper's effort level, however, because the magnitude of the former is correlated (though imperfectly) with the latter. In fact, the ranch operations in *Knox* fared poorly.[79] In this respect, too, then, the *Knox* facts fit with the analysis above.

The facts of *Young v. Thomas*[80] and *Feldman v. Fox*[81] provide additional examples of landowner-sharecropper relationships in which the patterns of contracting conform to the predictions of the earlier analysis. In *Young*, the original contract provided that the sharecropper was to make an up-front payment of $75,000 to the landowner in exchange for the right to the full amount of the proceeds from the crop.[82] This original contract creates the greatest possible incentive for the sharecropper by making his compensation completely dependent upon the proceeds from the crop. The contract also exposes the sharecropper to tremendous risk. Later in the growing season, the contract was modified.[83] The modified contract provided that the sharecropper was to receive half of the proceeds from the crop and did not have to pay the rent of $75,000.[84] The form of the modification is just like that in *Knox*: the sharecropper's stake in the proceeds was reduced (from one hundred percent to fifty percent), and the sharecropper received a flat payment (reimbursement of the $75,000) in return. As well, the modification, agreed to in late July, 1986, shortly before the August harvest of the crop,[85] occurred after most of the sharecropper's actions had been chosen, but before realization of the proceeds from the crop. Finally, and again paralleling *Knox*, the proceeds of the crop (a proxy for the sharecropper's effort level) were apparently on the low side: the

79 408 P.2d at 77.
80 785 P.2d 489 (Wyo. 1990).
81 164 S.W. 766 (Ark. 1914).
82 785 P.2d at 489.
83 *Id.* at 489.
84 *Id.*
85 *Id.* at 489-90. The original contract was agreed to on May 13, 1986. *Id.* at 489.

proceeds were $55,951.74,[86] approximately $20,000 less than the $75,000 rent specified in the original contract.

The facts of *Feldman*[87] fit the same pattern as those in *Knox* and *Young*. In *Feldman*, the original contract provided that, in return for planting, cultivating, and gathering the crop, the sharecropper would receive the proceeds from the sale of one-half of the crop and would be paid fifty cents per hundred pounds for the other half of the crop.[88] After the crop had been planted and had matured, the sharecropper and the landowner modified the original contract.[89] According to the sharecropper, the modification obliged the landowner to pay the sharecropper $300 in lieu of the sharecropper's right to one-half of the sale proceeds.[90] The sharecropper's version of the modification takes the same form as the modifications in *Knox* and *Young*: the sharecropper's stake in the proceeds was reduced (here, to nothing) in exchange for a fixed payment (of $300) to the sharecropper. The timing fits as well: the modification occurred after the planting and cultivating of the crop was complete but before the proceeds from the crop were realized.[91] Finally, although the case report does not provide any information about the magnitude of the proceeds from the crop (which, recall, constitute a proxy for the sharecropper's effort), the fact that the sharecropper sought to recover the $300 whereas the landowner argued that all that he owed was one half of the proceeds[92] suggests strongly that the proceeds fell short of earlier expectations.

86 *Id.* at 490.
87 164 S.W. 766 (Ark. 1914).
88 *Id.*
89 *Id.*
90 *Id.* Apparently, the sharecropper and the landowner disagreed about what the modification involved. The court's opinion states that the sharecropper's testimony was that the landowner "'guarantee[d]' [the sharecropper] $300 for his interest." *Id.* At trial, the modification was described to the jury as a sale for $300 of the sharecropper's interest in the crop. *Id.* A later case, discussing *Feldman*, also described the modification in this way. *See* Foster v. Enarc Lumber Mfg. Co., 349 S.W.2d 341, 344 (Ark. 1961). However, the court in *Feldman* rejected the contention that the modification involved a sale of the sharecropper's interest. 164 S.W. at 767. The modification was deemed to be an indemnity contract, under which the landowner was obliged to pay the sharecropper the difference between the crop proceeds to which the original contract entitled the sharecropper and $300 *if* these proceeds were less than $300. *See id.* Interpreted in this way, the modification was held to be unenforceable because of lack of consideration. *Id.*
91 164 S.W. at 766.
92 *Id.* at 767.

b. ***Empirical Evidence on Executive Compensation.*** A number of observed patterns in the compensation of corporate executives provide further empirical support for the preceding sub-sections' analysis. For one, stock option repricing that involves reducing the number of options and lowering the exercise price is observed in practice.[93] As explained above, such repricing is the sort of ex post modification that the theory predicts: the manager's compensation becomes less incentive-oriented and less risky than under the original contract. Like the contract modifications in the sharecropping cases discussed above, such repricings may signal a situation in which the board of directors and the manager failed to take the opportunity for ex post profitable modification into account when they designed the original contract, but took advantage of this opportunity when it presented itself. Alternatively, and again like the modifications of sharecropping contracts, the board of directors and the manager may have taken the opportunity for ex post profitable modification into account from the beginning and designed an original contract under which ex post modification turned out to be profitable. Either way, stock option repricing that involves fewer options and a lower exercise price exemplifies the sort of ex post profitable modification with which this paper is concerned.

As above, the analysis predicts not only that original contracts may be modified but also that the worker's effort level will be lower than it would have been in the absence of the opportunity to modify. Here a proxy for the manager's actions is the corporation's stock price, and, indeed, there is evidence that repricing involving fewer options and a lower exercise price takes place when the corporation's stock price is low.[94]

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93 *See, e.g.*, Ron Wolf, *Valley Firms' Abuse of Choice: Repricing Options If Stock Falls*, SAN JOSE MERCURY NEWS, June 29, 1992, at D1 (describing repricing in which number of options was reduced by one-half and exercise price was lowered); *id.* (describing repricing in which number of options was reduced by one-fourth and exercise price was lowered); *id.* (describing repricing in which number of options was reduced by one-fifth and exercise price was lowered).

This sort of stock option repricing -- involving fewer options and a lower exercise price -- is certainly less common than stock option repricing that involves a reduction in the exercise price with no corresponding reduction in the number of options. The latter sort of repricing effects a transfer from shareholders to the manager (relative to the original stock option package) and, thus, may reflect a lack of arms' length dealing between the manager and the corporation's board of directors. *See generally* Brudney, *supra* note 52.

94 *See* Wolf, *supra* note 93, at D1.

Other observed aspects of executive compensation provide empirical support for the predicted contours of welfare-maximizing no-commitment contracts under which modification is never ex post profitable. As noted above, contracts in this category give the manager the option of several different compensation packages, at least some of which are less performance-sensitive than welfare-maximizing commitment contracts.[95] The analysis generates the following two predictions: first, managers should be observed to have some discretion with regard to the performance-sensitivity of their compensation, and second, for some managers, the compensation we observe should be less performance-sensitive than it would be under a welfare-maximizing commitment contract.

Available empirical evidence provides support for both of these predictions. First, many managerial compensation contracts allow the manager significant flexibility with regard to the performance sensitivity of his compensation. For example, such contracts commonly permit transformation or part or all of earned bonus payments into stock options (or sometimes into phantom shares) at the request of the manager.[96] Moreover, stock options and stock appreciation rights, which provide the manager with significant discretion to exercise the options and rights sooner or later as the manager prefers, are much more popular than restricted or phantom stock plans.[97]

The second prediction, that, for some managers, the compensation we observe should be less performance-sensitive than managerial compensation under welfare-maximizing commitment contracts, is not easy to confirm empirically.[98] However, the leading empirical study of executive compensation strongly supports the conclusion that such compensation is less sensitive to performance than it would be under a welfare-maximizing commitment contract.[99]

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[95] *See supra* notes 72-73 and accompanying text.

[96] *See* Fudenberg & Tirole, *supra* note 6, at 1307.

[97] *See id.* at 1307-1308; Subcommittee on Executive Compensation, *supra* note 64.

[98] While we know that welfare-maximizing commitment contracts strike the optimal tradeoff between incentives and risk-sharing, the theory does not generate a prediction about the magnitude of the performance-sensitivity of compensation. *See* Jensen & Murphy, *supra* note 58, at 243.

[99] *See id.* at 227, 243-44.

B. *"Principal-Agent" Relationships with Adverse Selection.*

Section A was concerned with the effect of ex post profitable modification opportunities in "principal-agent" relationships involving moral hazard. This section examines the modification problem in "principal-agent" relationships involving adverse selection. As noted above, adverse selection refers to the situation in which the agent has private information about the desirability of alternative courses of action. This section focuses on a particular type of relationship in this category: the relationship between the purchaser and the supplier of a good in a situation in which the good is customized along some dimension -- for example, physical attributes or location -- and in which the supplier has private information about its cost of production and is a worse risk-bearer than the purchaser (for example, because it is owned by a sole proprietor or a small handful of individuals rather than by shareholders with diversified portfolios). I will refer to relationships in this category as "purchaser-supplier" relationships.

This sub-section has described observed contracting patterns in landowner-sharecropper and shareholder-manager relationships. Another type of "principal-agent" relationship with moral hazard in which the problem of ex post profitable modification opportunities is likely to arise is the relationship between the purchaser and the supplier of a good whose quality -- for example, its durability and reliability -- is not readily observable at the time of sale. (Note that this sort of purchaser-supplier relationship is distinct from the purchaser-supplier relationships discussed in section B of this Part. The latter relationships involve adverse selection rather than moral hazard.) In the relationship between the purchaser and the supplier of a good whose quality is not readily observable at the time of sale, there is a lag between the time at which the supplier chooses his actions and the time at which the outcome of these actions -- the quality of the good -- is realized. *See* Fudenberg & Tirole, *supra* note 6, at 1308. As explained earlier, during this lag both parties can gain by modifying a welfare-maximizing commitment contract.

Observed patterns of contracting between purchasers and suppliers in situations in which the quality of the traded good is not readily observable at the time of sale provide further empirical support for the predictions of the theoretical analysis. For one, warranties are relatively limited in practice; this may reflect the fact that, since any warranties would just be renegotiated down the road, there is little reason to have them in the first place. *See id.* Secondly, contracts that give the supplier flexibility with regard to the terms of its compensation under the contract, as predicted by the analysis, are observed in practice. For example, in his study of contracting relationships between electric utilities and coal mines -- relationships that are likely to be ones in which the quality of the traded good (coal) is not readily observable at the time of sale -- Professor Paul Joskow found that contracts occasionally gave the coal mine the option to switch from an indexed arrangement (under which the coal mine received a price independent of its costs) to a cost plus arrangement (under which the payment to the coal mine was tied to its costs). *See* Paul L. Joskow, *Vertical Integration and Long-Term Contracts: The Case of Coal-Burning Electric Generating Plants*, 1 J. L. ECON. & ORGANIZATION 33, 72 (1985). (The reason that coal quality likely is not readily observable at the time of sale is that this quality depends on a variety of complicated factors such as BTU content, sulfur content, ash content, chemical composition, and grindability. *See id.* at 44.)

The fact that the traded good in purchaser-supplier relationships is customized implies that relationship-specific investments -- investments in assets that are more valuable when employed in a particular trading relationship than in alternative uses -- are necessary. In turn, the necessity of relationship-specific investments means that the relationship will be long-term: the investment would not be made if the relationship were expected to terminate after a single trade.[100]

One example of a purchaser-supplier relationship is the GM-Fisher Body relationship mentioned earlier in the paper: for many years Fisher Body, owned by the Fisher brothers, supplied auto bodies to GM in a long-term relationship involving a customized production process and multiple deliveries over time,[101] and, as well, the Fisher brothers surely had more information than GM about their production cost and were worse risk-bearers than GM. A second example is the relationship between the government and a defense contractor: such relationships typically involve customized production and many deliveries over time,[102] and the defense contractor clearly will have more information about its costs than the government[103] and, in a situation in which the size of the project is large relative to the contractor's total business, will be less able to bear risk than the government.[104]

This section's examination of the effect of ex post profitable modification opportunities in purchaser-supplier relationships parallels section A in terms of organization. Throughout, the analysis is illustrated by reference to the following stylized example. The traded good is

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[100] Note that the fact that purchaser-supplier relationships are relatively long-term does *not* imply that the threat of nonlegal sanctions in the form of terminating the relationship, *see* Charny, *Nonlegal Sanctions*, *supra* note 34, at 393, is likely to deter contractors from taking advantage of ex post profitable but welfare-reducing modification opportunities. Because relationship-specific investment has occurred, the threat to terminate the relationship if modification occurs is not credible. *Cf.* Joskow, *supra* note 99, at 55-56 (arguing that reputational constraints are likely to be more effective in situations in which sales are made to multiple purchasers).

[101] *See* Klein et. al., *supra* note 34, at 308-309.

[102] Laffont & Tirole, *Adverse Selection and Renegotiation*, *supra* note 6, at 597.

[103] *See* LAFFONT & TIROLE, INCENTIVES IN REGULATION AND PROCUREMENT, *supra* note 6; Laffont & Tirole, *Adverse Selection and Renegotiation*, *supra* note 6.

[104] *See* Fudenberg & Tirole, *supra* note 6, at 1308.

customized by location: it is produced at a facility located relatively near the purchaser.[105] The supplier may have "low" costs or "high" costs, and the welfare-maximizing trade quantity is higher when the supplier has low costs than when it has high costs. Finally, the supplier's costs – and, hence, the per-unit price it will demand – are higher at lower quantity levels.[106]

1. *Welfare-Maximizing Commitment Contracts.*

Because of the necessity of relationship-specific investments in purchaser-supplier relationships, the parties in such relationships will wish to enter into long-term contracts governing the terms of trade. The reason is that long-term contracts protect against the opportunism to which relationship-specific investments otherwise would give rise.[107] Indeed, there is strong empirical evidence that the necessity of relationship-specific investments is significantly correlated with entry into a long-term contract.[108]

At the same time, the parties in a purchaser-supplier relationship will wish to use their contract to "insure" the risk-averse supplier against the possibility that its cost of production is high. The supplier will not know until the relationship gets underway and the supplier begins the production process (for example, builds and tests a prototype) how "efficient" it will be at producing the good to be traded. A contract that specifies a single "bundle" of terms -- for example, price, quantity, quality -- will shift all of the risk related to the supplier's efficiency

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[105] For examples of contracting relationships in which the traded good is customized by location, see Victor P. Goldberg & John E. Erickson, *Quantity and Price Adjustment in Long-term Contracts: A Case Study of Petroleum Coke*, 30 J. L. & ECON. 369 (1987) (petroleum coke supply relationships), and Joskow, *supra* note 99 (coal supply relationships).

[106] Again, the petroleum coke supply and coal supply relationships noted just above provide examples. In particular, contracts in both of these relationships often specify nonlinear pricing schemes involving lower prices when higher quantities are taken. *See* Goldberg & Erickson, *supra* note 105, at 378-80; Joskow, *supra* note 99, at 73.

[107] *See* Hart, *supra* note 46, at 4; *see generally* WILLIAMSON, MARKETS AND HIERARCHIES, *supra* note 31.

[108] Empirical studies finding significant correlation include Keith J. Crocker & Scott E. Masten, *Mitigating Contractual Hazards: Unilateral Options and Contract Length*, 19 RAND J. ECON. 327 (1988) (natural gas supply relationships); Goldberg & Erickson, *supra* note 105 (petroleum coke supply relationships); Paul L. Joskow, *Contract Duration and Durable Transaction-Specific Investments: The Case of Coal*, 77 AMER. ECON. REV. 168 (1987) (coal supply relationships); and Joskow, *supra* note 99 (same).

onto the supplier, who is the poorer risk-bearer. A contract that specifies multiple bundles will improve risk-sharing. An example of a multiple-bundle contract is one under which the supplier is paid one price for a delivery meeting a specified quality level and another price for a delivery meeting a different quality level. Another example is a contract under which different per-unit prices apply to different quantity levels.

However, if the bundles are chosen so that *all* of the risk is shifted from the supplier to the purchaser, then an incentive problem develops. In particular, the supplier will always want to "masquerade" as an inefficient firm, even if it is efficient. In the stylized example described above, suppose that the contract between the purchaser and the supplier specifies two price, quantity bundles, one tailored to the situation of low costs (the "low cost bundle") and the other tailored to the situation of high costs (the "high cost bundle"). Suppose also that under the contract the supplier's profit when it has low costs and chooses the low cost bundle is the same as its profit when it has high costs and chooses the high cost bundle. Will the supplier choose the low cost bundle when it has low costs? Its profit when it has low costs and chooses the high cost bundle must exceed its profit when it has high costs and chooses the high cost bundle. (Its revenue is the same in both situations as it chooses the same bundle, and its costs are lower in the former situation.) Thus, its profit when it has low costs and chooses the high cost bundle must exceed its profit when it has low costs and chooses the low cost bundle. Therefore, it will not choose the low cost bundle when it has low costs. Rather, it will masquerade as a high cost firm.

Thus, as in section A, welfare-maximizing commitment contracts here trade off incentive and risk-sharing considerations. Specifically, it turns out that such contracts will induce the supplier to distort its actions, relative to what would be welfare-maximizing in the absence of asymmetric information, either in situations in which its efficiency is relatively low or in situations in which its efficiency is relatively high.[109] Welfare-maximizing commitment

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[109] *See* Dewatripont, *Renegotiation and Information Revelation*, *supra* note 6, at 595-96; *see also* Jerry Green & Charles M. Kahn, *Wage-Employment Contracts*, 98 Q. J. ECON. 173, 173-74, 182-84 (1983); Hart, *supra* note 46, at 10; Hart & Holmstrom, *supra* note 54, at 116.

contracts "use allocative inefficiency in order to improve risk sharing."[110] The distortion in the supplier's behavior mitigates the incentive problem described above and, thus, enables better risk-sharing.

Returning to the earlier example, recall that, for incentive reasons, the supplier's profit cannot be the same when it has low costs as when it has high costs. The problem arises from the attractiveness to the supplier of masquerading as a high cost firm when, in fact, it has low costs. However, the attractiveness of this sort of masquerading is diminished by lowering the quantity and increasing the price specified by the bundle tailored to the high cost situation. The reason is that the reduction in quantity is "worth more" to the supplier when it has high costs than when it has low costs. Thus, distorting quantity downward in the situation in which the supplier has high costs diminishes the incentive problem identified above. Correspondingly, more risk can be shifted onto the purchaser, the better risk-bearer. The parties' joint welfare improves as a result.

In sum, then, the welfare-maximizing commitment contract offers multiple bundles of terms and distorts the supplier's behavior in some situations. In fact, contracts that offer multiple bundles of terms are observed in practice in purchaser-supplier relationships.[111] Unfortunately, however, there is no obvious way to tell whether purchaser-supplier contracts observed in practice conform to the latter prediction, that the supplier's behavior will be distorted in some situations.

2. *Ex Post Profitability of Modification.*

As discussed in the preceding sub-section, welfare-maximizing commitment contracts in purchaser-supplier relationships use allocative inefficiency to achieve better risk-sharing.

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110 Dewatripont, *Renegotiation and Information Revelation*, *supra* note 6, at 589.

111 *See* PSI Energy, Inc. v. Exxon Coal USA, Inc., 991 F.2d 1265, 1266 (7th Cir. 1993) (describing contract terms tying price to quality in coal contract); Goldberg & Erickson, *supra* note 105, at 378-80 (reporting nonlinear pricing -- pricing under which different per-unit prices apply to different quantity levels -- in petroleum coke contracts); Joskow, *supra* note 99, at 67-68 (reporting bonus and penalty provisions tied to quality specifications in coal contracts); *id.* at 73 (reporting nonlinear pricing in coal contracts).

However, the allocative inefficiency makes ex post modification of the original contract mutually profitable. Once the first delivery has occurred, incentives are no longer an issue: the bundle chosen by the supplier for the delivery reveals its efficiency to the purchaser, and, thus, there is no longer a reason to distort the supplier's behavior to prevent masquerading. It follows that whenever the supplier's behavior is distorted under the original contract, modification of the original contract is mutually profitable for the purchaser and the supplier.[112]

In the example from above, imagine that the quantity chosen by the supplier for its first delivery reveals it to have high costs. At this point, there is nothing to be gained from distorting quantity downward in future deliveries. Thus, both parties benefit from a modification under which the bundle tailored to the high cost situation specifies a higher quantity and, correspondingly, a lower price than the high cost bundle under the original contract.

3. *Welfare Consequences.*

This sub-section describes the welfare consequences of the opportunity for ex post profitable modification in purchaser-supplier relationships. It might seem that the ability to respond to new information would help contractors, not hurt them.[113] However, the welfare analysis below indicates that this may well not be the case. As in section A, it is useful to distinguish two possible scenarios.

a. *Modification Opportunity Not Anticipated.* In this first scenario, the purchaser and the supplier choose as their original contract a welfare-maximizing commitment contract of the sort discussed above. However, as just explained, both parties can gain down the road by modifying this contract in a way that eliminates distortions of the supplier's behavior. Thus, a rational supplier will recognize in advance that any distortion under a bundle that it chooses will vanish after the first delivery. This recognition *undoes* the positive incentive effect of

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[112] *See* Dewatripont, *Renegotiation and Information Revelation, supra* note 6, at 589, 591.

[113] *See, e.g.*, Frank R. Lichtenberg, *How Elastic Is the Government's Demand for Weapons?* 40 J. PUB. ECON. 57, 58 (1989) (stating that, in supply relationship between government and defense contractors, "it is inefficient *not* to change behavior in response to new information").

distorting the supplier's behavior: the supplier will have less incentive to take actions that are desirable given its efficiency level.

In the case of the example discussed above, the supplier will recognize that if its first delivery signals that it has high costs, then the downward distortion of quantity in the high cost situation will be corrected for future deliveries. But it was precisely this downward distortion that deterred the supplier from masquerading as a high cost firm when, in fact, it had low costs.

b. ***Modification Opportunity Anticipated.*** In this scenario the purchaser and the supplier specify a contract that takes the modification opportunity and its effects on the supplier's incentives into account. As before, I will refer to a welfare-maximizing contract in this category as a welfare-maximizing no-commitment contract.

Economic analyses do not make a prediction about whether welfare-maximizing no-commitment contracts leave opportunities for ex post profitable modification.[114] These analyses do indicate, however, that welfare-maximizing no-commitment contracts that do not leave such opportunities involve fewer bundles than welfare-maximizing commitment contracts: bundles now are targeted to more than one situation.[115] The result is that the supplier's choice of a bundle does not immediately reveal the supplier's efficiency; there is "pooling."[116] Information about the supplier's efficiency is revealed slowly over time, reducing the profitability of ex post modification. The joint welfare of the purchaser and the supplier under this sort of welfare-maximizing no-commitment contract typically will be less than these parties' joint welfare under a welfare-maximizing commitment contract when modification is not possible.[117]

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114 *See* LAFFONT & TIROLE, INCENTIVES IN REGULATION AND PROCUREMENT, *supra* note 6; Dewatripont, *Renegotiation and Information Revelation*, *supra* note 6, at 599.

115 *See* Dewatripont, *Renegotiation and Information Revelation*, *supra* note 6, at 603.

116 *See id.* at 603.

117 *See id.* at 605-608. In Dewatripont's example, the expected utility of the agent (the supplier in the purchaser-supplier relationship) is higher under the welfare-maximizing commitment contract than under the welfare-maximizing no-commitment contract, while the expected utility of the principal (the purchaser in the purchaser-supplier relationship) is the same under both contracts. *See id.*

4. *Observed Contracting Patterns.*

The earlier analysis of "principal-agent" relationships with moral hazard yielded several relatively clean predictions, practical support for which was evident in contracts cases and other empirical evidence. Unfortunately, the analysis of purchaser-supplier relationships (and, more generally, "principal-agent" relationships with adverse selection) does not yield similarly sharp predictions. As discussed below, contracting patterns consistent with the analysis are observed in practice, but these patterns seem consistent as well with alternative stories of the parties' relationship.

There is strong empirical evidence that modification of supply contracts is a common phenomenon.[118] However, in contrast to the situation in the moral hazard context, the theory here says very little about what the modifications it predicts should look like and the circumstances in which they should occur. All the theory predicts is that, under a contract that leaves ex post profitable modification opportunities, the choice of certain bundles for the first delivery will lead to a modification that does away with distortion of the supplier's behavior. This description is regrettably non-specific: many modifications that fit it might be, for example, responses to unanticipated changes in circumstances, rather than modifications of the sort predicted by the analysis here.

A practical example of a contracting relationship fitting the predictions of the analysis is the relationship between Reynolds Metal Company, an aluminum producer and petroleum coke purchaser, and Humble Oil, a petroleum coke refiner, as described by the court in *In re Great Lakes Carbon Corp.*[119] The original contract required Reynolds to take a minimum of 330,000 tons of petroleum coke per year.[120] The contract was modified shortly after delivery under the

[118] *See* JOHN A. STUCKEY, VERTICAL INTEGRATION AND JOINT VENTURES IN THE ALUMINUM INDUSTRY 99 (1983) (stating that long-term sales contracts in supply relationships are frequently modified); Goldberg & Erickson, *supra* note 105, at 381 (describing modification of contract in sample); Joskow, *supra* note 99, at 66 (noting that several contracts in sample had been modified).

[119] 82 F.T.C. 1529 (1973). *Great Lakes Carbon* and the Reynolds-Humble contracting relationship are discussed by Goldberg & Erickson, *supra* note 105.

[120] *Great Lakes Carbon*, 82 F.T.C. at 1602.

original contract commenced.[121] The modification lowered the marginal price to be paid by Reynolds[122] and specified a minimum quantity of 430,000 tons per year.[123]

The modification of the Reynolds-Humble contract has exactly the form of the ex post profitable modification in the example discussed above. In particular, a high price, low quantity bundle was replaced by a bundle specifying a lower price and a higher quantity.[124]

While, then, the Reynolds-Humble modification in *Great Lakes Carbon* may be the sort of modification with which this paper is concerned, other explanations for the observed pattern of contracting between Reynolds and Humble come readily to mind. For example, Reynolds may have wished to increase its level of output. Alternatively, attractive resale opportunities may have presented themselves.

Other predictions of the preceding sub-sections' analysis are similarly difficult to assess from a practical perspective. For example, the analysis predicts that welfare-maximizing no-commitment contracts under which modification is not ex post profitable will involve fewer bundles than welfare-maximizing commitment contracts. It is true that many observed contracts specify a single bundle of terms, rather than multiple bundles. But this may well reflect, for example, a situation in which there is no uncertainty and, thus, no need for multiple options.

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121 *Id.* In particular, the original contract was entered into in September, 1961, *id.*; Humble began to supply Reynolds under the original contract in 1963, *see id.* at 1588; *see also* Goldberg & Erickson, *supra* note 105, at 380 (stating that operations were underway by 1963); and the contract was modified in 1964, *Great Lakes Carbon*, 82 F.T.C. at 1602. It should be noted that the modified terms were to take effect in January, 1968, *id.*, and to remain in effect for a term of eleven years (until December 1978), Goldberg & Erickson, *supra* note 105, at 381 n.37. Thus, the modification took effect approximately one-fourth of the way into the 1963-1978 contract period.

122 Goldberg & Erickson, *supra* note 105, at 381.

123 *Great Lakes Carbon*, 82 F.T.C. at 1602. Reynolds not only purchased petroleum coke for its own use but also resold it, *id.* at 1588, so its demand was not constrained by the size of its own aluminum operation.

124 The original Reynolds-Humble contract is not entirely consistent with the prediction of the example. In particular, the prediction is that the original contract would specify two price-quantity bundles. There is no explicit second bundle evident in the description of the Reynolds-Humble contract. *See id.* at 1602. However, the 330,000 ton quantity specified by this contract was a minimum, not a fixed quantity. Thus, perhaps Humble had the choice between producing 330,000 tons and producing a larger quantity with Reynolds contemplating resale. Indeed, in some years Reynolds shipped as much as 100,000 tons of petroleum coke to other users. *See id.* at 1588.

C. *Strategic Alliances.*

As noted at the beginning of this Part, the leading examples of ex post profitable modification opportunities that reduce welfare involve the "principal-agent" relationships examined in sections A and B. This section explains that the same welfare effect may obtain in relationships in which contracting is motivated by strategic considerations.

An example of a "strategic alliance" of this sort is the contracting relationship between an incumbent firm and the union representing the firm's workers in a situation in which these parties wish to use a long-term employment contract to deter entry into a market that cannot sustain both the incumbent and a challenger. Because the market cannot sustain both the incumbent and the challenger, competition by the challenger for the incumbent's position may result in wasteful rent dissipation of the sort first identified by Judge Richard Posner.[125] As Judge Posner pointed out, only one of the firms can win the coveted spot, and resources they spend competing for the spot may be a social waste.[126]

Wasteful expenditures can be avoided if the incumbent firm can commit itself to remain in the market whether or not the challenger enters: with such "strategic commitment," the challenger will not wish to enter (because the market cannot sustain both firms).[127] One potential means of achieving commitment to remain in the market is entry into a long-term employment contract with the union representing the firm's workers.[128]

However, if the incumbent and the union have the opportunity to modify the employment contract, then this contract is "useless for the purpose of strategic commitment": if the challenger enters, then ex post modification of the contract will be mutually profitable for the

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[125] Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807 (1975).

[126] *See id.* If the incumbent and the challenger are equally efficient producers, then the resources spent competing clearly are a social waste. However, if the challenger is a more efficient producer, then the resources spent competing must be traded off against the benefits of more efficient production.

[127] *See generally* JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 314-15 (1988) (discussing commitment value of actions -- such as incurring nonrecoverable costs -- that signal that a firm will stick around). The more general point is that binding oneself to behave in a certain way towards another party often has strategic benefits. *See generally* FUDENBERG & TIROLE, *supra* note 71, at 8-9; THOMAS C. SCHELLING, THE STRATEGY OF CONFLICT ch. 2 (1960).

[128] *See* Dewatripont, *Commitment Through Contracts*, *supra* note 6, at 377-78.

incumbent and the union.[129] The rational challenger will anticipate the ex post profitability of modification and will compete for the coveted spot notwithstanding the incumbent-union contract. Thus, wasteful expenditures will not be avoided. The same is true if the incumbent and the union take the ex post profitability of modification, and the corresponding worthlessness of contracting as a commitment device, into account from the start: in this case they will simply not bother to enter into a long-term employment contract in the first place.

III. Legal Means of Bilateral Commitment

Part II explained that opportunities for ex post profitable modification may reduce welfare in important types of contracting relationships, most prominently "principal-agent" relationships. From the normative perspective of welfare maximization, then, contract law should be concerned with enabling bilateral commitment among contractors. This Part identifies ways in which the rules governing contract modification might serve that function.[130]

A. *Enforcement of Terms Constraining Modification.*

One way in which contract law might respond to the concern about ex post profitable modification is by enforcing contractual terms constraining modification. This section first

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129 *Id.* at 378.

130 The possibilities explored in the text seek to address undesirable incentive effects of ex post profitable modification opportunities. They do not address undesirable incentive effects of opportunities for "side-contracting" between one of the parties and an outsider or among proper subsets of the set of parties to the original contract. Imagine, for example, that, returning to the facts of Feldman v. Fox, 164 S.W. 766 (Ark. 1914), the sharecropper agreed with an outsider that the sharecropper would turn over his one half of the crop proceeds in exchange for $300. The effect of this "side contract" on the sharecropper's incentives would be precisely the same as the effect on these incentives of the modification asserted by the sharecropper in the case.

Undesirable incentive effects of side contracts among proper subsets of the set of parties to the original contract are addressed by bodies of law such as agency law and antitrust law and, as well, may always be avoided by contractual terms in the original contract. *See* Jolls, *supra* note 6, at 14-25. With regard to side contracts between one of the parties to the original contract and an outsider, contractual terms intended to address undesirable incentive effects are observed in practice. For example, insurance contracts typically seek to deter side contracts by providing that the original contract is void if the insured ever holds other insurance during the term. *See id.* at 16 n.9. The puzzle, however, is how these "other insurance" terms are enforced. *See id.* at 30.

describes in a general way the benefits of enforcement of such terms and then discusses whether such terms would actually succeed in achieving bilateral commitment among contractors.

1. ***Benefits of Enforcement.***

Part II's analysis demonstrated that bilateral commitment may enhance contractors' welfare. Because of this, enforcement of contractual terms constraining modification would enhance contractors' welfare. First, if such terms can be tailored in such a way that parties are committed not to take advantage of the sorts of ex post profitable modification opportunities that reduce welfare, yet remain free to modify in other circumstances, then such terms can do nothing but improve matters for the parties. Meanwhile, even if contractual terms constraining modification also foreclose potentially beneficial sorts of modification, enforcement of such terms enhances welfare. To be sure, in situations in which flexibility is important, the benefit of commitment not to take advantage of ex post profitable modification opportunities may well be outweighed by the cost. The cure may be worse than the disease. But in such situations, the parties will prefer to leave terms constraining modification out of their original contract. On the other hand, if the parties *do* decide that the benefit of a term constraining modification outweighs its cost, then enforcement of the term enhances the parties' welfare. In short, allowing the parties to tie their hands if they choose freely to do so can be expected to make them better off.

Enforcement of contractual terms constraining modification is consistent with the standard preference for "non-mandatory" contract terms on efficiency grounds.[131] Whatever the default rules governing modification, allowing parties to contract around these rules when they so desire can be expected to enhance welfare.[132]

[131] *See* Anthony Kronman, *Specific Performance*, 45 U. CHI. L. REV. 351, 370 (1978); *see also* RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 4.1, at 82 (3d. ed. 1986) (role of contract law is to specify terms that govern when contract is silent); Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87, 89 (1989) ("The law-and-economics movement has fought long and hard to convince courts to restrict the use of [mandatory] rules . . . .").

[132] Indeed, enforcement of contractual terms constraining modification might enhance contractors' welfare not only in situations in which contractors are concerned about ex post profitable modification

Furthermore, while contractual terms constraining modification are largely unenforceable under existing doctrine,[133] the logic of courts' reasoning in reaching this result has been repudiated, at least in some measure, by U.C.C. section 2-209(2)'s provision for enforcement of contractual terms requiring written modification.[134] As discussed earlier in the paper, courts' reasoning about the enforceability question seems to be that parties cannot, by agreement, limit their future power to agree differently. However, under section 2-209(2) of the U.C.C., parties *can*, by agreement, limit their future power to agree differently: their original agreement takes away the power they otherwise would have to modify their agreement orally.

2. *Mechanics.*

This sub-section discusses whether contractual terms constraining modification would actually succeed in achieving bilateral commitment among contractors. The basic problem is that, in the presence of mutually profitable modification opportunities, it may be that neither party will bring a legally enforceable contractual term constraining modification to courts' attention. My analysis reveals that parties plausibly will come forward in some settings but that enforcement by contractors is far from assured.

Consider a term that provides that the parties are bound to perform the original contract notwithstanding any subsequent agreement to the contrary and that any subsequent agreement (modification) is unenforceable.[135] Such a term would seem to give each party the right (i) to demand performance of the original contract, and (ii) to avoid performance of any modification

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opportunities that reduce welfare, but also in situations in which contractors are concerned about coercive modification opportunities and are not confident that the default rules governing modification will provide adequate protection. Indeed, some commentators are far from sanguine about the effectiveness of the default rules in preventing enforcement of coerced modifications. *See, e.g.*, Hillman, *supra* note 9.

[133] *See supra* part I.B.1.

[134] *See* U.C.C. § 2-209(2) (1987).

[135] The analysis would be qualitatively unchanged if the term made an exception for a certain category of subsequent agreements -- for example, agreements made in response to specified types of changed circumstances.

that has not already been fully performed on both sides.[136] As a first approximation, such a term would seem to commit the parties to stick with the original contract as long as the following are true: first, some party will always wish to enforce the right just described, and second, enforcement of the right makes performing any modification that will not be undone (because it will have been fully performed by the time enforcement of the right occurs) unattractive to one of the parties.

In Part II.A's "principal-agent" relationships with moral hazard, these conditions for achieving bilateral commitment are satisfied. For example, in *Feldman v. Fox*,[137] the original contract gave the sharecropper the right to half of the proceeds of the crop, while, under the sharecropper's interpretation of the modification, the sharecropper had the right to a flat payment of $300.[138] Suppose first that the modification had not already been fully performed on both sides. Then the contractual term described above gives each party the right to demand performance of the original contract and to avoid performance of the modification. If half of the proceeds of the crop turned out to amount to more than $300, then the sharecropper would want to enforce this right. Meanwhile, if half of the proceeds of the crop turned out to amount

[136] This statement assumes (1) that once a modification has been fully performed on both sides (without either party being under duress), the modification is not open to challenge; and (2) that the fact that a modification no longer can be undone does not extinguish the right to demand performance of the original contract.

With regard to (1), it is clear that a modification that is unenforceable because of lack of consideration cannot be challenged once it has been fully performed on both sides. *See* Angel v. Murray, 322 A.2d 630, 634 (R.I. 1974) (citing cases). On the other hand, where one party has performed her side of the modification under duress, the modification may be challenged even after it has been fully performed on both sides. *See* Austin Instrument, Inc. v. Loral Corp., 272 N.E.2d 533, 537 (N.Y. 1971); FARNSWORTH, *supra* note 37, at § 4.19. A modification that is unenforceable because of a term in the original contract would seem to fit into the former category rather than the latter.

With regard to (2) -- that the fact that a modification no longer can be undone does not extinguish the right to demand performance of the original contract -- the contrary assumption would contravene the parties' express wish to bind themselves to performance of the original contract. The assumption in (2) is needed to give effect to the parties' clear intent. This assumption does require, however, that a modification be conceptualized, not as a replacement of the original contract, but rather as a distinct contract -- one which is unenforceable but not subject to challenge once fully performed on both sides.

[137] 164 S.W. 766 (Ark. 1914).

[138] *Id.* at 766.

to less than $300, then the landowner would want to enforce the right. The latter is what occurred in *Feldman*.[139]

Suppose second that the modification (as interpreted by the sharecropper) had already been fully performed on both sides. Then coming forward to demand performance of the original contract would result in enforcement of the original contract without any undoing of the modification. Here, the sharecropper would always want to come forward: doing so would allow him to collect half of the proceeds from the crop, above and beyond the $300 already received. But given this, the landowner clearly will not agree to the modification under which the shareholder receives the $300 payment.[140]

In contrast to the case of the contracting relationships considered in Part II.A, in Part II.B's "principal-agent" relationships with adverse selection it seems difficult to be sure that the above conditions for achieving bilateral commitment will be satisfied. A plausible story in which these conditions will be satisfied, however, is the following. Imagine that the Reynolds-Humble relationship discussed above contemplated two major deliveries. As noted before, the original contract between Reynolds and Humble involved a high price, low quantity bundle, and the modification involved a low price, high quantity bundle.[141] Imagine, however, that the reverse

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[139] In particular, the landowner argued that he owed the sharecropper one half of the proceeds, as specified by the original contract. *See id.* at 767.

[140] The reader might worry that the owner and the worker, anticipating performance of both the modification and the original contract, would choose a modification that, *together with the original contract*, achieves the same outcome as the modification to which the parties would have agreed if the modification were going to replace, rather than exist alongside, the original contract. However, it is clear that a modification with this "undoing" effect would not be performed. The modification would have to be contingent upon the owner's profit in order to achieve the "undoing" just described. But once the owner's profit is realized, one of the parties will always prefer not to perform the modification.

To illustrate, return to the facts of *Feldman*. Suppose that the landowner and the sharecropper, anticipating that both the modification and the original contract would be performed, agree to a modification that achieves the "undoing" described above. The modification would require the landowner to pay the sharecropper $300 in exchange for the sharecropper's half of the crop proceeds, once these proceeds were realized. (This way, the combined effect of the original contract and the modification is just the same as the effect of the modification (as interpreted by the sharecropper) in *Feldman*: the landowner gets all of the crop proceeds, and the sharecropper gets $300.) However, either the owner or the worker will always prefer not to perform the modification. If the crop proceeds exceed $300, then the sharecropper will prefer not to perform, while if the crop proceeds fall short of $300, then the landowner will prefer not to perform.

[141] *See* In re Great Lakes Carbon Corp., 82 F.T.C. 1529, 1602 (1973); Goldberg & Erickson, *supra* note 105, at 380-81.

were true: the original contract involved a low price, high quantity bundle, and the modification involved a high price, low quantity bundle.[142] In the hypothetical, which involves only two deliveries, the modification would occur between the two deliveries. Now consider the point of time at which the modification has been fully performed (the second delivery has taken place). Then the contractual term described above gives each party the right to performance of the original contract (in particular, the part of that contract -- relating to the second delivery -- that has not yet been performed) without any undoing of the modification. Will either party wish to enforce this right? It seems likely that Humble will wish to do so. Humble's production of petroleum coke very likely involves economies of scale,[143] and economies of scale imply that average cost of production is decreasing in the quantity produced.[144] Thus, demanding that Reynolds take the quantity specified by the original contract once the modification has been fully performed very likely will prove attractive to Humble. But given this, Reynolds clearly will not agree to the modification in the first instance.[145]

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[142] That is, imagine that the original contract distorted behavior towards an excessive rather than a suboptimal quantity and that the modification corrected this distortion.

[143] *See* Goldberg & Erickson, *supra* note 105, at 380-81 (noting existence of economies of scale in petroleum coking).

[144] *See* TIROLE, *supra* note 127, at 18-19.

[145] Again, the reader might worry that the parties, anticipating performance of both the modification and the original contract, would agree to an "undoing" modification of the sort described above. In the Reynolds-Humble hypothetical, however, an "undoing" modification would require Reynolds, the purchaser, to deliver petroleum coke to Humble, the supplier. Reynolds would then have to resell a corresponding amount of petroleum coke after the original contract had been performed. The associated transaction costs -- including transportation costs -- seem likely to be prohibitive.

Consider the following numerical example, which approximates the contracting pattern in the Reynolds-Humble relationship except for the reversal in the relationship between the original quantity and the modified quantity. In particular, imagine that the original contract provided for a quantity of 430,000 tons and that the modified contract provided for a quantity of 330,000 tons. Now imagine that Reynolds and Humble, anticipating that both their modification and the original contract would be performed, agree to an "undoing" modification. Performing the "undoing" modification would require Reynolds to delivery 100,000 tons of petroleum coke to Humble. As well, after the original contract had been performed, Reynolds would have to resell 100,000 tons of petroleum coke to an outside party. Only then would Reynolds be in the same position as it would have been in with the desired 330,000 ton modification.

Note that matters would be different if the quantities specified by the original contract and the modification followed the pattern observed in the actual Reynolds-Humble relationship. There, an "undoing" modification would involve an additional delivery by Humble, and no later resale by Reynolds would be necessary.

Turning finally to the strategic alliances of Part II.C, again it seems difficult to be sure that the conditions for achieving bilateral commitment will be satisfied. Here too, though, it is not difficult to tell a story in which these conditions will be satisfied. In particular, imagine that the incumbent firm and the union described in Part II.C respond to the challenger's entry by agreeing to a modification under which the firm provides each worker with a flat severance payment in lieu of the original contract's employment obligations. Once this modification is fully performed on both sides -- that is, once the workers have received their severance payments -- the workers very likely will wish to come forward and demand performance of the original contract. By coming forward in this way, they both receive severance payments and avoid unemployment. But given this, the firm clearly will not agree to the modification in the first instance.[146]

In sum, then, in some settings -- especially those involving "principal-agent" relationships with moral hazard -- it is plausible that terms constraining modification will be enforced by contractors, notwithstanding the mutual profitability of modification ex post. On the other hand, though, enforcement of such terms is far from assured.

B. *Unanticipated Change in Circumstances Requirement.*

Enforcement of contractual terms constraining modification, as just described, involves allowing parties to design their own modification rules. Other ways in which contract law might facilitate bilateral commitment among contractors involve the default rules governing modification. Possibilities for bilateral commitment through default rules are the subject of this section and the next.

One possible means of facilitating beneficial bilateral commitment involves subjecting all contract modifications to the requirement of section 89(a) of the *Restatement (Second) of Contracts* that "[t]he reason for modification . . . rest in circumstances not 'anticipated' as part of the context in which the contract was made."[147] If this requirement were applied to all contract

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[146] Here an "undoing" modification is simply not feasible: the original employment contract and the modification (calling for severance payments in lieu of employment) are mutually exclusive.

[147] RESTATEMENT (SECOND) OF CONTRACTS § 89 cmt. b (1979). Modifications governed by section

modifications, then all modifications that are profitable, not because of circumstances not anticipated when the original contract was entered into, but because of changes in, for example, the incentives-risk sharing tradeoff in "principal-agent" relationships, would be unenforceable. This is a desirable outcome, at least on instrumental grounds, because, as explained above, opportunities for modification of the latter sort reduce contractors' welfare.

It is important to emphasize that section 89(a)'s unanticipated change in circumstances requirement would not render unenforceable modifications that parties find profitable due to the materialization of remotely foreseen possibilities. The comment to section 89(a) provides that "a frustrating event may be unanticipated for [the purpose of section 89(a)] if it was not adequately covered, even though it was foreseen as a remote possibility."[148]

The analysis indicates that uniform adherence to the unanticipated change in circumstances requirement would carry a benefit in the sorts of contracting relationships discussed in Part II. However, uniform adherence to this requirement might carry costs as well. Perhaps some perfectly innocuous modifications would not pass muster with an unanticipated change in circumstances requirement in place.[149] On the other hand, the presence of the requirement in the *Restatement (Second) of Contracts* provides some support for the view that it is not unduly restrictive. Moreover, courts and commentators alike have suggested that the presence or absence of an unanticipated change in circumstances is a good means of distinguishing between modifications that are voluntarily entered into and the coerced modifications with which contract modification doctrine traditionally has been concerned.[150]

A final question concerns the mechanics of achieving bilateral commitment by means of the unanticipated change in circumstances requirement. As above, the mechanics are tricky because

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2-209 of the U.C.C. need not, at present, satisfy the unanticipated change in circumstances requirement, although the commentary to section 2-209 indicates that the section's good faith standard "*may in some situations* require an objectively demonstrable reason for seeking a modification," U.C.C. § 2-209 cmt. 2 (1987) (emphasis added).

[148] RESTATEMENT (SECOND) OF CONTRACTS § 89 cmt. b (1979).

[149] Hillman, *supra* note 9, at 700, advances this view.

[150] *See* Pittsburgh Testing Laboratory v. Farnsworth & Chambers Co., 251 F.2d 77, 79 (10th Cir. 1958); Aivazian et. al., *supra* note 27, at 205; Richard A. Posner, *Gratuitous Promises in Economics and Law*, 6 J. LEGAL STUD. 411, 423-24 (1977).

it may be that neither party will step forward to challenge a legally unenforceable modification that is mutually profitable to the parties at the time of modification. The mechanics are the same as before if unenforceability of modifications has the same effect as a contractual term of the sort described above. However, it may well be that, in the absence of such a contractual term, a court would not allow the parties to enforce the original contract in a situation in which the modification had already been performed. In this case, unenforceability of the modification means only that each party has the right to demand performance of the original contract in lieu of the modification, and only so long as the modification has not yet been fully performed. Then, as a review of the analysis above makes clear, bilateral commitment is potentially achieved in "principal-agent" relationships with moral hazard and is not achieved in the other contracting relationships considered in Part II. The reason is that it is only in the former relationships that there is a point of time at which some party will always prefer that the original contract, rather than the modification, be performed.

C. *Reliance-Based Enforcement of Modifications.*

Reliance-based enforcement of modifications, as under section 89(c) of the *Restatement (Second) of Contracts*,[151] enables a party to *undo* contractual terms and legal rules constraining modification (by relying on a modification). The corollary of this ability to undo is the inability to achieve bilateral commitment. Thus, an additional possible response to the ex post profitable modification problem discussed in Part II is judicial caution in enforcing modifications on the basis of reliance in types of situations in which bilateral commitment may enhance contractors' welfare. Limiting reliance-based enforcement of modifications (which would achieve bilateral commitment under the same conditions as would the unanticipated change in circumstances requirement) carries a benefit alongside the costs that it may involve.

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151 *See* RESTATEMENT (SECOND) OF CONTRACTS § 89(c) (1979). Section 2-209(5) of the U.C.C. similarly provides for reliance-based enforcement of contract modifications. *See* U.C.C. § 2-209(5) (1987).

IV. BILATERAL COMMITMENT AND CHANGING PREFERENCES

Part II made the basic efficiency case for enabling bilateral commitment among contractors: such commitment may enhance the parties' welfare in "principal-agent" and other contracting relationships within the standard economic framework, in which actors' preferences do not vary with time and circumstance. The present Part explores the value of bilateral commitment in relationships outside this standard framework – in particular, relationships in which one contractor has changing preferences and is concerned about "weakness of the will" later in the relationship. With changing preferences, "[a] person's preferences [about an act] differ at the time of action from what they were earlier, when the prospect was contemplated but the decision was still in the future."[152] To illustrate, suppose that, at the time a bonus is paid to an individual, the course of action that is most desirable to the individual is to save the money for later use towards a down payment on a house. In particular, this course of action is more attractive than, say, purchasing a trip to Tahiti. According to the standard economic framework, the individual will find the same course of action most desirable when, a few weeks later, he visits a travel agency with a friend who purchases a trip to Tahiti (assuming that the visit to the travel agency does not provide the individual with any new information). With changing preferences, in contrast, the individual may be unable to resist the temptation to book the trip to Tahiti once he has arrived at the travel agency. It is in this sense that changing preferences give rise to concerns about "weakness of the will ": "[The individual,] if free to reconsider his plan at later dates, [may well] disobey it."[153]

[152] THOMAS C. SCHELLING, CHOICE AND CONSEQUENCE 84-85 (1984).

[153] Robert H. Strotz, *Myopia and Inconsistency in Dynamic Utility Maximization*, 23 REV. ECON. STUD. 165, 165 (1955); *cf.* Robert D. Cooter, *Lapses, Conflict, and Akrasia in Torts and Crimes: Towards an Economic Theory of the Will*, 11 INT'L REV. L. & ECON. 149, 149 (1991) (characterizing weakness of the will as "responding to immediate circumstances and acting from impulse"). *See generally* SCHELLING, *supra* note 152, at 87; George W. Ainslie, *Specious Reward: A Behavioral Theory of Impulsiveness and Impulsive Control*, 82 PSYCHOL. BULL. 463 (1975); George W. Ainslie, *Beyond Microeconomics: Conflict Among Interests in a Multiple Self as a Determinant of Value, in* THE MULTIPLE SELF (Jon Elster ed., 1986); George Loewenstein & Drazen Prelec, *Anomalies in Intertemporal Choice: Evidence and an Interpretation*, 57 Q. J. ECON. 573 (1992).

Many observed institutions and patterns of behavior reflect efforts to guard against weakness of the will. An example familiar to lawyers is the institution of constitutional democracy: a constitution is a means by which a society may bind itself not to give in to temporary majoritarian impulses.[154] Examples involving individual behavior include leaving one's credit cards at home when going shopping and taking on a large mortgage obligation to limit discretionary spending.[155] A particularly dramatic example is the strategy employed by Ulysses, the hero of *The Odyssey*: he arranged to have himself tied to the mast of his ship to avoid being tempted by the song of the Sirens, and instructed his crew to "take more turns of the rope to muffle [him]" if he were to "shout and beg to be untied."[156]

The contracting relationships with which this Part is concerned are ones in which contractors, like Ulysses, are worried about weakness of the will down the road. Section A examines a simple example involving a credit card patron and a credit card company, while section B looks at contracting in the consumer saving context.[157] In both of these settings, the opportunity for ex post profitable modification may reduce contractors' welfare. At a minimum, contractors' welfare at the time at which their original contract is entered into may be reduced. This is the case in section A's credit card patron-credit card company relationship. Alternatively, contractors' welfare at each point in time may be reduced. This may be the case in the consumer saving context.

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154 *See* LAWRENCE H. TRIBE, CONSTITUTIONAL LAW § 1-7 (2d. ed. 1988); *see also* JON ELSTER, ULYSSES AND THE SIRENS: STUDIES IN RATIONALITY AND IRRATIONALITY 37 (1979) (interpreting constitutions as devices for binding society).

155 *See generally* ELSTER, *supra* note 154, at 37-32; SCHELLING, *supra* note 152, at 57-63, 84-96.

156 THE ODYSSEY OF HOMER 214 (Robert Fitzgerald trans., Anchor Books) (1963). ELSTER, *supra* note 154, at 37, SCHELLING, *supra* note 152, at 57, and William Nordhaus, *The Political Business Cycle*, 42 REV. ECON. STUD. 169 (1975), use Ulysses' behavior to illustrate the notion of taking action to guard against future weakness of the will.

It is interesting to note that Ulysses, in addition to having himself tied to the mast of his ship, ordered his men to plug their ears with beeswax. *See* THE ODYSSEY OF HOMER, *supra*, at 214-15. Clearly, taking action to guard against others' weakness of the will raises important moral questions not raised by taking action to guard against weakness of one's own will. *Cf.* ELSTER, *supra* note 154, at 85 (arguing that binding individuals against their ex ante preferences but in service of their ex post preferences -- for example, by prohibiting television watching one day a week -- is illegitimate). Note that the use of a constitution as a means of guarding against weakness of the will raises the same issues.

157 I assume for my analysis that contracting in the credit card and consumer saving contexts is governed by the same legal rules as contracting generally.

As in the relationships considered in Part II, then, bilateral commitment may enhance contractors' welfare. Section C examines how the legal means of bilateral commitment described in Part III would play out in settings with changing preferences.[158]

A. *Credit Card Contracts.*

This section examines the effect of ex post profitable modification opportunities in a simple example involving a credit card patron worried about future weakness of the will and the company that provides him with a credit card. The organization follows the format in Part II.

1. *Welfare-Maximizing Commitment Contracts.*

As just noted, the credit card patron is worried about weakness of the will. Specifically, suppose that he is worried that, if he gets a credit card with the credit limit the company has offered him – say, $10,000 – then he will run up a large balance on the card. Suppose also that ideally the patron would like to limit himself to a $2,000 balance. Then the welfare-maximizing commitment contract for the patron and the company can be expected to specify a $2,000 credit limit. Under this contract, the patron enjoys the benefits associated with having a credit card without making himself vulnerable to the effects of future weakness of the will.

Note that, as is standard, welfare here is measured at the time at which the original contract is entered into. In the credit card example, this means that welfare is measured with reference to the preferences of the patron at the time at which he gets the card, not his preferences when his will is weak. The appropriateness of the ex ante welfare criterion when preferences are changing is discussed below.[159]

[158] SCHELLING, *supra* note 152, at 98-103, takes a rather dim view of the prospect of using contracts to deal with problems of weakness of the will. However, Professor Schelling focuses on settings that are non-contractual (for example, weakness of the will with regard to smoking). In contrast, the settings examined here involve contracting between parties.

[159] *See infra* part VI.B.1.

2. *Ex Post Profitability of Modification.*

The welfare-maximizing commitment contract for the credit card patron and the credit card company trades off the benefits (for example, flexibility) of having a credit card and the cost of having the card in light of the prospect of weakness of the will. Just as in the contracting relationships discussed in Part II, however, the cost-benefit balance here changes over time. Here, the source of the change is changing preferences: at times at which the will is weak, the patron prefers a higher credit limit, and, thus, modification of the welfare-maximizing commitment contract produces a surplus for the patron and the company.[160]

To be sure, there may transaction costs and delay associated with modifying the credit limit. This may protect against weakness of the will in some circumstances. However, in other situations, where the temptation is especially great and is not too fleeting, transaction costs and delay will not stand in the way of modification. Note as well that, in light of the fact that the patron initially was awarded a $10,000 credit limit, he might face little cost and delay in getting an increase above the $2,000 limit.

3. *Welfare Consequences.*

This sub-section discusses the welfare consequences of the opportunity for ex post profitable modification in the credit card patron-credit card company relationship described above. As in Part II above, it is useful to distinguish two possibilities.

a. *Modification Opportunity Not Anticipated.* If the patron and the company do not take the opportunity for ex post profitable modification into account in designing their original contract, then they will choose as their original contract the welfare-maximizing commitment contract discussed above. However, as just explained, both the patron and the company can gain by lifting this contract's $2,000 credit limit when the patron's will is weak. Thus, the $2,000 credit limit is worthless. The opportunity for ex post profitable modification

[160] In practice, the patron benefits because he has a higher credit limit, which is attractive to him when his will is weak, while the company benefits because it collects interest on a higher balance.

therefore reduces the joint welfare of the patron and the company at the time at which their original contract is entered into: at that time, the patron prefers that future spending be cabined (and would be willing to pay for this in the form of, say, a higher annual fee).

b. *Modification Opportunity Anticipated.* If the patron and the company anticipate the modification opportunity and its effects, then they will not bother to include the $2,000 credit limit in the original contract. (As explained above, the limit is worthless in the presence of the opportunity for ex post profitable modification.) One possibility is that the credit card patron simply accepts the fact that he will succumb when his will is weak. In this case the outcome, and corresponding welfare effect, are the same as those in the case (just described) in which the modification opportunity and its effects are not anticipated by the parties at all. Another possibility is that the credit card patron takes alternative steps to guard against weakness of the will. In particular, he might decide to get rid of the credit card altogether, to avoid accumulating large balances when his will is weak. While this tactic is a substitute for a (binding) $2,000 credit limit, it is an imperfect one: the patron loses the flexibility associated with having and carrying the card.[161] Thus, here, too, the opportunity for ex post profitable modification reduces ex ante welfare.

4. *Observed Contracting Patterns.*

The above analysis indicates that credit card patrons may respond in two ways to their inability to bind themselves to low credit limits. First, they may simply give in when their wills are weak (either because they did not anticipate the problem ahead of time or because they prefer giving in to the substitute mode of control discussed above). Second, they may employ the substitute mode of control – getting rid of the credit card. In fact, both of these patterns of

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161 The patron has "[d]epriv[ed] [him]self of certain preferred opportunities -- suppressed certain states that economists call 'Pareto superior' -- because the other self would abuse the opportunity." SCHELLING, *supra* note 152, at 94.

behavior are observed in practice. First, many credit card patrons accumulate very large balances.[162] Second, getting rid of credit cards is a commonly observed practice.[163]

B. *Consumer Saving.*

This section focuses on contracting with changing preferences in a setting to which the economics literature has devoted significant attention. In particular, the section examines contracting between a consumer who wishes to engage in saving and who has changing preferences, and a bank or other financial institution.[164]

With changing preferences, the amount that the consumer *plans* to save during a particular period of time diverges from the amount that the consumer *wants* to save during this period once the period arrives. Psychological evidence indicates that preferences often are time-varying in a rather specific sense: at each point in time, a special priority is placed on consumption at present.[165]

This section examines the effect of ex post profitable modification opportunities in the consumer saving setting with consumer preferences of the sort just described. The organization follows the same pattern as above. Throughout, the analysis will be illustrated by reference to a stylized numerical example, in which the consumer lives for three periods and has standard

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[162] *See The Hidden Power of Plastic*, CONSUMER REP., Feb. 1987, at 119, 121. Of course, patrons may accumulate very large balances without any attendant issue of weakness of the will.

[163] *See Unwanted Credit Cards*, CONSUMER REP., Sept. 1991, at 585; *The Card that Wouldn't Die*, CONSUMER REP., Oct. 1988, at 668.

[164] Contributions to the economics literature in this area include Steven M. Goldman, *Consistent Plans*, 47 REV. ECON. STUD. 533 (1980); David Laibson, Self-Control and Saving (Dec. 1, 1992) (unpublished manuscript); Bezalel Peleg & Menahem E. Yaari, *On the Existence of a Consistent Course of Action when Tastes are Changing*, 40 REV. ECON. STUD. 391 (1973); R.A. Pollack, *Consistent Planning*, 35 REV. ECON. STUD. 201 (1968); and Strotz, *supra* note 153.

[165] In particular, the psychological evidence indicates that individuals' "discount functions" are hyperbolic: relative to present utility, utility at times other than the present is substantially discounted, and the discount is not significantly greater for times further from the present than for times nearer to the present. *See* P. DeVilliers & Richard J. Hernstein, *Toward a Law of Response Strength*, 83 PSYCHOL. BULL. 1131 (1976); *see also* Richard J. Hernstein, *Relative and Absolute Strengths of Response as a Function of Frequency of Reinforcement*, 4 J. EXPERIMENTAL ANALYSIS OF ANIMAL BEHAVIOR 267 (1961); *cf.* ELSTER, *supra* note 154, at 71 ("The absolute priority of the present is somewhat like my absolute priority over other persons: I am I -- while they are all 'out there.'").

logarithmic utility.[166] The consumer has a total of \$1000 to divide across the three periods, the price of one unit of consumption is \$1, and the interest rate is zero. At each period, the consumer accords a weight of one to present consumption while discounting all future periods' consumption by a factor of .5.[167] My hope is that, by going through this simple example in some detail, the analysis below will be relatively easy to follow.

1. *Welfare-Maximizing Commitment Contracts.*

As just described, the consumer has preferences that place a priority on present consumption at each point in time. Thus, at each point in time the consumer wants to spend now and save later. Welfare-maximizing commitment contracts between the consumer and her bank might, then, look something like the following: the consumer's paychecks are directly deposited into the bank; the consumer is permitted to withdraw a relatively large sum right away (satisfying her present desire for present spending); and the consumer is permitted much smaller withdrawals in future time periods (satisfying her present desire for future saving).[168]

To illustrate, return to the example described above. Some simple computations reveal that the contract that the consumer finds most attractive at period one is a contract under which she receives \$500 in the first period and \$250 in each of the two subsequent periods.[169] Thus, as predicted, the consumer consumes heavily in period one and consumes less in periods two and three.

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166 With logarithmic utility, the utility of consumption is equal to the natural log of the amount consumed.

167 The preferences in the example are just a numerical version of the preferences in Laibson, *supra* note 164, and E. S. Phelps & R. A. Pollack, *On Second-Best National Saving and Game-Equilibrium Growth*, 35 REV. ECON. STUD. 185 (1968).

168 *See* Phelps & Pollack, *supra* note 167, at 188-89 (stating that the savings rate will be lower in the first period than in later periods).

169 In the example, the consumer's utility at period one is equal to $\ln c_1 + .5\ln c_2 + .5\ln(1000 - c_1 - c_2)$, where c_1 denotes first period consumption, c_2 denotes second period consumption, and third period consumption is $1000 - c_1 - c_2$. (The consumer's \$1000 buys her 1000 total units of consumption.) Period one utility is maximized when $c_1 = 500$ and $c_2 = 250$, and these figures in turn imply that third period consumption is equal to 250.

As the description makes clear, this contract is welfare-maximizing from the perspective of the consumer's preferences at the time at which the contract is entered into. As well, in contrast to the case of credit card patron-credit card company relationships, here there seems to be little justification for according any special deference to the preferences of the consumer at the time at which the original contract is entered into.[170] Fortunately, such deference may be unnecessary: under certain assumptions, the joint welfare of the consumer and the bank is greater under a welfare-maximizing commitment contract than under a welfare-maximizing no-commitment contract (described below) *at each point in time.*

2. ***Ex Post Profitability of Modification.***

The consumer and the bank can both gain by modifying a welfare-maximizing commitment contract once their relationship is underway. As in section A, modification is profitable because of changing preferences: at later periods, the consumer can be made better off if she can consume more and save less than what a welfare-maximizing commitment contract calls for, and she will be willing to pay off the bank for agreeing to a modification.

In the numerical example, recall that the welfare-maximizing commitment contract calls for payments of $500 in period one and $250 in periods two and three. However, simple computations reveal that, given payment of $500 in the first period, at period two the arrangement that is most desirable to the consumer is one under which she receives $333 in the second period and $167 in the third.[171] The consumer's period two utility increases by about .09 when the original contract is modified to provide for the arrangement that is most desirable

[170] *See infra* text following note 198.

[171] Given first period consumption of 500, the consumer's utility at period two is equal to $\ln c_2 + .5\ln(500 - c_2)$, where c_2 denotes second period consumption and third period consumption is $500 - c_2$. This period two utility is maximized when $c_2 = 333$, which in turn implies that third period consumption is equal to 167.

to the consumer at period two.[172] Thus, modification of the original contract creates a surplus to be divided between the consumer and the bank.

3. *Welfare Consequences.*

This sub-section describes the welfare consequences of the opportunity for ex post profitable modification in the consumer saving setting.

a. *Modification Opportunity Not Anticipated.* Here the consumer and the bank will choose as their original contract a welfare-maximizing commitment contract of the sort discussed above. However, as just explained, both parties can gain by modifying such a contract once their relationship is underway. Once a modification has been accomplished, saving and consumption in subsequent periods diverge from the arrangement most preferred by the consumer at the time at which the original contract is entered into. Thus, the opportunity for ex post profitable modification reduces the welfare of the parties at the time at which the original contract is entered into. For instance, in the numerical example, the consumer's period one utility is higher by around .06 when the welfare-maximizing commitment contract is not modified in the manner described above than when it is.[173]

Again, however, it is not clear that the standard benchmark of ex ante welfare is appropriate here. However, the analysis just below shows that, as long as the consumer and the bank do not behave myopically and ignore the opportunity for ex post profitable modification (as was assumed in the preceding paragraph), it may be that nothing turns on the welfare benchmark that is chosen.

[172] Period two utility under the welfare-maximizing commitment contract is 8.28 (the sum of ln(250) and .5ln(250)). Period two utility under the arrangement that is most desirable to the consumer at period two is 8.37 (the sum of ln(333) and .5ln(167)).

[173] Period one utility under the welfare-maximizing commitment contract is 11.74 (the sum of ln(500), .5ln(250), and .5ln(.250)). Period one utility when the modification described in the preceding sub-section occurs is 11.68 (the sum of ln(500), .5ln(333), and .5ln(167)).

b. *Modification Opportunity Anticipated.* If the consumer and the bank are rational, then they can be expected to anticipate the modification opportunity and, as a result, select a contract that takes this opportunity into account.[174] As before, I will refer to a welfare-maximizing contract in this category as a welfare-maximizing no-commitment contract.

A welfare-maximizing no-commitment contract under which modification is not ex post profitable must specify a saving and consumption plan that the parties will actually follow. Recall the earlier numerical example. The consumer and the bank know that in the third period the consumer will consume whatever remains. They also know that in the second period the consumer will choose the period two consumption level that is most desirable to her given the period one consumption level and given that she will consume whatever is left in the third period. (If the consumer were consuming anything different in the second period, then modification would be mutually profitable for the consumer and the bank.) So any plan that the parties will actually follow must call for second and third period consumption levels that satisfy these conditions. A welfare-maximizing no-commitment contract is then a contract that selects from the plans that the parties will actually follow a plan that maximizes their joint welfare at the time at which the contract is entered into. In the numerical example, simple computations show that in the second period the consumer will consume 67% of what is left for consumption in the second and third periods.[175] Given this, the best plan among those that the parties will actually follow calls for payments of $500 in period one, $333 in period two, and $167 in period three.[176]

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[174] *See, e.g.*, Pollack, *supra* note 164, at 203 ("A sophisticated individual, recognizing his inability [to stick with the plan that is originally most desirable], would adopt a strategy of consistent planning . . . ."); Strotz, *supra* note 153, at 173-76.

[175] Given first period consumption of c_1, the consumer's utility at period two is equal to $\ln c_2 + .5\ln(1000 - c_1 - c_2)$, where c_1 denotes second period consumption, c_2 denotes second period consumption, and third period consumption is $1000 - c_1 - c_2$. This period two utility is maximized when $c_2 = .67(1000 - c_1)$.

[176] Given second period consumption of $.67(10000 - c_1)$, the consumer's utility at period one is equal to $\ln c_1 + .5\ln[.67(1000 - c_1)] + .5\ln[.33(1000 - c_1)]$. This period one utility is maximized when $c_1 = 500$, implying second period consumption of 333 and third period consumption of 167. Incidentally, the fact that the consumption levels here coincide with those in the situation in which the consumer and the bank behave myopically is just a coincidence. (For example, with four rather than three periods, the situations in the two cases would differ.)

It turns out that something surprisingly strong can be said about the comparison between the parties' welfare under a welfare-maximizing no-commitment contract and their welfare under a welfare-maximizing commitment contract when modification is not possible. In particular, under certain assumptions, the joint welfare of the consumer and the bank is higher in the latter situation than in the former *at each point in time*.[177] Thus, no matter which

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[177] *See* Phelps & Pollack, *supra* note 167, at 196 & n.1. The assumptions are the following. First, the interest rate is positive. *See id.* at 187 (assuming positive return). Second, the horizon is infinite. *Id.* at 186. Third, the welfare-maximizing no-commitment contract is "focal" in the sense described below.

To understand the third assumption, it is useful to view the consumer with changing preferences as a composite of different temporal selves. *See* SCHELLING, *supra* note 152, at 69-87 ("[T]here is a succession or alternation of impermanent selves, each in command part of the time, each with its own needs and desires . . . ."); *id.* at 60-61, 93; Laibson, *supra* note 164, at 1, 3. The different temporal selves that compose the consumer can be viewed as players in a noncooperative game. *See* Laibson, *supra* note 164, at 1, 3. The condition that the consumer and the bank actually follow a plan is then simply the equilibrium condition that each of the consumer's temporal selves choose an optimal consumption level for the period in which it is "in control," given the consumption levels chosen by previous temporal selves and given that future temporal selves will choose in accordance with the same optimizing criterion.

With an infinite horizon, the game between the temporal selves has multiple equilibria. *See id.* at 7-9, 13; *see also* Goldman, *supra* note 164, at 536 (discussing consequences of multiplicity of equilibria); Phelps & Pollack, *supra* note 167, at 196-197 (recognizing possibility of multiple equilibria). This is not surprising: infinite horizon games quite often have multiple equilibria. *See generally* FUDENBERG & TIROLE, *supra* note 71, ch. 5; TIROLE, *supra* note 127, at 247.

In light of the multiplicity of equilibria, there is no single "best plan among those [the consumer and the bank] will actually follow," Strotz, *supra* note 153, at 165. Which plan is best of the plans that the parties will actually follow depends on what the consumer's future selves do, and multiple possibilities satisfy the requirements of the equilibrium condition. In contrast, in the finite horizon case, future selves' behavior can be pinned down by simply working backwards and assuming optimizing behavior at each step, as in the three-period example.

Because the best plan that the consumer and the bank will actually follow is indeterminate, the welfare-maximizing no-commitment contract is indeterminate. Of the possibilities, however, one can reasonably be thought to be focal. *See* Laibson, *supra* note 164, at 18. In particular, the welfare-maximizing no-commitment contract under which the consumer consumes at a constant rate each period can reasonably be thought to be focal. *See id.* The primary reason for thinking that this contract is focal is that it is very simple: the consumer's consumption at each period is a constant fraction of the amount available for consumption at that period.

The intuition for the result that welfare under the welfare-maximizing commitment contract is higher than welfare under the focal welfare-maximizing no-commitment contract at each point in time is relatively simple. In all but the first period, the saving rate is higher under the former contract than under the latter: temporal selves are willing to save more when they can be sure that other temporal selves will do the same. *See* Phelps & Pollack, *supra* note 167, at 195-96. The situation under the focal welfare-maximizing no-commitment contract can be analogized to the "defection" outcome in the well-known Prisoners' Dilemma game: the temporal selves would prefer to "cooperate" by choosing higher saving rates, but this behavior is not individually rational for a given temporal self. *See id.* at 197.

preferences of the consumer are adopted as the benchmark, the opportunity for ex post profitable modification reduces welfare.

Like the credit card patron in section A, the consumer here may turn to alternative means of guarding against the effects of future changes in preferences. Just as the credit card patron might well decide to get rid of his card, the consumer here may, for example, take on a large mortgage to purchase a house or condominium. The obligation to make mortgage payments can only be avoided by selling the property (or defaulting and watching the bank foreclose). Thus, once assumed, a mortgage is a substitute for bilateral commitment: while changing position is not impossible, it is quite costly – hopefully, costly enough that it is deterred.

Just as in the credit card case, however, such measures are imperfect substitutes. For example, the consumer may really prefer to rent rather than own her home. She buys just because taking on a mortgage forces her to save. Thus, the opportunity for ex post profitable modification of a welfare-maximizing commitment contract between the consumer and the bank continues to impose a welfare cost.

4. *Observed Contracting Patterns.*

As discussed at the beginning of this section, there is substantial evidence in the psychology literature that individuals' preferences place a priority on the present.[178] This evidence provides some suggestion of the empirical importance of the ex post profitable modification problem to which the analysis of this section points. Furthermore, observed behavior on the part of consumers signals the practical import of the problem. The best example is the one to which I alluded just above: taking on mortgages. A number of people have indicated to me in conversations that an important benefit to them of purchasing a house or condominium was that doing so induced them to engage in saving.

[178] *See* sources cited *supra* note 165.

C. *Efficacy of Legal Means of Bilateral Commitment.*

The preceding sections of this Part showed that bilateral commitment may enhance welfare in relationships involving contractors with changing preferences. This section examines the degree to which the legal means of bilateral commitment discussed in Part III enable such commitment in changing preferences settings.[179]

1. *Enforcement of Terms Constraining Modification.*

One possibility explored in Part II is enforcement of contractual terms constraining modification. This sub-section explains that, in addition to the benefits discussed in Part II, enforcement of such terms would seem to enable bilateral commitment in the credit card and consumer saving contexts.

The specific contractual term described earlier in the paper would, I argued, give each party the right (i) to demand performance of the original contract, and (ii) to avoid performance of any modification that has not already been fully performed. Again, as a first approximation such a term would seem to commit the parties to stick with the original contract as long as the following are true: first, some party will always wish to enforce the right just described, and second, enforcement of the right makes performing any modification that will not be undone unattractive to one of the parties.

In section A's credit card patron-credit card company relationship, these conditions for achieving bilateral commitment can be expected to be satisfied. Imagine that the parties' original contract provides that, by a specified day each month, the patron must pay the maximum of his balance and $2,000, which is his credit limit. (I assume for simplicity that monthly balances must be paid off each month.) The modified contract is identical except that $2,000 is replaced by $10,000. It is clear that, when the time to pay the monthly bill rolls

[179] As noted in Part III, legal means of bilateral commitment do not prevent entry into "side contracts." Here, the concern would be that the credit card patron would simply get a second credit card and, likewise, that the consumer would simply go to a different bank and borrow against the next period's payment from the first bank. Contractual terms may be able to address such side-contracting with outsiders. *See supra* note 130; Jolls, *supra* note 6, at 16 n.9. *But see id.* at 30 (noting puzzle related to enforcement of contractual terms).

around, the patron will always wish to demand performance of the original contract and to avoid performance of the modification.

Consider now the consumer saving setting. In section B's numerical example, the original contract provided for payments by the bank to the consumer of $500 in the first period and $250 in each of the two subsequent periods. Meanwhile, the period two modification provided for payments of $333 in the second period and $167 in the third period. Suppose that the modification has already been fully performed on both sides. Then coming forward to demand performance of the original contract would result in enforcement of the original contract without any undoing of the modification. Here, the consumer will always want to come forward: doing so would allow her to collect $250 for the second period and another $250 for the third period, above and beyond the amounts already received under the modification. But given this, the bank clearly will not agree to the modification.[180]

2. *Bilateral Commitment Through Default Rules.*

Assuming that changes in preferences do not constitute *unanticipated* changes in circumstances, the unanticipated change in circumstances requirement for enforcement of contract modifications renders unenforceable modifications that are ex post profitable due to changing preferences. Likewise, the enforceability of such modifications is constrained by limitations on reliance-based enforcement of contract modifications. If unenforceability of modifications has the same effect as the contractual term discussed above, then the analysis of the preceding section carries over here. As noted earlier, however, it may well be that, in the absence of a contractual term of the sort described above, a court would not allow the parties to enforce the original contract in a situation in which the modification had already been

[180] As in Part III, the issue of an "undoing" modification arises here because both the original contract and the modification end up being performed. In the numerical example, an "undoing" modification would call for the bank to pay the consumer $83 (the difference between $333 and $250) in the second period and for the consumer to pay the bank $83 (the difference between $250 and $167) in the third period. However, it is clear that at period 3 the consumer would not wish to perform her side of this "undoing" modification.

performed. In this case, unenforceability of the modification means only that each party has the right to demand performance of the original contract in lieu of the modification, and only so long as the modification has not yet been fully performed. Then, as a review of the preceding sub-section's analysis makes clear, bilateral commitment is achieved in the credit card setting but not in the consumer saving setting.

V. NONLEGAL MEANS OF BILATERAL COMMITMENT

This paper focuses on legal rules as potential means of enabling bilateral commitment among contractors. Alternatively, such commitment may be achieved through the threat of nonlegal sanctions for failing to stick with the original contract.[181] Nonlegal sanctions include refusal to continue the contracting relationship, loss of profitable future opportunities with outside parties, and individual or social condemnation.[182] Such sanctions clearly are of substantial practical importance.[183] However, while the threat of nonlegal sanctions may provide a means of bilateral commitment in some contracting relationships, it leaves important gaps in parties' ability to commit.

To begin, the fact that parties choose initially to specify their obligations to one another in a contract implies that the threat of nonlegal sanctions does not suffice to eliminate the need for legal enforceability of these obligations.[184] The threat of nonlegal sanctions thus may well not be enough to eliminate the need for legal means of bilateral commitment.

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181 For general treatments of the role of nonlegal sanctions in controlling contractors' behavior, see Charny, *Nonlegal Sanctions, supra* note 34, and Stewart Macaulay, *Non-Contractual Relations in Business*, 28 AM. SOC. REV. 55 (1963).

182 *See* Charny, *Nonlegal Sanctions, supra* note 34, at 392-94.

183 *See* Macaulay, *supra* note 181; *cf.* Ian R. Macneil, *Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law*, 72 NW. U.L. REV. 854, 890, 892-94 (1978) (describing the focus of a "relational contract system" on the overall context of a contracting relationship, including the parties' respective positions in the relationship and the surrounding social norms).

184 If the threat of nonlegal sanctions makes legal enforceability of parties' obligations unnecessary, then these obligations need not be specified in a contract. *See generally* Charny, *Nonlegal Sanctions, supra* note 34.

More importantly, at least with regard to the first two types of nonlegal sanctions noted above, the assumptions behind economic models in which the threat of nonlegal sanctions is an effective means of commitment are far from innocuous. Most importantly, in many of these economic models, the threat of nonlegal sanctions is effective only as long as the parties do not foresee the end of their contracting relationship or the end of a party's market participation.[185] Thus, even if nonlegal sanctions serve as an effective means of commitment during much of a contracting relationship, at some point legal means of commitment often will become necessary.

Finally, the reported cases and empirical evidence discussed earlier in the paper suggest that real-world contractors do in fact respond to welfare-reducing opportunities for ex post

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[185] The first type of nonlegal sanction identified in the text -- refusal to continue the contracting relationship -- has received the most attention in the economics literature. The threat of this sort of sanction often is an effective means of commitment if the "game" between the contracting parties is thought to have an infinite horizon, *see, e.g.*, FUDENBERG & TIROLE, *supra* note 71, at 146-65, or if one of the contracting parties has a certain type of incomplete information about the other party's "type," *see* David Kreps & Robert Wilson, *Reputation and Imperfect Information*, 27 J. ECON. THEORY 253 (1982); Paul Milgrom & John Roberts, *Predation, Reputation, and Entry Deterrence*, 27 J. ECON. THEORY 280 (1982). However, in many common games, such as the Prisoner's Dilemma, the fact that interaction is repeated does not change anything if either the horizon is finite or the game is one of complete information. *See* FUDENBERG & TIROLE, *supra* note 71, at 166 (discussing Prisoner's Dilemma). The infinite horizon approach has been much criticized. *See, e.g.*, Hart & Holmstrom, *supra* note 54, at 143. Attention has thus focused on the incomplete information approach, at least in the economics literature on contracting. *See, e.g.*, *id.* at 143-47. With the incomplete information approach, however, the threat of nonlegal sanctions will become ineffective as the end of the parties' contracting relationship approaches. *See generally* FUDENBERG & TIROLE, *supra* note 71, at 369-74.

The primary context in which the second type of nonlegal sanction identified in the text -- loss of profitable future opportunities with outside parties -- has been studied by economists is the managerial labor market context. *See* Eugene Fama, *Agency Problems and the Theory of the Firm*, 88 J. POL. ECON. 288 (1980); Bengt Holmstrom, *Managerial Incentive Problems -- A Dynamic Perspective*, *in* ESSAYS IN ECONOMICS AND MANAGEMENT IN HONOR OF LARS WAHLBECK (1982). The threat of losing future opportunities will constrain a party's behavior only if outside parties have incomplete information about this party, and, just as in the repeated game context discussed in the preceding paragraph, the threat will become ineffective as the end of the horizon approaches. *See* Holmstrom, *supra*.

An example of a context in which the end of the horizon problem appears to have been quite important is that of firms' decisions whether to honor non-binding pension obligations. Prior to the enactment of ERISA, firms in declining industries were particularly likely to default on such obligations. *See generally* RALPH NADER & KATE BLACKWELL, YOU AND YOUR PENSION (1973).

Moreover, the end of the horizon problem is not the only limitation on the efficacy of nonlegal sanctions in economic models. For example, in the case of the threat of loss of profitable future opportunities with outside parties, risk aversion and discounting of future rewards place limitations on the effectiveness of this threat in controlling behavior. *See* Holmstrom, *supra*. As well, economic modeling of both types of nonlegal sanctions assumes that each party's behavior, or at least some signal of this behavior, is observable to other parties. *See generally* FUDENBERG & TIROLE, *supra* note 71, at 146-68 (discussing games with observable actions); *id.* at 182-97 (discussing games in which imperfect signals of actions are observed).

profitable modification, either by taking advantage of these opportunities when they arise or by adjusting their original contract to take account of these opportunities. Thus, observed patterns of contracting provide at least some practical support for the conclusion that nonlegal means of bilateral commitment leave important gaps in parties' ability to commit.[186]

VI. ADDITIONAL NORMATIVE CONSIDERATIONS

This paper's exploration of potential contract law responses to the ex post profitable modification problem described above reflects the normative perspective that desirable legal rules are ones that maximize contractors' welfare, measured by the sum of their utilities. The

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[186] This Part has focused on a particular nonlegal alternative to legal means of bilateral commitment: the threat of nonlegal sanctions. Another alternative involves writing the original contract in such a way that transaction costs eliminate the attractiveness of otherwise ex post profitable modifications. As described earlier in the Article, contractual terms imposing formal requirements for modification are not enforceable. However, the transaction cost of modification also may be raised by requiring the consent of additional parties for modification to occur. (Requiring the consent of additional parties can never prevent an ex post profitable modification apart from transaction costs because the parties who stand to profit from modification can always pay off the additional parties whose consent is required. *See* Hart & Holmstrom, *supra* note 54, at 138 n.43.)

The strategy of requiring the consent of additional parties is plausible in the shareholder-manager relationship discussed in Part II.A. In particular, a requirement of shareholder approval for modification of managerial compensation contracts might raise the transaction costs of modification sufficiently to dissuade it. Indeed, in one of the structural relief derivative suits in the sample of suits studied by Professor Roberta Romano in her empirical work on shareholder litigation, the structural relief granted was a requirement of shareholder approval for changes in stock compensation plans when such changes involved lowering option prices. *See* Roberta Romano, *The Shareholder Suit: Litigation without Foundation?* 7 J. L. ECON. & ORGANIZATION 56, 64 (1991). As described in the discussion of the shareholder-manager relationship, modifications of stock option plans involving lowering the exercise price (and reducing the number of options) are examples of ex post profitable modifications that may reduce contractors' welfare.

In general, however, the strategy of requiring additional parties' consent to raise the transaction costs of modification will not be an effective one. To begin, an agreement among the contractors that they will not modify their contract unless they get the consent of certain additional persons who are not parties to the contract is worthless as a means of deterring modification: if the contractors wish to modify, they will simply agree to rescind their prior agreement to get the additional parties' consent for modification. To subject modification of the prior agreement itself to the additional parties' consent, the contractors would have to include the additional parties in the prior agreement, which would require these parties' consent. The transaction costs associated with getting all of the additional parties together for entry into the original contract very likely would eat up the gains from bilateral commitment. Put differently, including additional parties in the original contract and making modification of that contract subject to these parties' consent, like the "get rid of the credit card" and "take on a mortgage" strategies discussed in Part IV, is an imperfect (costly) substitute for legal means of bilateral commitment.

present Part discusses additional normative considerations that bear on the paper's analysis. Section A suggests that enforcement of contractual terms constraining modification is consistent with -- or at least not inconsistent with -- the leading noninstrumental theories of contract. Section B notes briefly some special normative issues raised by contracting relationships in which one contractor's preferences change over time.

A. *Enforcement of Terms Constraining Modification: Noninstrumental Perspectives.*

This section discusses how enforcement of contractual terms constraining modification fits with autonomy-based and community standards-based theories of contract. The section focuses on enforcement of contractual terms constraining modification, rather than looking also at the other potential contract law responses outlined in Part III, because (as the discussion in Part III reveals) the case for enforcement of terms constraining modification seems stronger than the case for the other potential responses.

1. *Autonomy-Based Theories of Contract.*

The basic premise of autonomy-based theories of contract is that individuals should be permitted to make the contracts that they wish to make, so long as the rights of others are left intact.[187] The right to contract is a component of personal autonomy: "In order that . . . my will have the greatest possible range consistent with the similar will of others, it is necessary that there be a way in which I may commit myself."[188]

At least at this level of generality, autonomy-based theories of contract seem to counsel in favor of enforcing contractual terms constraining modification. If the parties to a contract choose freely to tie their hands, why should a court refuse to prevent them from later untying themselves? Professor Charles Fried has written that autonomy requires "that I be able to make

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[187] *See* FRIED, *supra* note 1, at 7-8.

[188] *Id.* at 13. *See also* SCHELLING, *supra* note 152, at 98 ("Full freedom entails the freedom to bind oneself, to incur obligation, to reduce one's range of choice. Specifically this is freedom of contract . . . .").

nonoptimal a course of conduct that would otherwise be optimal for me."[189] Enforcement of contractual terms constraining modification has precisely this effect, except that the "me" is an "us": enforcement of such terms makes nonoptimal a course of conduct – modification – that would otherwise be optimal for the contractors.[190]

2. *Community Standards-Based Theories of Contract.*

While for autonomy-based theories contractual obligation turns on the will of the parties, community standards-based theories reject the view that the parties' agreement necessarily has controlling force.[191] The role of contract law is to do justice between the parties, and justice is defined, not by reference to parties' "rights," but by community standards.[192] Distributive considerations often figure prominently.[193]

The fit of enforcement of contractual terms constraining modification with community standards-based theories of contract will presumably vary with context. There is no apparent reason to believe that enforcement of such terms would systematically violate a community's conception of justice (though the possibility that it would violate this conception in a particular situation of course cannot be ruled out a priori). Moreover, Part IV's analysis indicates that enforcement of contractual terms constraining modification in settings of changing preferences would help *protect* parties worried about weakness of the will during the course of a contracting relationship. Furthermore, to the extent that exploitation of "unsophisticated" parties by more worldly-wise contracting partners -- a matter of special concern for community standards-based theories[194] – is implicated by enforcement of contractual terms constraining

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189 FRIED, *supra* note 1, at 13.

190 On the other hand, perhaps a person has an absolute right to contract, one that cannot be taken away by contract. Indeed, there seems to be a strand of this in Justice Cardozo's justification for the unenforceability of contractual terms constraining modification. *See* Beatty v. Guggenheim Exploration Co., 122 N.E. 378, 387-88 (N.Y. 1919) ("The clause which forbids a change, may be changed like any other. . . . Whenever two men contract, no limitation self-imposed can destroy their power to contract again.").

191 *See* UNGER, *supra* note 34, at 61, 69.

192 *See id.* at 61, 67-68; Kennedy, *supra* note 34, at 1733-35.

193 *See* UNGER, *supra* note 34, at 70; Kennedy, *supra* note 34, at 1717-22.

194 *See* Kennedy, *supra* note 34, at 1717-22.

modification, a partial response might lie in adoption of a "separate signing" requirement analogous to that imposed by section 2-209(2) of the U.C.C.[195] As discussed earlier in the paper, section 2-209(2) provides that contractual terms forbidding oral modification are enforceable. The section further provides that, "except as between merchants," terms forbidding oral modification "on a form supplied by the merchant must be separately signed by the other party."[196] Application of this sort of requirement to terms constraining modification more generally might provide some measure of protection against improvident commitments by uninformed or otherwise disadvantaged parties.

B. *Special Normative Issues Raised by Changing Preferences.*

This section addresses distinctive normative issues raised by contracting relationships in which one contractor's preferences change with time and circumstance. Sub-section 1 asks whether welfare maximization in the standard, ex ante sense is an appropriate normative criterion in situations of changing preferences. Sub-section 2 notes philosophical grounds for opposition to welfare -- measured against *any* temporal preferences -- as a normative criterion in the context of intertemporal saving and consumption.

1. *Appropriateness of the Ex Ante Welfare Criterion.*

With changing preferences, the otherwise-standard (in the economic analysis of law) focus on the ex ante welfare of contractors needs to be justified. Why favor the preferences of the "first incarnation" of the credit card patron or the consumer? What about the preferences of later incarnations? How can we know "which is Jekyll and which is Hyde"?[197]

There seems (at least to me) to be a good answer to this question in situations in which one set of preferences reflects an individual's considered judgment about a matter. In particular, the ex ante welfare criterion seems to get it right in situations in which the

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195 U.C.C. § 2-209(2) (1987).
196 *Id.*
197 SCHELLING, *supra* note 152, at 61; *see also id.* at 91-93.

preferences of the first incarnation of the individual reflect such considered judgment. One may consider all arguments pro and con on a certain matter and then make a decision -- a considered judgment -- about the matter. But it may not be possible always to keep the proof of the rightness of the decision before one's mind. "[One] knows what [one] ought to do, but only in the sense in which a sleeping geometer can be said to 'know' a geometrical theorem. One cannot constantly *keep* before one's mind all that one knows . . . ."[198]

The credit card patron who is tempted to splurge seems to me like the sleeping geometer. In Part IV.A's example, the patron's considered judgment is that he does not want to be able to charge more than $2,000 in any single month, but while he is on vacation or in the midst of holiday shopping, he may not be able to reconstruct the basis for this considered judgment. In my view, the ex ante welfare criterion is the appropriate one here.

The situation is quite different in the consumer saving setting analyzed in Part IV.B, however. In that setting, the consumer simply places a priority on the present at each point in time. No incarnation's preferences are entitled to greater deference than any other's. Fortunately, however, there may well be no need to choose among the preferences of the different incarnations. For, as explained earlier, under certain assumptions enabling bilateral commitment will enhance contractors' welfare *at each point in time* in the consumer saving setting.

2. *Philosophical Opposition to Welfare Criteria in Intertemporal Contexts.*

Many philosophers, and at least one economist, view discounting of future time periods as "irrational" or immoral.[199] On this view, contractors' welfare -- however measured -- is not the right normative criterion in settings involving intertemporal saving and consumption. Certain preferences -- in particular, preferences that accord different weights to different time periods

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[198] ELSTER, *supra* note 154, at 52.

[199] For arguments by philosophers, see JOHN RAWLS, A THEORY OF JUSTICE § 45 (1971), and HENRY SIDGWICK, THE METHODS OF ETHICS 381 (1907). The economist Frank Ramsey took the position that time discounting was "ethically indefensible" in Frank P. Ramsey, *A Mathematical Theory of Saving*, 38 ECON. J. 543, 543 (1928).

solely based on their temporal positions -- are simply wrong and should not be taken as given. The appropriate normative criterion is "rationality" or morality, defined in terms of the absence of time-discounting.

How does enabling bilateral commitment measure up against this "rationality"- or morality-based criterion? It is clear that, in general, there is no perfect congruence between bilateral commitment and the "rationality"- or morality-based normative criterion. Bilateral commitment addresses the issue of "how to cope with my predictable lack of ability to act upon my present intentions, and not [the issue of how] to cope with the irrational component of these intentions themselves."[200] At the same time, however, bilateral commitment does not seem to be completely orthogonal to the "rationality"- or morality-based normative criterion. For instance, in the consumer saving example analyzed in Part IV.B, the welfare-maximizing commitment contract tended to level saving and consumption across periods other than the first, relative to the welfare-maximizing no-commitment contract.[201] Enabling bilateral commitment thus may bring saving and consumption behavior "closer to" the non-time-discounted ideal.[202]

CONCLUSION

This paper has identified the problems with the fundamental premise of the law's treatment of contract modification -- that only potentially coerced modifications are appropriate subjects of legal censure. As explained above, commitment to stick with an original

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200 ELSTER, *supra* note 154, at 73.

201 *See supra* notes 169, 176.

202 It is not immediately obvious how "closeness to" the non-time-discounted ideal should be measured. However, a logical way to measure this closeness is to compare the consumer's initial utility with no time-discounting where consumption is the same in all periods (the non-time-discounted outcome) with this utility under the contract in question. *See* ELSTER, *supra* note 154, at 69.

In Part IV.B's example, the consumer's initial utility with no time-discounting where consumption is the same in all periods is ln(333.33) + ln(333.33) + ln(333.33) = 17.42. Meanwhile, this utility under the welfare-maximizing commitment contract is ln(500) + ln(250) + ln(250) = 17.26. Finally, this utility under the welfare-maximizing no-commitment contract is ln(500) + ln(333) + ln(167) = 17.14. Thus, saving and consumption behavior is closer to the non-time-discounted ideal under the welfare-maximizing commitment contract than under the welfare-maximizing no-commitment contract.

contract, even if both parties later want to modify that contract, may enhance contractors' welfare in the presence of such common economic phenomena as moral hazard and adverse selection. Such bilateral commitment among contractors also may be welfare-enhancing in contracting relationships in which, unlike in the standard economic framework, contractors have changing preferences. From the normative perspective of welfare-maximization, then, there is at least an a priori case for a reorientation of the legal rules governing contract modification: these rules should reflect not only the traditional concern about coercion but also the goal of enabling bilateral commitment among contractors.

The paper examined several ways in which contract law might better facilitate such commitment: enforcement of contractual terms constraining modification, subjecting all contract modifications to the unanticipated change in circumstances requirement of section 89(a) of the *Restatement (Second) of Contracts*,[203] and judicial caution in enforcing modifications on the basis of reliance in types of situations in which bilateral commitment may enhance welfare. In all cases, however, there is a very real question about whether, in light of the ex post profitability of modification, the unenforceability of a modification would ever be brought to courts' attention. The paper's conclusion in this regard, as explained above, is that parties plausibly will wish to step forward in many settings, but action by contractors is far from assured.

A contract has always been recognized as an individual commitment -- a means by which a party may commit himself to take actions that, in the absence of the contract, he would not take. My argument comes down to this: the recognition of a contract as a commitment ought to extend beyond the individual to the parties as a group; a contract ought to be recognized as a potential bilateral commitment as well as an individual commitment.

203 RESTATEMENT (SECOND) OF CONTRACTS § 89(a) (1979).