

INTERVENING IN MARKETS ON THE BASIS OF IMPERFECT INFORMATION: A LEGAL AND ECONOMIC ANALYSIS

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INTRODUCTION

A common justification for recent judicial and legislative interventions in consumer markets to set contract terms or to require firms to disclose price or other product-related information is that consumers are imperfectly informed with respect to the transactions they make.¹ It is generally recognized, however, that information is never perfect; the decisionmaker's task, therefore, is to characterize, in terms of the need for intervention, real world states that are intermediate between perfect information and perfect ignorance. These decisions are now made in what can be described politely as an impressionistic fashion, because lawyers have no rigorous tools for evaluating and responding to information problems. In recent years, economists have developed a variety of models that begin to explain the behavior of markets characterized by imperfect information.² These models, however, have been of little practical use to most lawyers, judges, and legislators, because of their mathematical complexity. The goal of this Article is to communicate to

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¹ Recent statutes that attempt to eliminate the causes or respond to the effects of imperfect information include: the Real Estate Settlement Procedures Act, 12 U.S.C. §§ 2601-2617 (1976); the Magnuson-Moss Warranty-Federal Trade Commission Improvement Act, 15 U.S.C. §§ 2301-2312 (1976); the Consumer Credit Protection Act, 15 U.S.C. §§ 1601-1691f (1976) (including both the Truth in Lending Act, *id.* §§ 1601-1665a, and the Consumer Leasing Act, *id.* §§ 1667-1667e); the Consumer Product Safety Act, 15 U.S.C. §§ 2051-2081 (1976); and the UNIFORM CONSUMER CREDIT CODE.

The doctrine of strict liability in tort also is justified partly on the ground that consumers lack the information to evaluate the risks of product-caused injuries. *See, e.g.,* G. CALABRESI, *THE COSTS OF ACCIDENTS* 163-64 (1970); Calabresi & Hirschhoff, *Toward a Test for Strict Liability in Torts*, 81 *YALE L.J.* 1055, 1062 (1972).

² *See, e.g.,* Butters, *Equilibrium Distributions of Sales and Advertising Prices*, 44 *REV. ECON. STUD.* 465 (1977); Salop, *Information and Monopolistic Competition*, 66 *AM. ECON. REV. PAPERS & PROC.* 240 (1976). *See also* authorities cited in notes 16 & 28 *infra*.

lawyers and decisionmakers the legal implications of this new "economics of information."³

The first section of this Article demonstrates that the normative objections to enforcing contracts made by imperfectly informed consumers are generally unjustified when those contracts concern goods exchanged in competitive markets. A decision to intervene, either to regulate contract terms or to require information disclosure, therefore cannot be sustained by a showing that an appreciable number of consumers are uninformed; rather, the normative question should be whether the existence of imperfect information has produced noncompetitive prices and terms. Because a decisionmaker cannot resolve this issue without an understanding of how markets characterized by imperfect information behave, the behavior of such markets is described below in part II.

The third section of this Article illustrates the ways in which economic theory can assist a decisionmaker in deciding whether the existence of imperfect information has caused a market to behave noncompetitively. Such an inquiry would be both expensive and impossible to develop precisely, given the current state of the science of the economics of information. Nevertheless, the theory generates criteria that will enable decisionmakers to determine in an acceptably rigorous fashion whether information problems are sufficiently serious to justify interventions in markets. The discussion in part III concludes by setting forth these criteria.

Part IV relaxes two important assumptions upon which the basic argument partially rests: (1) that the goods sold in any particular market are homogeneous, and (2) that firms sell to all consumers under the same terms. The object of part IV is not to discuss the congeries of legal and economic problems raised by product heterogeneity and firm discrimination among consumers, but to show that the analysis of parts I to III and the policy suggestions that follow generally continue to hold under more realistic assumptions.

Finally, part V discusses several interesting normative issues raised by interventions in markets on the basis of imperfect information; the section concludes with a summary of the argument's

³ Two prominent commentators have observed that the 1970's has been the decade of the economics of information. Joskow & Noll, *Regulation in Theory and Practice: An Overview*, in PUBLIC REGULATION (G. Fromm ed., forthcoming 1979). Professor Kornhauser recently made interesting reference to some of the earlier models but did not attempt to set out a general framework for responding to information problems. See Kornhauser, *Unconscionability in Standard Forms*, 64 CALIF. L. REV. 1151, 1167-77 (1976).

policy and institutional implications. With respect to these considerations, the economics of information teaches that some methods of intervention are more likely to move markets toward competitive equilibria than others. The analysis also suggests that courts legislatures, and administrative agencies have different capacities for responding effectively to information problems. Part V thus makes several substantive and institutional suggestions for reform of the legal methods currently available to deal with those information problems that are deemed serious enough to require some form of state response.

It must be stressed, however, that the analysis made here is preliminary in nature. The primary goals of this Article are to show that information problems in consumer markets raise difficult but familiar issues of how the state can best ascertain and remedy market imperfections, and to offer some assistance in resolving these issues. Much more work remains to be done before the competitive state of markets can be characterized precisely and the most effective remedies and remedial structures ascertained with assurance. But the problems addressed in the following analysis have remained unanswered for too long. This Article should be viewed as an early sign-post along the path to their resolution.

I. THE RELEVANCE OF IMPERFECT INFORMATION TO LEGAL INTERVENTION

A. *The Conventional Understanding*

The existence of imperfect information is thought to justify legal intervention, according to conventional understanding, because consumers cannot contract in their own best interests without the data to rank the purchase choices that markets offer.⁴ This

⁴ For example, part of the purpose of the Truth in Lending Act and the Consumer Leasing Act is

to assure a meaningful disclosure of credit terms so that the consumer will be able to compare more readily the various credit terms available to him and avoid the uninformed use of credit . . . [and] to assure a meaningful disclosure of the terms of leases . . . so as to enable the lessee to compare more readily the various lease terms available to him . . . [and] enable comparison of lease terms with credit terms where appropriate . . .

15 U.S.C. §§ 1601(a), (b) (1976). See also SENATE COMM. ON BANKING AND CURRENCY, THE TRUTH IN LENDING ACT OF 1967, S. REP. NO. 392, 90th Cong., 1st Sess. 1-2 (1967); HOUSE COMM. ON BANKING AND CURRENCY, CONSUMER CREDIT PROTECTION ACT, H.R. REP. NO. 1040, 90th Cong., 1st Sess. 6-10 (1967), reprinted in [1968] U.S. CODE CONG. & AD. NEWS 1962, 1962-66; NATIONAL COMM'N ON CONSUMER FINANCE, CONSUMER CREDIT IN THE UNITED STATES 171-75 (1972) [hereinafter cited as CONSUMER CREDIT].

Many articles also recite similar statements about the Truth in Lending Act and other legislation of this type. E.g., Landers & Chandler, *The Truth in Lending*

understanding implies that in determining whether to intervene in a given market decisionmakers should ask whether each (*i.e.*, an idealized) consumer is sufficiently informed to make purchase choices that maximize his own utility.⁵ For example, assume three firms sell a homogeneous⁶ product for \$2, \$3, and \$4, respectively. A consumer pays \$4 because he is unaware of the existence of lower prices. Imperfect information prevented this consumer from making the utility maximizing contract choice—a purchase at the lowest price.⁷ Legal intervention in this or any other market should be designed to enable each individual consumer to make the optimal choice, or otherwise to protect him from the consequences of making uninformed choices.

The most common methods of protecting consumers in such situations are to have the state impose standards for purchase terms or take action to reduce information acquisition costs.⁸ Courts

Act and Variable-Rate Mortgages and Balloon Notes, 1976 AM. B. FOUND. RES. J. 35, 64; MacIntyre, *Fair Packaging and the Informed Consumer*, 41 N.Y. ST. B.J. 687 (1969); Thain, *Credit Advertising and the Law: Truth in Lending and Related Matters*, 1976 WASH. U. L.Q. 257, 258; 1973 WIS. L. REV. 290, 295. All of the rationales usually given apparently reduce to the claim that uninformed consumers cannot contract in their own best interests. It is also occasionally said that providing consumers with more information will increase competition, but the nexus between informing consumers and the existence and normative desirability of competitive markets is largely unexplained in the legal literature.

⁵ "Utility" refers to the level of satisfaction a consumer derives from the consumption of a particular good. For general discussions of utility and other basic microeconomic concepts discussed in this Article, see P. SAMUELSON, *ECONOMICS* (10th ed. 1976); F. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* (1970).

⁶ "Product homogeneity implies that the offerings of rival sellers are alike in all significant physical and subjective respects, so that they are virtually perfect substitutes in the minds of consumers. With perfect homogeneity, there remains only one dimension along which rivalrous actions and counteractions can take place: price." F. SCHERER, *supra* note 5, at 186.

⁷ A modified version of this illustration was often used to explain the need for a truth in lending law. Firms were said to quote the price of credit in such complex and confusing ways that consumers could not readily ascertain what the price was, and consequently would sometimes pay a higher price than necessary. See, e.g., Jordan & Warren, *Disclosure of Finance Charges: A Rationale*, 64 MICH. L. REV. 1285, 1293-94 (1966).

⁸ Two kinds of imperfect information may prevent a consumer from making utility-maximizing choices. One problem is that consumers may know of available options but lack the information fully to evaluate them. Thus, consumers know that all goods have prices but may be unaware of where to find low prices or be unable to compute actual charges for credit purchases or loan interest rates. See note 7 *supra* & accompanying text.

Another type of information problem arises in cases in which a consumer is ignorant of some elements of the set of options from which he must choose. For example, a consumer may not know that certain drugs produce dangerous side effects, and thus may make the wrong choice, as measured by his own self-interest, from a set of options that includes taking drug X (dangerous but efficacious), drug

determine purchase terms by refusing to enforce particular contract clauses; legislatures determine purchase terms by statutorily prohibiting some clauses and requiring others. Two justifications for such a determination of purchase terms follow from the conventional analysis. First, if all consumers have identical preference rankings and a court or legislature is in a better position than market participants to ascertain which purchase choices are consistent with this ranking, state determination of the terms will maximize each person's utility. Assume, for example, that all consumers prefer insurance against injuries caused by the products they purchase, but are unable to understand the language of warranty disclaimers imposing the risk of these injuries on buyers. A state prohibition of such disclaimers is then optimal.

Second, a standard objection to such state intervention in consumer markets is that individuals know their preferences better than public decisionmakers do. This assumption becomes untenable, however, when individuals are imperfectly informed. Consequently, when a condition of imperfect information exists, decisionmakers should feel less constrained in substituting their view of what constitutes a fair exchange for the outcomes reached by private agreements. As an illustration, some consumers, unaware of the legal and personal consequences of giving security, may mistakenly agree to contracts granting broad security interests to the sellers of goods they purchase; these consumers actually may prefer to pay higher interest rates for financing installment purchases rather than bear the risk of harsh repossessions. In these circumstances, the contracts will not reflect consumer preferences. Thus, a court or legislature that believes it to be fair to limit the scope of security

Y (harmless but less powerful), or no drug at all. Reducing the costs of becoming informed apparently would only protect consumers from the former kind of information gaps; a consumer will not alter his behavior when he is ignorant of other options, whether or not the state makes it cheaper for him to evaluate these alternatives. If, however, the method of reducing the costs of acquiring information is conceived broadly to include making it cheaper for consumers to learn of the full set of options they actually face, the distinction between the two kinds of information gaps loses functional significance. Warning consumers of the dangers that particular drugs pose, in this latter view, is in fact an aspect of the method of protecting the consumer by reducing his costs of becoming informed.

This Article nevertheless focuses mainly on cases in which the consumer knows, in at least a vague sense, of the market options he faces—that prices vary, warranties and security interests are “broad” or “narrow,” and so forth. The textual illustrations should be taken to refer to market options that are known in this sense. This focus is adopted because American law is primarily concerned with information gaps allegedly resulting from the high costs of fully evaluating known options. Also, the question what should be done when consumers are unaware of some of the options they face raises theoretical problems that current economic analysis has not yet resolved.

interests that consumers can grant⁹ or to prevent repossessions without judicial process¹⁰ should simply direct such outcomes, for the argument that the contracts to which consumers have agreed demonstrate contrary consumer preferences is factually incorrect.

According to conventional wisdom, however, reduction of information acquisition costs, other things being equal, is preferable to legislative or judicial determination of contract terms, because reducing information costs enables individuals to make informed choices to maximize their own utility. Because consumers seldom have identical preference rankings, external determination of terms rarely is optimal. Also, if one accepts the notion that decision-makers should intervene to regulate contract terms only if consumers are uninformed, then it is incumbent upon the state to attempt to create conditions under which informed contract choices can be made. Because more consumers will become informed if information acquisition costs are decreased, reducing these costs is thought to be the preferable response to the problem of imperfect information.¹¹ Regulating terms is therefore a second best solution, to be used primarily by the judiciary, because courts cannot create and police disclosure schemes. In keeping with this conventional analysis, many of the recently enacted consumer protection laws require firms to disclose information rather than to contract on state-supplied terms.¹²

B. Difficulties with the Conventional Understanding and the Appropriate Role of Imperfect Information

This conventional understanding of the relevance of imperfect information to consumer protection law suffers from two related difficulties: the analysis often fails to provide direction to decision-makers seeking to ascertain the appropriate occasions and methods for legal intervention, and it incorrectly focuses on individuals rather than on the markets in which they purchase. With respect to the former difficulty, consumer information-acquisition costs ("search costs") can be reduced in a variety of ways, but these

⁹ *E.g.*, UNIFORM CONSUMER CREDIT CODE § 3.301(1), authorizing consumers to grant only purchase money security interests.

¹⁰ *See, e.g.*, *Fuentes v. Shevin*, 407 U.S. 67 (1972); *Sniadach v. Family Finance Corp.*, 395 U.S. 337 (1969).

¹¹ This argument also holds when consumers are unaware of the options they face. Warning of the dangers drugs pose thus enables a consumer to make the utility-maximizing choice from the now fully perceived set of options.

¹² *See, e.g.*, Truth in Lending Act, 15 U.S.C. §§ 1635, 1637 (1976) (right of rescission as to certain transactions; open-end consumer credit plans); UNIFORM CONSUMER CREDIT CODE § 3.202 (consumer leases).

methods in turn impose other kinds of costs on firms and consumers. The conventional view, however, generates no criteria for determining which methods of reducing search costs are "better" or "more effective" or "cost justified." Thus, legislatures must choose without guidance among a congeries of potentially useful, as well as potentially useless, regulations.

Moreover, the conventional analysis is inadequate as a means of ascertaining when intervention on the basis of imperfect information is necessary and whether such intervention should require disclosure or should determine contract terms. The question essential to conventional analysis is whether the typical consumer has enough information to make utility maximizing purchase choices. The most convenient way to answer this inquiry is to draw inferences from information levels held by actual consumers as a class. This is easy to do in the case of polar extremes. If scarcely anyone is informed, the typical consumer cannot be expected to be informed, but if almost everyone is informed or through disclosure legislation could become informed, a decisionmaker could conclude that the typical consumer is presently informed or that the consumer could become informed.

These polar extremes, however, rarely occur in actual markets; thus decisionmakers frequently encounter great difficulty in deciding whether the typical consumer has enough information to make an informed purchase. Generally, there are a significant number of informed consumers in any given market prior to legal intervention; moreover, a substantial number of consumers may remain uninformed even after the enactment of disclosure legislation.¹³ The crucial question of conventional analysis—whether consumers can readily acquire the information necessary to make utility-maximizing purchase choices—thus turns on the decisionmakers' estimate of the percentage of informed consumers in the market and whether this percentage is sufficient to support an inference that the typical consumer has access to adequate information at a reasonable cost. The conventional analysis fails to provide criteria to aid decisionmakers in ascertaining the sufficient percentage, except insofar as preferences for a particular course of action follow from the presuppositions of decisionmakers as to how much effort consumers should commit to informing themselves. For example, if a decision-

¹³ For example, some consumers had reasonably accurate information respecting the interest rates they paid prior to the enactment of the Truth in Lending Act, while some consumers had inaccurate information after the Act's passage. See, e.g., Mandell, *Consumer Perception of Incurred Interest Rates: An Empirical Test of the Efficacy of the Truth-in-Lending Law*, 26 J. FINANCE 1143, 1153 (1971).

maker believes that people ought to work hard at making wise transactions, he may be satisfied if thirty percent of the consumers in a market presently know the facts, believing that this level of information is sufficient to demonstrate that consumers can take care of themselves. Thus the conventional analysis in practice seldom gives decisionmakers useful guidance. The conventional view is simply not helpful in determining how much information is "enough."¹⁴

The second difficulty with the conventional mode of analysis is that it mistakenly focuses on individuals rather than on markets. To perceive the nature of this mistake, it is useful first to observe that consumers differ in their shopping behavior. Some consumers consult a variety of information sources, such as newspapers, friends, or consumer periodicals, visit several stores before purchasing, and plan purchases carefully over long time periods; others consult few or no information sources, visit only the store of purchase, and do not seriously plan ahead. But a third group, apparently larger than the first two, engages in moderate search.¹⁵

¹⁴ The debate over the need for a truth in lending law illustrates this shortcoming of conventional analysis. Professor Kripke expressed the view that the law would accomplish little "because the middle class buyer has already learned where credit is cheapest." Kripke, *Gesture and Reality in Consumer Credit Reform*, 44 N.Y.U. L. REV. 1, 4 (1969) (footnote omitted). See also Kripke, *Consumer Credit Regulation: A Creditor-Oriented Viewpoint*, 68 COLUM. L. REV. 445, 460-66 (1968). Professors Landers and Chandler, however, claimed that "consumers' knowledge of the cost of credit [was] woefully inadequate" prior to the passage of the Truth in Lending Act, and that the law itself "seems to have had a minimal impact." Landers & Chandler, *supra* note 4, at 65. A debate in these terms must necessarily be inconclusive.

Another illustration is provided by the Magnuson-Moss Warranty—Federal Trade Commission Improvement Act, 15 U.S.C. §§ 2301-2312 (1976), which requires increased disclosure of warranty provisions partly "to improve the adequacy of information available to consumers." *Id.* § 2302(a). Professor Whitford surveyed new car buyers before the passage of the Act to ascertain whether they understood the manner in which their warranty coverage was limited. The percentage of correct answers he obtained varied from 34% (maintenance required) to 64% (warranty length). Whitford, *Law and the Consumer Transaction: A Case Study of the Automobile Warranty*, 1968 WIS. L. REV. 1006, 1054-55. If these percentages are typical for other consumer warranty provisions, were the disclosure provisions of the Magnuson-Moss Act necessary? The conventional analysis of information problems cannot provide an answer.

Further, the relationship between informed consumers and market outcomes has never been fully explored in the legal literature. This has led to considerable uncertainty among those who support disclosure legislation. Thus, Senator Douglas, the leading legislative proponent of the Truth in Lending Act, argued that "only . . . 10 percent cost conscious" consumers can "police" the market. *Quoted in CONSUMER CREDIT*, *supra* note 4, at 176. The National Commission on Consumer Finance, however, claimed that "effective price competition" would result if "somewhere between one-third and one-half of the prospects are aware [of interest rates] and if some portion shop for credit." *Id.* Neither Senator Douglas nor the Commission justified the percentages of informed consumers each claimed would be necessary to achieve the Truth in Lending Act's goal.

¹⁵ The classic study of how consumers search for purchase information is Katona & Mueller, *A Study of Purchase Decisions*, in 1 CONSUMER BEHAVIOR: THE

The presence of at least some consumer search in a market creates the possibility of a "pecuniary externality": persons who search sometimes protect nonsearchers from overreaching firms.¹⁶ This result can obtain because in mass transactions it is usually too expensive for firms to distinguish among extensive, moderate, and nonsearchers. Also, it would often be too expensive to draft different contracts for each of these groups even if they could conveniently be identified. Thus, if enough searchers exist, firms have incentives both to compete for their business and to offer the same terms to nonsearchers. When the preferences of searchers are positively correlated with the preferences of nonsearchers, competition among firms for searchers should tend to protect all consumers.¹⁷ Therefore, the conventional analysis asks the wrong question. Rather than asking whether an idealized individual is sufficiently informed to maximize his own utility, the appropriate normative inquiry is whether competition among firms for particular groups of searchers is, in any given market, sufficient to generate optimal prices and terms for all consumers.

When the issue is viewed in this light, it is also possible to give decisionmakers more guidance in deciding when and how to intervene on the basis of imperfect information. This is because the problem reduces to the roughly answerable question whether the market in which a set of challenged prices or contracts were made is behaving competitively. The competitive price is the lowest price a market can sustain, and all consumers would, other things equal, prefer to purchase at the lowest price. Therefore, if enough searchers exist to generate a competitive price, all consumers who buy will maximize utility with respect to price. To refer to the illustration above, if the competitive price were \$2 and all firms charged it,¹⁸ an uninformed consumer's purchase would maximize his utility

DYNAMICS OF CONSUMER REACTION 30, 49, 52, 79-80 (L. Clark ed. 1954). Recent studies describing consumer search behavior include Claxton, Fry & Portis, *A Taxonomy of Prepurchase Information Gathering Patterns*, J. CONSUMER RESEARCH, Dec. 1974, at 35; Newman, *Consumer External Search: Amount and Determinants*, in CONSUMER AND INDUSTRIAL BUYING BEHAVIOR 79 (1977); Newman & Staelin, *Prepurchase Information Seeking for New Cars and Major Household Appliances*, 9 J. MARKETING RESEARCH 249 (1972).

¹⁶ That consumers who search benefit consumers who do not has previously been noted. See Salop & Stiglitz, *Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion*, 44 REV. ECON. STUD. 493, 494, 501 (1977). See also Rothschild, *Models of Market Organization with Imperfect Information: A Survey*, 81 J. POLITICAL ECON. 1283 (1973); Wilde, *Labor Market Equilibrium Under Nonsequential Search*, 16 J. ECON. THEORY 373 (1977).

¹⁷ This argument presupposes that firms do not discriminate among consumers on the basis of relative knowledge or sophistication. We consider below the implications of relaxing this assumption. See text accompanying notes 76-82 *infra*.

¹⁸ If the market is assumed to be competitive, all firms will by definition charge the competitive price. See P. SAMUELSON, *supra* note 5, at 58-73.

even though he bought at the first store he visited and did not know the prices charged by other firms. Similarly, because there is no reason at present to believe that consumers who search differ widely in their preferences respecting purchase terms from consumers who do not search, competition among firms for the business of those consumers who are term conscious would probably generate contract clauses that are utility-maximizing for nonsearchers.¹⁹ Recent economic models provide some assistance in ascertaining when markets are behaving competitively with respect to prices and contract terms, and in devising methods of moving markets toward competitive equilibria. These models are considered next.

Before beginning this discussion some preliminary observations should be made. Under current contract and commercial law, the existence of imperfect information is a necessary but generally not sufficient condition for legal intervention.²⁰ An additional prerequisite is the existence of substantively unfair contract terms. The argument to this point, however, shows that imperfect information should constitute a sufficient ground for intervention. This is because an intervention on information grounds is justified only if a market is found to be behaving noncompetitively; and in our society supracompetitive prices or terms are generally considered to be substantively unfair. On the other hand, no consensus exists that the outcomes of competitive markets are always fair, and we take no position in this Article on whether the state should regulate contract terms on grounds of substantive fairness when information problems are absent.²¹

¹⁹ A "harsh" contract clause, such as a broad disclaimer, shifts many risks to consumers, while a "gentle" clause, such as a broad warranty, shifts risks to firms. Consumers who choose harsh clauses in return for lower prices are less risk-averse than those who choose gentle ones. If the consumers who shop for contract terms always choose harsh (or gentle) clauses, it may be possible to infer that searchers are either less or more risk-averse than nonsearchers; consequently, competition among firms for the business of searchers could yield contract clauses that would not be utility-maximizing for the nonsearchers. But because no evidence that searchers always choose particular kinds of terms exists, it seems safe to assume that the degree of risk aversion does not correlate strongly with the extent of search. This aside, poor consumers may be somewhat more willing than middle class consumers to trade lower prices for bearing more purchase risks. See Schwartz, *A Reexamination of Nonsubstantive Unconscionability*, 63 VA. L. REV. 1053, 1058-59 (1977). Poor consumers, however, often purchase in distinct markets. See generally FEDERAL TRADE COMMISSION, ECONOMIC REPORT ON INSTALLMENT CREDIT AND RETAIL SALES PRACTICES OF DISTRICT OF COLUMBIA RETAILERS (1968); Kunreuther, *Why the Poor May Pay More for Food: Theoretical and Empirical Evidence*, 46 J. BUS. 368, 375-78 (1973).

²⁰ J. WHITE & R. SUMMERS, HANDBOOK OF THE LAW UNDER THE UNIFORM COMMERCIAL CODE 118-19, 128 (1972).

²¹ The argument to this point assumes that an intervention on information grounds cannot be justified if a market is already competitive, because competitive markets generate prices and terms that are utility-maximizing for all consumers.

II. THE BEHAVIOR OF MARKETS CHARACTERIZED BY IMPERFECT INFORMATION

A. *The Nature of the Analysis*

The study of economic problems uses both optimization and equilibrium techniques. The former method focuses on individual actors, who are presumed to maximize or minimize some relevant measure—individuals maximize utility, firms minimize costs. The economist's task is to characterize the optimization strategies actors pursue, and to describe the results of pursuing such strategies for these individuals. Equilibrium analysis focuses on the interaction of economic agents in markets; this method is used to characterize the outcomes markets are likely to generate when individual actors pursue particular optimization strategies.²² Equilibrium analysis is essential to a discussion of information problems because the normative questions that should concern decisionmakers largely reduce to whether markets are or can be made competitive.

In employing equilibrium analysis it is often helpful to model markets as games. The "players" are firms and consumers. Each of the players pursues some goal, such as profit maximization or minimization of net purchase costs, and chooses a strategy for achieving the goal. "Solution concepts"²³ then characterize the outcomes (equilibria) particular games generate when the players pursue specified strategies. The solution concept most frequently used today is the "Nash equilibrium."²⁴ A system is at a Nash equilibrium if, given that all other players continue to pursue their present strategies, each player would optimize by continuing to pursue his present course of conduct. In such a case, no player has an incentive to alter his strategy; the system is at an equilibrium.²⁵

This abstract description can be illuminated by a relatively simple example. Consumers in a purely competitive market are presumed to have perfect information, face zero search costs, and desire to purchase at the lowest price. The only Nash equilibrium in this ideal market is at the competitive price. To establish this conclusion, it may initially be observed that a situation in which firms charge different prices cannot be an equilibrium. A firm

Below we discuss possible efficiency and fairness objections to this premise. See text accompanying notes 83-88 *infra*.

²² A good introduction to equilibrium analysis is A. CHIANG, *FUNDAMENTAL METHODS OF MATHEMATICAL ECONOMICS* 39-58 (2d ed. 1974).

²³ W. BAUMOL, *ECONOMIC THEORY AND OPERATIONS ANALYSIS* 440-43 (4th ed. 1977).

²⁴ See R. LUCE & H. RAIFFA, *GAMES AND DECISIONS* 170 (1957).

²⁵ For a fuller explanation of the Nash equilibrium concept, see *id.* 170-79 (1957).

quoting a price higher than that of other firms would have no customers, because consumers who knew the price each firm charged and who could costlessly travel from firm to firm would never buy at a price above the market minimum. The high-price sellers thus would alter their strategy by reducing prices to the market minimum or exiting if the low-price sellers continued to pursue their pricing strategies. Price dispersion therefore cannot constitute a Nash equilibrium.

Moreover, the only single price at which the market would be in equilibrium is the competitive price. Once a market reaches the competitive price firms no longer have an incentive to lower their prices because the competitive price is at the minimum point of each firm's average cost curve; price cuts below this point would consequently yield losses.²⁶ It is equally true that firms would have no incentive to raise their prices if all other firms continued to charge the competitive price because a firm that raised its price would have no customers. Perfectly informed consumers would purchase from the price-raising firm's competitors.²⁷

The next part of this Article describes models that illustrate Nash equilibria in markets characterized by imperfect information. These models, like the example just given, relate the optimization strategies of consumers and firms to the outcomes markets generate. Because there unfortunately is little hard data respecting how consumers and firms optimize under conditions of uncertainty, part II (B) thus spends some time describing and analyzing the assumptions currently made respecting such optimization strategies.

B. The Behavior of Markets Characterized by Imperfect Information

1. Common Features of Search Equilibrium Models

The search equilibrium models discussed below²⁸ share several assumptions respecting firms, products and consumers. Firms maximize profits, but pursue relatively passive strategies. Each firm sets

²⁶ See P. SAMUELSON, *supra* note 5, at 470.

²⁷ The previous two paragraphs describe a "static equilibrium model." Such models do not explain how markets out of equilibrium reach equilibrium; they do not, that is, describe dynamic processes. Static equilibrium models instead characterize the kinds of equilibria a market can sustain. The formal models discussed below are all static equilibrium models. Although dynamic models would be useful for understanding market phenomena, dynamic modeling is not sufficiently advanced to generate useable policy instruments.

²⁸ Many of these models are reviewed in Rothschild, *supra* note 16. For a more recent survey, see Wilde, *Market Search Models: A Selective Survey*, California Institute of Technology, Social Science Working Paper #133 (1976) (copy on file at the *University of Pennsylvania Law Review*).

a price, charges this price to each consumer, waits to see who buys, and alters its price when this would increase expected profits. In these models, firms do not advertise, and all firms in a given market sell homogeneous goods on terms that differ, when they differ, only on price. The probable effects of relaxing all of these assumptions will be considered later,²⁹ but for now they are necessary to the analysis.³⁰

Search equilibrium models assume that consumers are interested primarily in prices (since it is assumed that the goods are homogeneous) and act to maximize expected utility. Before entering the market, each consumer decides, on the basis of his income, tastes, and alternative opportunities, the maximum or "limit" price he will pay. Search equilibrium models typically assume, for expositional convenience, that all consumers in a market have a common "limit price."³¹ This common limit price may be thought of as the monopoly price because it is the price a monopolist would charge were he confronted with a set of consumers who would pay this price but no more.³² Finally, the models assume that consumers become informed only by visiting firms; they do not read advertisements (formally there are no advertisements) or consult other information sources.³³ The effect of relaxing this assumption is also considered below.³⁴

Because firms seek to maximize profits, it logically follows that a Nash equilibrium could occur only if *no* firm can increase profits by *changing* its price. A further important equilibrium condition of search models is that no firms desire to enter or exit the market. This is captured mathematically by assuming that in equilibrium all firms earn zero profits.

²⁹ See text accompanying notes 69-82 *infra*.

³⁰ An additional assumption is that a large number of firms exist. The object is to characterize equilibria in markets in which, imperfect information aside, the usual competitive assumptions hold true.

³¹ See sources cited in note 16 *supra*.

³² Consumers of course would have individual limit prices. One could derive for each firm a demand function (telling the firm the highest price it could profitably charge) from the distribution of individual limit prices, but this is not done because the models' results are qualitatively unchanged under the simplifying assumption. Respecting the realism of the assumption that consumers have limit prices, a recent article observed that one can say "with reasonable certainty" that "the consumer enters the market not with a single price in mind, but with a range of acceptable prices." Gardner, *The Role of Price in Consumer Choice*, in *SELECTED ASPECTS OF CONSUMER BEHAVIOR*, 415, 427 (NSF/RA 77-0013, 1977). Researchers also have surveyed consumers and report finding maximum acceptable prices. See Katona & Mueller, *supra* note 15, at 47-48; authorities cited in note 55 *infra*.

³³ See sources cited in note 16 *supra*.

³⁴ See text accompanying notes 57 & 59-62 *infra*.

2. Sequential Search Models in Which Consumers Know the Price Distribution

Many early search models³⁵ assumed that consumers use a sequential strategy when they shop. A consumer acting according to this strategy visits firms in sequence according to the rule that search should continue until the marginal cost of further search is greater than or equal to the marginal gain. The gain is measured by the likelihood that an additional store visit will produce a lower price. The price for each consumer at which the marginal cost of further search equals the marginal gain is referred to as the consumer's "reservation price"; it is the maximum price at which the consumer will purchase, provided that it is less than or equal to his limit price. Because the expected gain that each consumer perceives search to yield is a function of that consumer's estimate of the probability of finding various lower prices, the consumer's optimal search strategy cannot be characterized precisely without describing how the consumer incorporates his subjective view of the actual price distribution into the calculation of his reservation price. The optimization problem that characterizing such a strategy entails, however, presently cannot be solved if the consumer is assumed not to know the distribution of prices he faces. Thus, search equilibrium models commonly make the unrealistic assumption that when consumers decide how much search to engage in they know the overall price distribution but not the specific price each firm charges.

A brief description of the single price equilibria that can obtain is sufficient to indicate the policy implications of common sequential search models. If the consumers in these models are assumed to face positive search costs, the only equilibrium is at the common limit or monopoly price, " P_L ."³⁶ If the market were at a single price, P , less than P_L , a firm could raise its price by some amount without losing customers. A consumer in this case would compare the gain of purchasing from a competitor who continued to charge the lower "old" price with the cost of switching, and if

³⁵ E.g., Arrow & Rothschild, *Preliminary Notes on Equilibrium Price Distributions with Limited Information*, The Economics Series, Institute of Mathematical Studies in the Social Sciences, Working Paper #34, Stanford University (1973) (copy on file at the *University of Pennsylvania Law Review*); Diamond, *A Model of Price Adjustment*, 3 J. ECON. THEORY 156 (1971); McCall, *The Economics of Information and Optimal Stopping Rules*, 38 J. Bus. 300 (1965).

³⁶ See Arrow & Rothschild, *supra* note 35; Butters, *Market Allocation through Search: Equilibrium Adjustment and Price Dispersion: Comment*, 15 J. ECON. THEORY 225 (1977); Diamond, *supra* note 35, at 165.

the price rise was made smaller than the cost to any consumer of switching, no consumer would switch. The only price at which this seller strategy fails is P_L ; a firm charging more than the limit price would make no sales. Thus, only the monopoly price can be a Nash equilibrium. At any lower price, a firm has an incentive to *alter* its strategy: the firm will raise its price if other firms continue to pursue their strategy of charging the same price.

When the market is at the monopoly price, no firm has an incentive to lower its price. Because sequential search models assume that consumers learn a store's price only by visiting it, a consumer will not switch to the single price-cutting firm because the probability of finding the one firm charging less than P_L , when many firms exist, is too low to make switching an optimal shopping strategy. Thus the market price remains at P_L .³⁷

The monopoly price would not be an equilibrium in sequential search models, however, if an appreciable number of consumers could search costlessly. In such a case, firms could increase profits by cutting prices, and reduce profits by raising prices. For example, were a market to reach the monopoly price, a given firm would increase revenue by cutting prices; since consumers know the price distribution, they would realize that a price cutter exists, and those who could costlessly search would find and switch to the price-cutting firm. Because individual firms could increase profits by cutting prices, the monopoly price could not be an equilibrium. Further, if a substantial number of consumers faced zero search costs, only the competitive price would be an equilibrium. If the market were at a price less than P_L , any firm that raised its price would lose those of its customers who could search costlessly, for they would switch to firms whose prices had not changed. Thus if a large number of consumers faced zero search costs, it would never benefit a firm to raise prices if its rivals did not also raise their prices. And, as shown above, a firm would profit from cutting prices if its rivals failed to follow suit. The price cutting strategy fails, however, when the market is at the competitive price. In a

³⁷ In a market with very few firms, price cutting could be an optimal strategy for a firm to follow if all other firms continued to charge the monopoly price. The odds that consumers would find a price-cutting firm vary inversely with the number of firms; consequently, consumers are more likely to search for price cutters when very few firms exist. In such a case, however, the costs to firms of colluding to raise prices are reduced, for collusion costs also vary inversely with the number of firms. See L. SULLIVAN, HANDBOOK OF THE LAW OF ANTITRUST 161-63 (1977). Neither information nor oligopoly theory has yet developed models describing the outcomes reached by oligopoly markets affected by imperfect information, apparently because of the difficulty of characterizing the strategies firms pursue when they have incentives both to cut and collusively raise prices.

competitive market, each firm is operating at the point at which price equals minimum average cost; therefore no further price cuts would occur. When a substantial portion of consumers face zero search costs, then, the only single price equilibrium a market can sustain is the competitive equilibrium. When the market reached the competitive price no firm would have an incentive to increase or decrease its price.³⁸

This conclusion unfortunately seems useless to policy makers. In the real world all consumers face positive search costs, and no legislative action could reduce anyone's costs to zero.

A departure from pure theory, however, suggests that the analysis may be useful to decisionmakers. Search equilibrium models commonly assume that sellers do not advertise.³⁹ Informative advertising, however, increases the chance that switching from firm to firm would be an optimal strategy for consumers to follow, and that price cuts would thus be optimal for firms. This function of advertising may be understood by assuming that a market is at the monopoly price. A firm then cuts its price and runs newspaper advertisements. As consumers in consequence are able to find this firm relatively cheaply, some of them may patronize it. Informative advertising thus tends to drive prices downward and thereby helps to prevent the existence of monopoly equilibria. Because legislative intervention to cure information problems is often expensive, these search equilibrium models suggest that when price advertising is common, decisionmakers should be cautious when deciding whether to intervene on the basis of imperfect information. A more detailed discussion of this and other policy implications is found in parts III and V of this Article.

³⁸ Salop and Stiglitz recently created a search equilibrium model in which consumers face two search options: to pay a set price and obtain a list of every firm charging the lowest price in the market, or to visit one firm at random and pay whatever price that firm charges. Salop & Stiglitz, *supra* note 16, at 495. In the Salop-Stiglitz model, a competitive equilibrium can occur only if a substantial number of consumers face zero search costs. Should all consumers face positive search costs, a firm could increase profits if it raised its price above the competitive price by an amount less than the cost to consumers of paying the set price to become perfectly informed. Thus the competitive price cannot be an equilibrium.

³⁹ An exception is Butters, *supra* note 2. Professor Butters assumed that firms advertise only by sending to all potential buyers slips of paper on which are written the product type—e.g., “a pen”—and the price. Buyers can costlessly process all such advertisements they receive but they obtain no other product information. From these conditions he generated an equilibrium price distribution in which one firm charged the competitive price, another the limit or monopoly price, and all other firms were in between, no two firms charging the same price. The restrictiveness of his assumptions together with the improbability of this outcome actually obtaining suggest that his interesting theoretical models would not provide useful guidance to policymakers.

Even if one interprets these search models as merely suggestive of useful policy implications, they have two significant limitations as guides to policy makers. First, as noted earlier, the assumption that consumers know the true price distribution but not the identity of the firms charging each price is unrealistic. When a model or set of models has not been verified empirically and some of its specifications seem implausible, the conclusions it supports should be taken as suggestions to consider, not directions to follow. Second, no model that presupposes that consumers know the price distribution has plausibly characterized the conditions that can sustain multiple price equilibria. Real world markets, however, frequently are characterized by price dispersion. Thus, the search equilibrium models this section describes often will give decisionmakers little help in evaluating actual market outcomes.

The next two sections of this Article⁴⁰ discuss the model proposed by the authors,⁴¹ a model that makes more plausible assumptions with respect to how consumers search and what they know about the prices they face. This model, in consequence, is somewhat more helpful in answering the question whether particular real world price distributions are close to the competitive ideal.

3. A Fixed Sample Size Model Assuming Consumers Do Not Know the Price Distribution

This model assumes that consumers are ignorant of the price distribution for a product before they begin to search.⁴² Economists generally suppose in this case that consumers also use a pure sequential strategy.⁴³ A simple example illustrates this notion. Suppose that all prices in a market cluster around a point. A consumer who follows a fixed sample size strategy will decide before shopping how many stores to visit. If he has decided on a sample of five, he will visit all five stores although, in this illustration, his search would quickly reveal little price diversity. A sequential searcher by con-

⁴⁰ See text accompanying notes 42-51 *infra*.

⁴¹ This model is presented formally in Wilde & Schwartz, *Equilibrium Comparison Shopping*, 45 *REV. ECON. STUD.* (forthcoming 1979). Readers interested in the mathematics underlying the heuristic explanation the text next provides should refer to this paper.

⁴² A consumer is considered not to know the price distribution if he has little specific knowledge of the prices the market offers. A consumer would be ignorant of the price distribution in this sense although he knew that a nineteen-inch color television set would be unlikely to cost him less than \$200 or more than \$650.

⁴³ See, e.g., Rothschild, *Searching for the Lowest Price When the Distribution of Prices is Unknown*, 82 *J. POLITICAL ECON.* 689, 694-96 (1974).

trast would probably stop searching after visiting only a few stores, because he correctly infers that further search will reveal similar prices. The sequential searcher would purchase at the same price as the fixed sample size searcher, but at a lower overall cost because he visits fewer stores. The sequential strategy is thus superior to the fixed sample size strategy because it enables consumers to make better use of the information that searching reveals.

Recent analyses suggest, however, that consumers could rationally include nonsequential elements in their search strategies.⁴⁴ Initially, consumers who search sequentially against an unknown price distribution may make more costly errors than consumers who keep to preset samples. Sequential searchers can mistake the significance of a price similarity that initial store visits may reveal and stop searching too soon, or they can mistake the significance of an initial price diversity and search longer than the actual price distribution warrants. On the other hand, consumers who stay within preset sample sizes seldom radically over or underinvest in search. Further, experiments suggest that consumers come much closer to obtaining the optimal payoff that their strategies permit when they use fixed samples rather than search sequentially.⁴⁵ Risk-averse consumers ignorant of the price distribution may therefore rationally incorporate fixed sample size elements into their search strategy. Furthermore, some consumers search because they enjoy shopping. Since a sequential strategy is useful only for minimizing search costs—the sequence could end at one store visit if that visit reveals a very low price—consumers who shop partly for pleasure may visit a preset number of stores. Finally, when fixed costs are associated with search activity, visiting several stores may be optimal. For example, if a consumer's major expense is getting to the shopping district, he may choose to visit a preset number of stores when he arrives there because the more store visits he makes the lower the average cost of visiting each store.

4. A Mixed Strategy Model

Intuition suggests that consumers actually use mixed search strategies. Because of the advantages of a fixed sample size strategy,

⁴⁴ Cf. Gastwirth, *On Probabilistic Models of Consumer Search For Information*, 90 Q.J. ECON. 38 (1976) (questioning sequential search models that assume consumer knowledge of price distributions).

⁴⁵ See Fried & Peterson, *Information Seeking: Optional Versus Fixed Stopping*, 80 J. EXPERIMENTAL PSYCH. 525 (1969).

especially when the price distribution is unknown, consumers probably do create and intend to exhaust a preset sample of stores before purchasing. These samples, however, are flexible; a consumer who sees at the outset of his search a price that his impressionistic expectation suggests is a "bargain" may buy at that price, even though this means that he has not exhausted his sample.

All essential features of such a mixed strategy are captured in a model that assumes that consumers set and keep within preset samples, but that for some consumers the sample size is one while for other consumers it is greater than one. This is because if they actually follow mixed strategies, some consumers in any given market can be expected to visit only one store while others are likely to visit more than one store. The evidence, moreover, is consistent with the existence of mixed strategies. In every market studied, a considerable percentage of consumers, but not all, visit two or more stores.⁴⁶ Thus, we make the weak (*i.e.*, realistic) assumption that consumers pursue mixed strategies, which we capture with the mathematically convenient metaphor that consumers use a fixed sample size strategy with some samples equalling one.

The model also rests on two relatively weak assumptions respecting the way sample sizes are chosen: sample size varies inversely with the cost of search⁴⁷ and directly with the potential gains from search. Gains include the pleasure shopping may bring and the lower prices it may reveal. Respecting the latter, because greater price or quality variation may exist for higher priced than for lower priced goods, more search—the visiting of more stores—should, and actually does, occur for such goods.⁴⁸

⁴⁶ See Bucklin, *Testing Propensities to Shop*, J. MARKETING, Jan., 1966, at 22, 23; Day & Brandt, *A Study of Consumer Credit Decisions: Implications For Present and Prospective Legislation*, in THE NATIONAL COMMISSION ON CONSUMER FINANCE, 1 TECHNICAL STUDIES pt. 2, at 41-42 (1972); Udell, *Prepurchase Behavior of Buyers of Small Electrical Appliances*, J. MARKETING, Oct. 1966, at 50, 52 (consumers prefer to compare products at home using out-of-store sources of information).

⁴⁷ See Bucklin, *supra* note 46, at 23-24; Newman, *supra* note 15; Swan, *Search Behavior Related to Expectations Concerning Brand Performance*, 56 J. APPLIED PSYCH. 332 (1972) (rewards and costs are taken into account by consumers choosing between brands).

⁴⁸ See Katona & Mueller, *supra* note 15, at 46, 50, 66-68 (more search was reported from durable goods buyers than sport shirt buyers); *cf.* Claxton, Fry & Portis, *supra* note 15, at 40 (a large proportion of people who search more thoroughly state that high purchase price was a significant reason); Newman & Staelin, *supra* note 15, at 255 (cost of product correlated positively with search behavior for car buyers who thought of a few makes at the outset, but did not so correlate for car buyers who thought of one make at the outset).

Psychologists have created the concept of "perceived risk," which they define as the risk the consumer associates with the financial, social, and physical consequences that may flow from purchase of the product. The higher the degree of perceived risk, they assert, the greater the amount of search, because search generates

Given all of the foregoing assumptions, the model yields three potential equilibria: (1) a single price equilibrium at the competitive price (although all consumers face positive search costs); (2) a cluster of prices at the competitive price, with other prices spreading up to the monopoly price; and (3) a continuous price distribution bounded on the upper end by the monopoly price. The equilibrium that will occur in any given market is a function of the number of consumers in that market who visit more than one firm, and the size of the samples these consumers set.

The explanation of the first equilibrium is similar to the explanations developed above. If the market is at a single price, P_o , greater than the competitive price, P_a , a given firm could increase profits by lowering its price by some amount. This firm would continue to get its share of those consumers who visit only one store. It would also get every customer whose sample included two or more stores and who visited the price cutter. Such "comparison shoppers" buy at the lowest price they see. Because when some consumers comparison shop at least one firm could increase profits by undercutting P_o , this price could not be an equilibrium; a situation in which only P_o is charged would be unstable. The price cutting strategy only fails at the competitive price because average costs then are minimized and further price cuts would be unprofitable. Thus, when some consumers comparison shop, the only single price that could be an equilibrium would be P_a , the competitive price. Further, if the market reached P_a and many consumers were comparison shoppers, no firm could increase profits by raising its price. Such a firm would get only those consumers who visit one store; for consumers who visit two or more firms would not buy from the high-price firm. In consequence, this firm could charge as much as P_L , but if too few nonshoppers exist, it still would earn no more (and perhaps less) profit than if it had continued to charge P_a . Therefore, when a sufficient number of consumers always visit more than one store, the competitive price is the only possible equilibrium.⁴⁹

This result differs from the result indicated by conventional search equilibrium models—where a competitive equilibrium could not exist unless some consumers could search costlessly—because some consumers in this model continue to search regardless of the

information, which can reduce the consumer's (subjectively) perceived risk. Thus the psychological model also predicts greater search at higher prices. See J. ENGEL, D. KOLLAT, & R. BLACKWELL, *CONSUMER BEHAVIOR* 240-41, 586-87 (3d ed. 1978).

⁴⁹ It is assumed that firms are not colluding to set and maintain a monopoly price. See note 37 *supra*.

price information revealed by store visits. Consumers probably consider the possibility of price variation in setting their samples, but the reasons that lead them to include nonsequential elements in their search strategies cause some consumers to visit all stores in these samples notwithstanding that they may continually see similar prices. Because some consumers *always* comparison shop, firms that cut prices could be rewarded and firms that raise prices could be punished. The extent to which the prospect of reward or punishment influences firm behavior depends upon the ratio of comparison shoppers to the total number of shoppers in the market. If that ratio is sufficiently great, the market will generate a competitive equilibrium.

If the number of comparison shoppers is too small to support a competitive equilibrium, but the number is nevertheless significant, the market will sustain an equilibrium with a "mass point"—a cluster of prices—at the competitive price and a price spread up to P_L , the monopoly price. A mass point above P_a , the competitive price, could not exist for reasons similar to those just discussed: when many firms charge a single price above P_a , a given firm could increase profits by cutting its price. A mass point can exist at P_a , however, because it is the competitive price; firms whose prices are forced down to P_a would not find it profitable to charge prices below it. Not all firms, however, would be at this price. In this second case, there are enough consumers who visit only one store to make it profitable for some firms to "specialize" in selling to these uninformed consumers at supracompetitive prices.

The final conclusion generated by this model is that when a small number of consumers comparison shop, equilibrium entails a price distribution with an upper bound of P_L , the monopoly price. Its range varies inversely with the number of comparison shoppers and their shopping intensities; thus, when very few consumers shop, prices will bunch up toward P_L .

The three outcomes of this model can be precisely characterized mathematically.⁵⁰ Let A_1 = the number of consumers who visit only one store; A_n = the number of consumers who visit more than one store; n = the number of stores each comparison shopper visits; F = each firm's fixed costs (including a return on investment); s = the "capacity constraint," or level of output that minimizes average cost; P_L = the common limit price; p = each firm's marginal cost.

⁵⁰ The derivation of the equations given in this section are not included in this Article. The mathematical explanation of the origin and derivation of the equations may be found in Wilde & Schwartz, *supra* note 41.

A competitive equilibrium can exist if and only if $\frac{An}{A_1 + An} \geq 1 -$

$\frac{F}{s(P_L - \hat{p})}$; an equilibrium with a mass point at the competitive price

can exist if and only if $\frac{nAn}{A_1 + nAn} > 1 - \frac{F}{s(P_L - \hat{p})} > \frac{An}{A_1 + An}$; and

a continuous price distribution can exist if and only if $\frac{nAn}{A_1 + nAn}$

$\leq 1 - \frac{F}{s(P_L - \hat{p})}$.

Because consumers visit firms to compare prices, this model suggests that if a market is not behaving competitively the state should consider methods of reducing the costs of comparison shopping in that market; as search costs decrease, the likelihood of competitive behavior will increase. This model also does not incorporate advertising. But it suggests, as do the models described above,⁵¹ that informative advertising is quite useful in producing competitive behavior. A consumer who examines three advertisements has sampled three stores, at least with respect to price. Finally, this model may be useful to those who make state intervention decisions. All of these policy implications are discussed in greater detail in parts III to V below.

III. DECIDING WHEN TO INTERVENE: AN ILLUSTRATION AND ITS IMPLICATIONS

This section illustrates how the economic analysis presented in this Article can assist a decisionmaker in answering the relevant normative question, whether imperfect information has caused a market to behave noncompetitively. It will be useful to begin by showing how a decisionmaker could in principle use the mixed strategy model to answer this question precisely. Assume that our hypothetical decisionmaker observes that all prices in a market for electric clothes dryers cluster around some point. The mixed strategy model suggests that the market is at a competitive equi-

⁵¹ See text accompanying notes 39 & 40 *supra*.

librium. The concept of a "cluster," however, is vague. The model also predicts that when there are few comparison shoppers the price distribution will bunch toward the monopoly price. When market prices seem close to each other, therefore, the decisionmaker could be observing either the competitive outcome or an outcome approaching the monopoly price.

Suppose that the highest observed price is \$450. The decisionmaker could sample consumers to ascertain their limit prices. If the sample mean is well above the highest observed price—for example \$700—the market is competitive. Because at least one seller who could charge the monopoly price (P_L) would do so, \$450, the highest observed price, could not be P_L . But as the model allows for no mass points above the competitive price, the observed cluster must be the competitive price. If the sample mean, however, is in the neighborhood of the highest observed price, the decisionmaker needs a method by which to determine whether a competitive equilibrium exists. The mixed strategy model shows that this will

obtain if and only if
$$\frac{An}{A_1 + An} \geq 1 - \frac{F}{s(P_L - \bar{p})}.$$

To illustrate how this model could be used, we shall initially let $X = \frac{An}{A_1 + An}$. Then X is the ratio of comparison shoppers—people who visit two or more stores—to the total consumers in the market. If a market is competitive, a firm's price can be represented by the equation $p^* = \bar{p} + \frac{F}{s}$. Now let the decisionmaker observe a standard markup on variable costs in this market of one hundred percent. Then $p^* = 2\bar{p}$. Because $p^* = \bar{p} + \frac{F}{s}$, $\bar{p} = \frac{F}{s}$.

Substituting, $1 - \frac{F}{s(P_L - \bar{p})}$ becomes $1 - \frac{\bar{p}}{P_L - \bar{p}}$. Unless marginal cost rises steeply, average variable cost can be a proxy for marginal cost, and it is easier to ascertain. Assume that the average variable cost observed was \$200 per dryer. Finally, the sample mean of limit prices, let us say, is \$500. Thus P_L (\$500) = $2.5\bar{p}$ ($2.5 \times$ \$200). Substituting in the equation for X , we get $X \geq 1 -$

$$\frac{\bar{p}}{P_L - \bar{p}} \geq 1 - \frac{\bar{p}}{2.5\bar{p} - \bar{p}} \geq 1 - \frac{\bar{p}}{1.5\bar{p}} = .33\bar{3}.^{52}$$

Thus if one third or more of the persons who purchase electric clothes dryers visit more than one store, the observed price distribution would cluster around the competitive price.

Empirical evidence indicates that thirty-five percent or more of the purchasers of items such as clothes dryers visit two or more stores before buying.⁵³ Since consumers can also obtain comparative price information by observing advertisements, this evidence actually understates the amount of comparison shopping that occurs.⁵⁴ Thus,

⁵² Readers might observe that if P_L , the limit price, were only 1.5 times greater than \bar{p} , a firm's marginal cost, this equation yields absurd results (where $P_L = 1.5\bar{p}$, $X \geq 1 - \frac{\bar{p}}{P_L - \bar{p}} = -1$). Such results would not occur in practice. The model shows that a competitive equilibrium occurs when the ratio of comparison shoppers to all shoppers (X) $\geq 1 - \frac{F}{s(P_L - \bar{p})}$, where F is the firm's fixed cost and s is the

level of output that minimizes average cost. The part of the equation to the right of the \geq sign will be less than one (thereby ensuring a positive percentage of comparison shoppers) if $s(P_L - \bar{p}) > F$. The model in fact assumes that $s(P_L - \bar{p}) \geq F$, because in equilibrium P_L must equal the highest price in the market. Thus, to say that $s(P_L - \bar{p}) \geq F$ is to assume that a firm that operates at "capacity" (s is the profit maximizing capacity) can recover its fixed cost, F (including a return on investment), when it charges the highest price the market will permit (P_L). Were this condition unsatisfied, no firms would be in the market. As firms will of course exist in any case in which the law is interested, the condition $s(P_L - \bar{p}) \geq F$ will be satisfied, and the equation for X , when applied to real markets, will yield a zero (no amount of comparison shoppers can generate a competitive equilibrium in this particular market) or a positive fraction ($\frac{1}{3}$ as in the textual example).

To show that in equilibrium P_L would be the market's highest price, let the highest price in a market be P_b where $P_b < P_L$. The firm charging P_b would make sales only to those consumers who sample one firm; consumers who sample more than one firm will not purchase from the firm charging P_b because it would be the highest price they see. Thus the firm charging P_b would have an incentive to raise its price above P_b because it would lose no customers. But the firm could not charge more than P_L , for above P_L no sales are made. Thus the market's highest price (P_b) must equal P_L in equilibrium.

⁵³ See, e.g., Bucklin, *supra* note 46, at 23 (61.7% of those looking for furniture or large appliances reported two or more trips); Newman and Staelin, *supra* note 15 (35% of major appliance buyers visited two or more stores).

⁵⁴ Methodological problems also cause many studies to understate the amount of consumer search that actually occurs. These studies rest on surveys of consumers taken from days to more than a year after the consumers purchased the items in question. Consumers are unlikely to recall in detail the nature and number of information sources consulted. Further, many indices of search measure the number of categories of information sources consumers use—store visits, friends, ads, articles—but do not count frequency of use within categories. Some active searchers may therefore go undetected. Finally, studies of consumer search behavior usually neglect information seeking within retail units. See Newman & Lockman, *Measuring Prepurchase Information Seeking*, 2 J. CONSUMER RESEARCH 216 (1975). These authors surveyed consumers after they shopped (for women's shoes) and also

if the illustrative data respecting limit prices, markups, and average variable cost are even approximately accurate, a decisionmaker who saw a cluster of prices in an electric clothes dryer market could conclude that the market was competitive.

If the decisionmaker were instead to observe a cluster of prices with some prices well above it, his task would be easier. The mixed strategy model allows no mass points to occur except at the competitive price. Therefore, the decisionmaker would know that the cluster represented the competitive price. By comparing the number of prices in the cluster with the total number of prices obtaining, and their respective distances from the cluster, he could evaluate the competitive state of the market.

This exercise teaches several valuable lessons. Initially, despite the apparent precision of the analysis, the exercise shows that a real world decisionmaker would encounter great difficulty in precisely characterizing a market's competitive state. It would be quite difficult to ascertain limit prices accurately by sampling. The highest prices consumers report they would pay may differ substantially from the highest prices they in fact would pay because consumers may weigh the costs and potential gains of purchases differently in hypothetical and real situations. Further, methodologically sound samples would have to be large, and for this and other reasons would be expensive to obtain.⁵⁵ Also, if a market contains firms that vary widely in size, the "representative" markup and average variable cost may not approximate reality closely. In addition, as the next section of this Article⁵⁶ shows, the existence of product heterogeneity and possible firm discrimination among consumers can greatly complicate the analysis. Finally, a decisionmaker would have to decide which firms are actually in the market that he is evaluating. The antitrust laws make the question of market defini-

observed their search behavior. They found that consumers in fact received more information than they reported receiving. *Id.* 219-21. *Cf.* Day, *Assessing the Effects of Information Disclosure Requirements*, J. MARKETING, April 1976, at 42, 44 (criticizing methodology of studies of the effectiveness of disclosure legislation in part because these studies relied heavily on self-reporting of behavior).

⁵⁵ Despite these difficulties, marketing scholars for several years have been surveying consumers to ascertain the maximum and minimum prices consumers would pay before they begin shopping, and apparently believe that surveys of this kind would be useful to firms. *See, e.g.*, Adam, *Consumer Reactions To Price*, in PRICING STRATEGY 75 (1969); Foulhe, *The Subjective Evaluation of Price: Methodological Aspects*, *id.* 89; Gabor & Granger, *The Attitude of the Consumer to Prices*, *id.* 132; Monroe, *Buyers' Subjective Perceptions of Price*, 10 J. MARKET RESEARCH 70 (1973); Monroe, *Measuring Price Thresholds by Psychophysics and Latitudes of Acceptance*, 8 J. MARKET RESEARCH 460 (1971); Stoetzel, *Psychological/Sociological Aspects of Price*, in PRICING STRATEGY, *supra*, at 70.

⁵⁶ See text accompanying notes 69-82 *infra*.

tion germane, but experience there teaches that the question is difficult. To summarize, inexpensively obtained and precise answers to the question whether the existence of imperfect information has caused given markets to behave noncompetitively will seldom be available in real cases.

The illustration of how a hypothetical decisionmaker could apply the mixed strategy model nevertheless demonstrates that markets are likely to behave much better in the face of imperfect information than is commonly supposed. Under relatively plausible assumptions respecting costs and consumer preferences, the illustration showed that a market may behave competitively if as many as two thirds of the consumers in it know only the prices they themselves pay; if fewer consumers than these are informed, the same assumptions would support a conclusion that many firms are still charging the competitive price. Thus, the fixed sample size model, as well as the sequential search models discussed earlier, suggest that decisionmakers should be cautious in imposing expensive disclosure requirements and that close cases should be resolved against intervention.

The analysis in the preceding part⁵⁷ and the illustration just set forth are also useful to actual decisionmakers because they suggest that certain elements are more consistent with the presence of competitive behavior than with its absence. These elements are:

- (a) If prices cluster, a market is likely to be at a competitive or a monopolistic equilibrium. A price cluster accompanied by the presence of a substantial number of comparison shoppers (for example, one third or more⁵⁸ of total consumers in that market if firms' costs and mark-ups, and consumers' sample limit prices are at least roughly as supposed above) is more consistent with the former outcome.
- (b) A price cluster with a few prices above it is also more consistent with a competitive outcome than a monopoly outcome.
- (c) If price advertising is common, a market is unlikely to be at a monopoly equilibrium; the "best case" for intervention cannot be made. This conclusion is suggested by the conventional sequential search models discussed above.⁵⁹ To illustrate the point, assume that: (1) prices cluster around the monopoly

⁵⁷ See text accompanying notes 22-52 *supra*.

⁵⁸ See text accompanying note 52 *supra*.

⁵⁹ See text following note 39 *supra*.

price, (2) advertising is common, and (3) consumers often observe two or more ads. In these circumstances, a firm could increase profits by cutting its price and advertising the cut. Because the firm was already advertising, the marginal cost of communicating information about the price cut would be small; because some consumers would observe the contrast between this price and others, the firm's business would increase. The monopoly price thus would not be an equilibrium. The fixed sample size model also implies that the presence of price advertising correlates positively with the absence of a monopoly equilibrium, since such advertising reduces the costs of comparison shopping.

(d) If comparison shopping is convenient, the likelihood that a competitive equilibrium will exist is enhanced. The costs of such shopping vary inversely with the costs of making comparisons. These latter costs will be lower if the methods of quoting prices or commonly used terms are standardized, because it is easier to compare like things and because consumers can use the knowledge obtained about prices and terms in one transaction conveniently to understand others. Thus, if prices and terms in a market are quoted in standard and relatively clear fashion, the market, other things equal, is more likely than not to be competitive.

(e) As is implicit in the foregoing analysis, and as the next section of the Article⁶⁰ will make clear, competition is more likely when sellers cannot conveniently discriminate among consumers on the basis of relative knowledge or sophistication.

Given the above, a decisionmaker observing a market in which price advertising is common, prices cluster, comparison shopping seems common and relatively inexpensive, and firm discrimination among consumers is quite difficult to practice, should conclude that no information problems exist.

An illustrative application of these criteria may be drawn from one of the few markets for which data is available—the market for financing consumer purchases of new cars. A 1971 state-by-state survey of finance charges revealed that the median range between the lowest and highest annual percentage rates (APR) quoted for financing cars varied from two percent in the lowest variance state to seven percent in the highest variance state, with five percent the

⁶⁰ See text accompanying notes 69-82 *infra*.

most common figure.⁶¹ A more recent but less extensive survey suggested that the two percent range is becoming more common.⁶² Thus, prices cluster in this market. Moreover, an appreciable number of consumers apparently do search. Another study reported that of the consumers who purchased cars and household durables on credit because they lacked the resources to make cash purchases, thirty percent and twenty percent, respectively, consulted alternative credit sources.⁶³ Because this measure did not consider search within source types—how many banks visited—the authors suggest that the report “may have significantly underestimated the amount of search.”⁶⁴ Further, prices are quoted in a fashion that facilitates comparisons—the APR.

With respect to other criteria, price advertising in local markets does not seem uncommon, and although there are sometimes allegations of discrimination,⁶⁵ consumer finance markets generally appear to segment along risk lines.⁶⁶ All of this suggests, in the absence of hard data to the contrary, that the auto loan market is presently competitive with respect to price, and that regulations such as usury laws are unnecessary. It must be admitted that this method of analysis is plainly rough, but it is focused on the right issue—how markets behave. Moreover, it is grounded in rigorous theory; it is easily as precise as inquiries currently conducted in

⁶¹ Schober & Shay, *State and Regional Estimates of the Price and Volume of the Major Types of Consumer Instalment Credit in Mid-1971*, in NATIONAL COMMISSION ON CONSUMER FINANCE, 3 TECHNICAL STUDIES pt. 1, at 99-103, 123 (1972).

⁶² See *How to Save on a Car Loan*, 43 CONSUMER REP. 201, 202 (1978) (survey by the Board of Governors of the Federal Reserve System of the “most common” annual percentage rates charged by the largest banks in the cities sampled; lower rates may have been available from smaller banks).

⁶³ Day & Brandt, *A Study of Consumer Credit Decisions: Implications for Present and Prospective Legislation*, in NATIONAL COMMISSION ON CONSUMER FINANCE, 1 TECHNICAL STUDIES pt. 2, at 41 (1972).

⁶⁴ *Id.* 67 (footnote omitted).

⁶⁵ The allegations prompted the Equal Credit Opportunity Act, 15 U.S.C. §§ 1691-1691f (1976), which outlaws discrimination on the basis of race, color, religion, national origin, sex, marital status, age, or because any part of the applicant's income derives from a public assistance program.

⁶⁶ Consumer finance companies have considerably higher costs and charge higher rates than do banks. See Benston, *Risk on Consumer Finance Company Personal Loans*, 32 J. FINANCE 593 (1977); Benston, *Rate Ceiling Implications of the Cost Structure of Consumer Finance Companies*, 32 J. FINANCE 1169 (1977). This market segmentation could occur only if the finance companies and banks lend to different customers, and it seems common understanding in the field that the former deal with higher risk debtors than the latter. *But cf.* White & Munger, *Consumer Sensitivity to Interest Rates: An Empirical Study of New Car Buyers and Auto Loans*, 69 MICH. L. REV. 1207 (1971) (some consumers who borrowed from banks dealing with high-risk debtors could have borrowed from banks dealing with low-risk debtors).

similar fields, such as antitrust;⁶⁷ and as our understanding of how markets behave under conditions of imperfect information deepens, it can be made more precise still.⁶⁸

IV. DECIDING WHEN TO INTERVENE UNDER RELAXED ASSUMPTIONS: FURTHER IMPLICATIONS AND LIMITATIONS

Search equilibrium models make two relatively strong (*i.e.*, unrealistic) assumptions: (1) goods are homogeneous; and (2) firms do not discriminate among consumers on the basis of knowledge or sophistication. This section discusses the implications of relaxing these assumptions for the decision to intervene.

A. Quality and Term Heterogeneity

There is a common taxonomy of product heterogeneity: products are either "search" or "experience" goods.⁶⁹ A search

⁶⁷ In adjudicating the legality of a merger between two firms in the same line of business when the acquiring firm was not in the acquired firm's market, the Supreme Court stated:

[T]he Court has recognized that a market extension merger may be unlawful if the target market is substantially concentrated, if the acquiring firm has the characteristics, capabilities, and economic incentive to render it a perceived potential *de novo* entrant, and if the acquiring firm's premerger presence on the fringe of the target market in fact tempered oligopolistic behavior on the part of existing participants in that market. In other words, the Court has interpreted § 7 [of the Clayton Act] as encompassing what is commonly known as the "wings effect"—the probability that the acquiring firm prompted premerger procompetitive effects within the target market by being perceived by the existing firms in that market as likely to enter *de novo*.

United States v. Marine Bancorporation, Inc., 418 U.S. 602, 624-25 (1974). See generally United States v. General Dynamics Corp., 415 U.S. 486, 494-504 (1974); United States v. Falstaff Brewing Corp., 410 U.S. 526, 531-37 (1973). These inquiries are at least as complex and expensive to conduct as those we propose, and they seem less susceptible of precise answers; our criteria focus on observable facts such as market prices and the extent of comparison shopping rather than on such intangible factors as whether a firm would have entered a market or whether the possibility of entry "tempered" noncompetitive behavior by existing firms.

⁶⁸ The analysis above, it may be added, helps explain why decisionmakers may intelligently worry less about the competitive state of business markets than of consumer markets. Many firms have buying specialists whose job is to shop for the firm. Because greater search correlates positively with increased competitive behavior, many business markets may be acceptably competitive. Finally, because legislatures cannot conveniently ascertain the competitive state of particular markets before passing statutes, an institutional implication of the argument that an intervention should not be made unless a market's competitive state is explored is that state responses to the problem of noncompetitive behavior resulting from imperfect information should primarily be administrative or judicial. The antitrust laws, which seek to ascertain and remedy noncompetitive behavior resulting from structural market imperfections or collusive behavior, afford a convenient analogy. For reasons developed below, see text accompanying notes 89-114 *infra*, we argue that the administrative process is best suited to respond to information problems.

⁶⁹ This taxonomy was initially used in Nelson, *Information and Consumer Behavior*, 78 J. POLITICAL ECON. 311 (1970). For a table stating goods that fall

good is one whose salient characteristics the consumer can learn before purchase, by direct observation; an experience good is one whose salient characteristics can only be learned after purchase, by actual use. Price and terms, in this lexicon, are search characteristics because the consumer can learn of them before buying, while some aspects of performance—for example, automobile seat comfort during a long drive—are experience characteristics because they can be learned only through use.

1. Search Goods Generally

In principle, the fixed sample size model applies to markets of heterogeneous search goods because such markets are usually divisible into roughly homogeneous subsets. Consider, for example, a radio sold in two- and three-knob versions. Whether each version is priced competitively is again largely a function of the ratio of comparison shoppers to total shoppers for that version. Goods can differ along several quality dimensions, however. The two-knob version thus may be more durable but less precise than the three-knob version. If products nevertheless segment into classes recognizable both to consumers and firms, and if consumers shop primarily within quality classes, the effect of imperfect information on the state of competition in each class can be examined in the rough manner we have described. Products often do segment in this way: beers are premium or ordinary, wines are estate bottled or commune, and cars are compact or full size. Moreover, consumers do seem to search primarily within quality classes.⁷⁰ In markets of heterogeneous search goods, therefore, investigations of the state of competition would be more costly and less exact than in markets in which homogeneity prevails, but the criteria developed above would nevertheless be helpful.

2. Contract Terms

The discussion to this point has implicitly assumed that a market (or market subset) in which price is competitive is also com-

into the two categories, see *id.* 319. A third category, usually applied to services, is "credence." A credence quality cannot be evaluated by direct observation or use. As an illustration, a consumer may never know whether the automobile repair he purchased was actually necessary. See Darby & Karni, *Free Competition and the Optimal Amount of Fraud*, 16 J.L. & ECON. 67, 68-69 (1973). No search equilibrium models consider credence qualities.

⁷⁰ Udell reports that 73% of the purchasers of small appliances stated that they planned their decision prior to shopping in a store, which suggests that consumers comparison shop within quality levels. Udell, *supra* note 46, at 52. If a majority of consumers comparison shop across quality levels, market price distributions for some goods may be too ambiguous to evaluate.

petitive with respect to purchase terms. This assumption may be too strong. Suppose that all firms insert in their sales contracts a particular term—such as an acceleration clause⁷¹—which can impose substantial costs on consumers. Suppose also that the firms conceal this term by using fine print and complex legal language. In these circumstances, the true price to consumers exceeds the nominal purchase price, but they may respond only to this latter price. If enough consumers comparison shop, the market would reach equilibrium at the nominal competitive price. Consumers, however, would suffer a welfare loss; they would be paying a higher true price than they would have paid if the existence and significance of the clause at issue were disclosed, for the nominal competitive price does not reflect the costs the term shifted to consumers.

This problem has been neglected until this point because it has been assumed that when a sufficient number of consumers comparison shop to generate a competitive price equilibrium, enough of these consumers would be term conscious to prevent the market from reaching a monopoly equilibrium with respect to important terms. Put another way, if enough consumers comparison shop to make it profitable for firms to compete on price and quality, firms also are likely to compete on terms. This justification for equating terms with prices is of course unavailing if a particular market is not at a competitive equilibrium with respect to price. In such circumstances, however, intervening to produce enough comparison shopping so that a competitive price equilibrium will occur should resolve the term problem.

Nevertheless, the equation of term competition with price competition is not completely satisfactory because the overlap between consumers conscious of price and quality and those conscious of terms may be imperfect. This lack of correspondence may result from differences in consumer competence, taste (some persons simply dislike learning about their contracts), or from differences in cost. Evaluating terms is more costly than evaluating prices or search characteristics such as color, size or fit; some comparison

⁷¹ The courts have split on the question whether the Truth in Lending Act, 15 U.S.C. §§ 1601-1665 (1976), requires disclosure of acceleration clauses. For a discussion of the cases, see Comment, *Acceleration Clause Disclosure Under The Truth In Lending Law*, 77 COLUM. L. REV. 649 (1977) (concluding that disclosure is probably not required under current law, but that the statute should be amended to require it because "a right of acceleration is of significance to the borrower." *Id.* 668). See also Note, *Acceleration Clause Disclosure: A Truth in Lending Policy Analysis*, 53 IND. L.J. 97 (1977) (using economic analysis to suggest that the Truth in Lending Act should require disclosure of acceleration clauses to promote comparative shopping, encourage informed consumer decisions, increase consumer awareness, and improve the allocation of resources).

shoppers in consequence may devote little time to examining terms. Further, in the absence of formal analysis it cannot be said that term competition occurs in precisely the same way as price competition.

These difficulties suggest that additional criteria are required to guide the decision to intervene when terms are at issue. A monopoly equilibrium provides the best case for an intervention; it occurs when firms do not compete to give consumers better terms, but instead are aware of consumer ignorance and actively exploit it to procure for the firms themselves the most favorable terms possible given consumers' tastes, resources and alternative opportunities.⁷²

A market can be considered monopolistic⁷³ for any term used by all or almost all firms if: (1) the market is not price competitive; and (2) the term at issue appears in arcane legal language and fine or otherwise inconspicuous print. It is more costly for consumers to search for terms than for prices or some aspects of quality; if too few price searchers exist to generate a competitive or almost competitive price structure, too few term searchers may exist to generate a nonmonopolistic term structure. If the market is price competitive but the second criterion is met, a monopolistic outcome for any term should be presumed to occur if a substantial portion (more than one third⁷⁴ if the market is roughly similar to the electric clothes dryer market discussed above) of the comparison shoppers are not term conscious. Basing a finding of monopoly on a much lower percentage of uninformed consumers than this may lead to serious errors because it seems unlikely that markets that are com-

⁷² By contrast, a competitive equilibrium is one in which, given existing technology, costs, and consumer tastes, the market generates a mix of terms that maximizes social welfare rather than the welfare of firms. In such a case, it should be noted, firms will not necessarily provide the same terms to all consumers. This is largely because consumers differ in their degree of risk aversion and time preference (for example, some consumers may prefer to buy disposable sports cars over safer, more economic vehicles with longer-term warranties).

⁷³ We have phrased the issue as whether a market is monopolistic respecting terms because administrative difficulties will probably prevent decisionmakers from evaluating term equilibria intermediate between competition and monopoly. It would be extraordinarily difficult (perhaps impossible) to compute the welfare loss of such equilibria, as contrasted with a competitive equilibrium respecting the purchase terms at issue. Also, present economic models are unable to characterize intermediate equilibria with respect to terms. Thus when terms are at issue, a decisionmaker should intervene (cost of intervention problems aside) only when a monopoly outcome occurs. For an attempt to characterize the welfare effects of imperfect information when price is the only independent variable and the setting is otherwise somewhat artificial (the government controls all the prices), see Diamond, *Welfare Analysis of Imperfect Information Equilibria*, 9 *BELL J. ECON.* 82 (1978).

⁷⁴ See text accompanying note 52 *supra*.

petitive with respect to price will be monopolistic with respect to terms unless significant numbers of consumers are not term conscious.

3. Experience Goods

Search equilibrium models assume that consumers can evaluate all relevant aspects of a product before purchase; the equilibria these models characterize relate to known characteristics, particularly to price. Because consumers cannot evaluate experience characteristics before purchase, the models appear to say little about markets for experience goods. This, however, understates the utility of the analysis. Markets for some experience goods behave as if they were markets for search goods, and the markets for many other experience goods are unlikely to work in fundamentally different ways.

Generally, experience goods can be distinguished by frequency of purchase. A consumer who wishes to buy milk, for example, can become familiar with the experience aspects of different brands, such as taste and texture, in less than a week. Therefore, after a few initial purchases frequently purchased experience goods are essentially equivalent to search goods in that consumers know, or can quickly learn, all aspects of quality before making further purchases. Decisionmakers can therefore ascertain the competitive state of such markets in the same fashion they use to evaluate search good markets.⁷⁵

Current search equilibrium models, however, are at best suggestive of the conditions associated with competitive equilibria in markets for infrequently purchased experience goods. Such equilibria are likely to be largely functions of the ratio of knowledgeable consumers to total consumers in a market; probably an appropriate way for the state to facilitate their occurrence is to reduce the costs of comparison shopping. Until the understanding of experience goods advances, however, search equilibrium models will shed relatively little light on the question when intervention in experience goods markets on the basis of imperfect information is justified.

B. *Discrimination Among Consumers*

The mixed strategy model presented above⁷⁶ assumed that each firm charged the same price and provided the same quality to all of its customers.⁷⁷ When firms competed for the business of compari-

⁷⁵ See text following note 51 *supra* through text accompanying note 68 *supra*.

⁷⁶ See text accompanying notes 46-51 *supra*.

⁷⁷ See text following note 48 *supra*.

son shoppers, nonsearchers necessarily were benefited. But if firms discriminate among customers on the basis of knowledge or sophistication, this pecuniary externality would vanish; firms would exploit nonsearchers by charging them higher prices or providing them with lower quality products and services than would be offered to comparison shoppers. It is useful, in discussing this possibility, to distinguish between "mass" and "individualized" transactions. In the former, firms cannot conveniently learn the characteristics of individual consumers. The efficiencies of mass transactions lie in the existence of a very high ratio of customers to sales persons and in such transactions being conducted rapidly. Retail sales of relatively low-priced items afford the best illustration. "Individualized" transactions are characterized by considerable personal contact between firm representatives and customers and commonly involve bargaining over price and product features. The paradigm is the sale of a new car.

1. Mass Transactions

In mass transactions, discrimination by individual firms among their customers seldom occurs because firms cannot conveniently obtain the information to engage in such practices. To explain how this information gap precludes discrimination, it will initially be shown that although markets may segment by quality level, individual firms will sell products at prices that accurately reflect their quality differences. Let consumers be divided into two classes, sophisticated (class "A") and unsophisticated (class "B"). A sophisticated consumer can discern a difference in quality between two seemingly identical products. Assume that the two versions of the product are sold in the market, high quality ("X") and low quality ("Y"); both appear identical to the ignorant eye. Firms purchase these versions at prices that reflect their quality attributes. If firms could distinguish sophisticated class A consumers from unsophisticated class B consumers they could sell high quality X goods to the former and low quality Y goods to the latter for the same price. This would maximize profits because Y goods cost firms less than X goods.

Sophisticated and unsophisticated consumers, however, look very much alike; in mass transactions the costs to firms of examining consumers to ascertain into which class they fall would exceed the gains. In these circumstances, an apparently profitable strategy would be for firms to let consumers sort themselves out by their purchases. Each firm could put a mix of X and Y goods on the

shelf so that class *A* consumers would buy the former and class *B* consumers the latter.

Such a strategy would fail if an appreciable number of sophisticated consumers existed, because unsophisticated consumers sometimes would luckily purchase *X* goods. The *A* consumers would only buy these goods, but *B* consumers would buy both *X* and *Y* goods because they cannot distinguish between them. Thus, each firm would have to set out more *X* goods than it has *A* customers; otherwise its *B* customers would purchase some of the goods intended for the *A* customers, thereby causing these persons to switch to other firms. Setting out somewhat more *X* goods than there are *A* customers, however, would create an unstable situation. The higher the ratio of *X* goods to *Y* goods the more often *B* customers would purchase *X* goods. Thus each firm would face a constant pressure to increase the ratio of *X* goods to *Y* goods.

A numerical example illustrates how this pressure would work. Suppose a firm has 100 customers, half of which are sophisticated *A*'s and half unsophisticated *B*'s. The firm initially stocks 100 widgets, fifty of which are *X* and fifty *Y*. The demand for good widgets (D_x) is fifty (by *A*'s) plus twenty-five (by *B*'s). All *A*'s of course demand *X* widgets. But *B*'s demand twenty-five *X* widgets because if a *B* consumer cannot distinguish *X*'s from *Y*'s and fifty percent *X*'s and fifty percent *Y*'s are present, the *B* consumer will choose an *X* widget fifty percent of the time. Thus, in this example the firm sets out fifty *X* widgets but has a demand for seventy-five *X* widgets. Let the firm next set out seventy-five *X* widgets and twenty-five *Y* widgets. $D_x = 50$ (by *A*'s) + 36.5 (by *B*'s). Once again, if there are seventy-five percent good widgets, unsophisticated consumers will choose a good widget seventy-five percent of the time. Although there now are twenty-five more *X* widgets than *A* customers, the demand for *X* widgets has risen from 75 to 86.5. Again, the firm is understocked. A likely result of this situation is firm specialization by quality level, with some firms selling only *X* goods and others only *Y* goods, at different prices. The class into which a particular firm would fall would be determined by the percentage of knowledgeable customers it has, the market price, and the cost difference to the firm of purchasing superior and inferior versions of the product.

As a consequence of specialization, decisionmakers could examine the effect of imperfect information on the prices of *X* and *Y* goods in the fashion we have previously described.⁷⁸ Thus, the

⁷⁸ See text following note 77 *supra*.

possibility of discrimination in quality levels does not add very much additional complexity to the already complicated analysis of mass transaction markets characterized by imperfect information.

This analysis also shows that individual firms generally would not discriminate among customers by price or terms. Let class *A* consumers be comparison shoppers and class *B* consumers be persons who only visit one firm. Because firms cannot distinguish in this respect among consumers, or segment consumers by setting out varying contract packages, they will offer each consumer the same contract package. In transactions commonly recognized as mass, moreover, each firm commonly does sell goods or services at the same price and under the same terms to all customers.⁷⁹ Whether this is a competitive package depends upon the ratio of comparison shoppers to total shoppers in the market.⁸⁰

2. Individualized Transactions

In individualized transactions, in which firm representatives spend a relatively large amount of time with customers and in consequence can get to know them, firms apparently can discriminate in price and quality without incurring excessive costs. Ascertaining the existence of such discrimination, however, would be very difficult, largely because of the prohibitive cost of establishing actual transaction prices or quality differences among goods sold at similar prices. Thus the question for decisionmakers apparently is whether particular circumstances make discrimination likely. Once more, the probability of discrimination appears largely to be a function of the ratio of knowledgeable consumers to total consumers in a given market. The more consumers who are knowledgeable about the price and quality differences among new cars, for example, the lower the inducement to a dealer to invest resources in ascertaining and acting upon differences in consumer awareness levels, even though here the circumstances more readily permit such activities.

In markets in which discrimination is possible—for example, cars and expensive stereo equipment—some consumers, perhaps because they are aware of the difficulty of ascertaining quality, are willing to purchase information that classifies products by performance and price. In consequence, periodicals devoted exclu-

⁷⁹ Some corroboration of the model lies in studies that indicate that individual retailers do not discriminate among consumers on the basis of income or ethnic characteristics, both of which are commonly used as proxies for being uninformed or unsophisticated. See J. ENGEL, D. KOLLAT & R. BLACKWELL, *supra* note 48, at 187.

⁸⁰ See text accompanying note 52 *supra*.

sively or partially to rating cars and stereos are quite common.⁸¹ The large amount of available information in these markets, in comparison to many other markets, suggests that the ratio of knowledgeable consumers to total consumers of cars and stereos may be high enough so that discrimination is not a serious problem. The very sparse and inconclusive empirical evidence is also consistent with this perception.⁸²

Nevertheless, discrimination is a potentially serious concern. Search equilibrium models shed relatively little light on the question when discrimination is being practiced and what remedies are appropriate. Further, the remedy question raises issues that are beyond the scope of this Article. As an illustration, a way to prevent price discrimination in particular markets is to require firms to charge all consumers the same price. Whether the welfare gains such a policy would confer on unsophisticated consumers would exceed the welfare losses to sophisticated consumers and firms as well as the costs of enforcing the policy is an issue we make no attempt to resolve here. Thus, the analysis of this Article should not be taken to apply to individualized transactions, except insofar as it suggests that discrimination in such transactions does not now seem to be a serious problem.

V. NORMATIVE ISSUES AND POLICY IMPLICATIONS

A. Normative Issues

Once it has been found that a market is behaving noncompetitively because too few consumers are informed, the initial choice a

⁸¹ *E.g.*, CAR & DRIVER, MOTOR TREND, HIGH FIDELITY, STEREO REVIEW.

⁸² An empirical study that sent researchers disguised as potential buyers to new car dealers found no statistically significant differences between the prices quoted to black and white buyers, but did find such differences between the prices quoted to "poorly dressed" and other buyers. These differences seemed small although they were statistically significant. A poorly dressed black male received price quotes on new cars the mean of which was \$3,836.18 while a well-dressed black male received quotes the mean of which was \$3,754.14, a difference of \$82.04. Wise, *Differential Pricing and Treatment by New-Car Salesmen: The Effect of the Prospect's Race, Sex and Dress*, 47 J. Bus. 218 (1974). See also Wise, Cox & Floto, *Sex and Race Discrimination in the New-Car Showroom: A Fact or Myth?*, 11 J. CONSUMER AFF. 107 (Winter 1977) (suggesting that salesmen seem to discriminate with respect to price according to the sex and race of applicants, but that personality factors could have slanted the data). Dealers, it should be noted, do not discriminate among consumers on the basis of contract terms, nor can they seriously discriminate on the basis of quality. Cf. Leff, *Contract As Thing*, 19 AM. U. L. REV. 131, 145-47 (1970) (observing that the sometimes extensive bargaining between consumers and automobile dealers did not concern the contract of sale).

decisionmaker faces is whether to regulate the substantive transaction or to attempt to move the market toward a competitive equilibrium. We shall assume that regulation would involve ordering firms to reduce monopoly prices⁸³ or to excise monopoly terms from service or purchase contracts. Moving a market toward a competitive equilibrium is preferable to such regulation, assuming all other things equal, for three reasons. First, regulation is unlikely to be effective because firms can exploit in numerous ways the bargaining power that the lack of comparison shoppers confers on them. As an example, if a court banned the use of a particular term, firms could preserve their monopoly power by switching to other terms that also shift costs to consumers. This strategy would probably be effective, because if too few consumers comparison shopped to generate a nonmonopolistic equilibrium respecting the term initially used in their contracts, it is unlikely that enough consumers would comparison shop to ensure a nonmonopolistic equilibrium for the substitute terms.

A second ground for eschewing regulation is that, if consumers could conveniently be informed, regulation would limit choices in a non-optimal fashion. Banning harsh terms forces consumers who prefer to accept these terms in order to take advantage of lower prices to pay higher ones. Conversely, a limit on prices would require consumers who knowingly prefer to pay higher prices to take harsh terms instead.⁸⁴ Put another way, regulation prevents consumers from making informed decisions between contract terms and prices.

Finally, seeming monopoly equilibria are sometimes unstable. For example, the standard automobile warranty in use in the late 1950's always appeared in arcane legal language and fine print; apparently neither firms nor other institutions informed consumers of the nature of the risks they were bearing. The industry, however, began to compete extensively on warranty coverage in the 1960's, and continues to compete in this area today.⁸⁵ If the state

⁸³ Cf. *American Home Improvement, Inc. v. MacIver*, 105 N.H. 435, 201 A.2d 886 (1964) (refusing to enforce the full contract price on the ground that it was unconscionably high); *Jones v. Star Credit Corp.*, 59 Misc. 2d 189, 298 N.Y.S.2d 264 (N.Y. Sup. Ct. 1969) (same); UNIFORM CONSUMER CREDIT CODE § 5.108(4)(c) (providing that a "factor" supporting a finding of unconscionability is "gross disparity between the price . . . and the value of the property . . . measured by the price at which similar property . . . [is] readily obtainable . . . by like consumers").

⁸⁴ See Schwartz, *supra* note 19, at 1057-59.

⁸⁵ See Schwartz, *Seller Unequal Bargaining Power And The Judicial Process*, 49 IND. L.J. 367, 385 n.41 (1974).

had intervened to specify acceptable terms for automobile warranties, this competitive behavior might never have emerged.⁸⁶

For these reasons, the preferable state response when imperfect information has caused a market to behave noncompetitively is to move the market toward a competitive equilibrium. One method of achieving this goal is to reduce the costs of comparison shopping to consumers. Before discussing this method, however, it will be useful to reevaluate a crucial premise of the above analysis. It has been argued so far that an intervention that would reduce the costs to consumers of becoming informed—termed here “required disclosure”—is not justified if the market in question is competitive. Such an intervention, we assume, is unnecessary because a property of competitive markets is to generate prices and terms that are utility maximizing for all consumers. An efficiency argument and two fairness arguments nevertheless might be made to justify required disclosure in competitive markets.

The basic premise of the efficiency argument is that the state can reduce the costs of comparison shopping (for example, by requiring firms to quote prices in standard fashion) even in competitive markets. Such an intervention would raise each firm’s average cost curve and in consequence would require all consumers to pay higher prices. All consumers would lose because of the increased prices. For nonshoppers this loss would not be offset by any gain, but comparison shoppers would benefit from the reduction in search costs generated by the required price disclosure. If the net gain to comparison shoppers (reduced search costs minus higher prices) would exceed the losses to nonshoppers plus the costs of administering the law, the intervention would be optimal.

It would be almost impossible, however, for an actual decision-maker to make this utility calculation, largely because the relevant facts would be too expensive to collect. Further, no theoretical reason exists to believe that required disclosure in *competitive* markets would often produce net welfare gains. If one were to speculate about the facts, such an outcome seems unlikely given the expense of administering disclosure legislation. Therefore, it seems wiser to limit efficiency-motivated interventions to the case of non-competitive markets.

A fairness argument that required disclosure should be imposed in competitive markets stems from the premise that persons

⁸⁶ These three reasons would also militate against requiring firms to substitute gentle clauses for harsh ones. The Magnuson-Moss Act, however, does engage in regulation, as it provides that firms cannot disclaim implied warranties if they make written express warranties. 15 U.S.C. § 2308 (1976).

should be relieved of the chore of shopping; thus an intervention that reduces search costs is desirable by virtue of this effect alone. Although such an intervention would increase the leisure time of shoppers, it would also impose costs upon nonshoppers and the state. Consequently, this justification for required disclosure is unconvincing unless a further argument exists to justify conferring a benefit on shoppers at the expense of other consumers. The only relevant argument is that comparison shoppers generated the competitive equilibrium, which benefited all consumers, and thus deserve compensation. But this case for compensation dissolves under analysis. The proposal cannot be justified on the ground that it would encourage shoppers to take socially desirable actions.⁸⁷ Comparison shoppers are already performing a socially useful function by helping to maintain a competitive market; thus it is unnecessary to provide them with additional incentives by reducing their search costs. A second possible ground for increasing the wealth of comparison shoppers is that they are worthier than nonshoppers. But it is difficult to perceive the basis for this claim. Such persons shop because the private gains to them from shopping exceed the costs. No prevalent ethical scheme justifies making them better off at the expense of society as a whole because they act in accordance with this motive, and no other indicia of greater worthiness appear germane. Thus, this fairness argument—that shopping is a burden that the state should always attempt to lighten—must be rejected.

A somewhat more persuasive argument is that disclosure legislation increases the opportunity for consumers to participate in market transactions, and in consequence makes those transactions seem fair. Some consumers, according to this argument, may realize that they are agreeing to contracts under conditions of imperfect information because they find the costs of becoming informed to be prohibitive. If these consumers later become dissatisfied with their deals, they may not agree that a competitive market protected them against overreaching by firms; they may instead say that the choices of those of their fellow citizens who comparison shopped are not as good a guarantor of fair terms as their *own informed* choices would have been. This claim of unfairness would be much less tenable, however, if the state had taken obvious steps to ensure that the relevant information was readily available. In such circumstances, every consumer would (or should) realize that society had seriously attempted to increase the opportunity of consumers to

⁸⁷ See generally Daniels, *Merit and Meritocracy*, 7 *PHILOSOPHY & PUB. AFF.* 206 (1978).

affect their own transactions. Because it is important that persons have faith in the fairness of social institutions, the state should therefore make obvious efforts to increase market participation by reducing search costs in all markets, not just noncompetitive ones.⁸⁸

Although this fairness argument has some merit, it cannot support required disclosure in competitive markets. The claim is no more compelling than a corollary fairness claim of the comparison shoppers. A market may be competitive because a substantial number of consumers found it convenient to inform themselves. If this is so, these informed consumers might object that they should not be compelled to pay the higher prices resulting from disclosure requirements simply because other consumers who chose to consume leisure or engage in work rather than search subsequently repented their decision. The fairness claim of the shoppers seems as compelling as the claim of the nonshoppers. Given these conflicting interests, the administrative costs of required disclosure militate strongly against intervention. In addition, the nonsearchers' fairness claim often may be dissipated by debate; these consumers may be persuaded to change their views when they become aware of the ratio of costs to gains commonly generated by interventions in competitive markets. Finally, this fairness argument justifies interventions only when consumer dissatisfaction is widespread and apparent; such action is too costly to justify intervention on the presumption that many consumers believe the market game to be unfair.

A variant of the argument that reducing search costs makes consumer transactions seem fair is that required disclosure increases the apparent fairness of these transactions to all consumers, although

⁸⁸ This fairness claim seems analogous to the claim that a person has a procedural right to a hearing to contest a disadvantageous action even though the person lacks an entitlement or a substantive right that a hearing could protect. The right to a hearing arises because the persons affected by the unfavorable action are entitled to at least an explanation of the reasons for the actions that have adversely affected them and a chance to participate in the decisionmaking process. This "procedural" entitlement is based upon membership of decisionmakers and affected persons in the same community. See Michelman, *Formal and Associational Aims in Procedural Due Process*, in 18 *NOMOS* 126 (1977). Similarly, it may be claimed that a person has a right to have search costs reduced in competitive markets, not because one has a right to a particular market outcome, but because all members of a community are entitled to be informed of and participate in decisions to take actions that affect them (here, the process of comparison shopping) and reducing search costs conduces to this end. In addition to the difficulties with this position, which the text next discusses, we add that it is a difficult position to confine. All persons have a formal right to participate in the market (*e.g.*, the nonsearchers could search) and many actions could make that right more real, such as redistributing wealth to give some groups a greater say in market outcomes. The position that "extra formal" rights to participate should be created does not shed very much light on which such rights the state should enact into law. In any event, we have no reason to assume that Professor Michelman would extend his analysis to the market context.

some consumers actually may not act on the information. Two objections to intervening in markets on this ground exist. First, the justification yields no criteria by which to decide how fair a consumer transaction should appear. Thus decisionmakers cannot know when a particular intervention is necessary or how much new disclosure is required. Second, this justification may be unnecessary; if consumers become more satisfied with purchases when they receive more information concerning prices and contract terms, even though this information may not be used, accompanying price and term information is actually another product feature. Firms thus now have an incentive to supply it, just as they supply other sales enhancing product features such as color varieties. In consequence, markets may already be generating the optimal amount of information necessary to ensure apparent fairness. For all of the reasons given here, then, this paper's premise that disclosure should be required only in noncompetitive markets seems valid.

B. Policy Recommendations

1. Removing Legal Restraints

Before discussing affirmative steps to render the behavior of markets more competitive, it is useful to consider the possibility of the removal of legal barriers that may prevent the attainment of competitive equilibria. Three methods of pursuing a strategy of permitting markets to function without interference seem promising. First, restrictions on nonfraudulent advertising should be removed.⁸⁹ The models described in part II of this Article indicate that advertising is useful in preventing the existence of monopolistic

⁸⁹ The Supreme Court has held that advertising of prices in some circumstances is protected by the first amendment. *Virginia State Bd. of Pharmacy v. Virginia Citizens Consumers Council*, 425 U.S. 748 (1976); *Bigelow v. Virginia*, 421 U.S. 809 (1975). Nevertheless, advertising is often regulated. As an example, the Consumer Leasing Act, 15 U.S.C. §§ 1667-1667e (1976), prohibits advertising the prices of leases unless the ads are accompanied by the disclosure of much additional sales information, such as methods of determining a lessee's liability at the end of the term and whether or not the lessee has an option to purchase (and the price and time of exercise of any such option). *Id.* § 1667(c). This regulation raises the cost of price advertising. Also, lawyer advertising remains heavily regulated despite the Supreme Court's holdings. See *Muris & McChesney, Advertising and the Price and Quality of Legal Services: The Case for Legal Clinics*, Working Paper, Law and Economics Center, University of Miami School of Law (1978) (copy on file at the *University of Pennsylvania Law Review*). Finally, the Supreme Court recently upheld the constitutionality of a statute prohibiting optometrists from using trade names in connection with optometrical practice. *Friedman v. Rogers*, 99 S. Ct. 887 (1979). Because the use of trade names can reduce consumer search costs and facilitate comparison shopping, the *Friedman* decision narrows the constitutional protection for advertising that facilitates competitive outcomes.

equilibria and in moving markets toward competitive equilibria. This result is consistent with, and helps explain, evidence that prices are higher when advertising is prohibited.⁹⁰ Thus, prohibitions or restrictions on the advertising of the prices and contract terms of particular goods or services, or restrictions on advertising in particular media, can reduce consumer welfare in that they may cause consumers to pay higher prices.

Similarly, courts should not regard a seller's use of a standard form contract as a factor militating against enforcement of the contract if its method of quoting the terms at issue is similar to the methods commonly used in the relevant market for quoting terms of this kind. The mixed strategy model⁹¹ showed that a market is more likely to behave competitively if many consumers comparison shopped and if comparison shoppers visited a relatively large number of stores. We have also seen that if firms standardize the way in which prices and terms are quoted, the cost of comparison shopping is lessened. If a firm's chances of enforcing its contracts are reduced because those contracts are standardized, however, the costs of private, voluntary standardization will rise; consequently, firms would employ standardized contracts less frequently. Therefore, that a particular contract is cast in standard form should not militate against enforcing it.⁹²

Finally, the government should consider relaxing the antitrust laws to permit more voluntary standardization of the format in which contract prices and terms are quoted. It is commonly said that the threat of antitrust prosecution inhibits such private standardization;⁹³ because standardization increases the likelihood of markets behaving competitively, this threat should be eliminated. This is not to say that the government should benignly view agreements by firms to fix uniformly the substantive aspects of their transactions, but only to suggest the social desirability of agreements to use a common *format* to set out in standard fashion the terms

⁹⁰ See A. MAURIZI & T. KELLY, PRICES AND CONSUMER INFORMATION; THE BENEFITS FROM POSTING RETAIL GASOLINE PRICES (1978); Benham, *The Effect of Advertising on the Price of Eyeglasses*, 15 J.L. & ECON. 337 (1972); Muris & McChesney, *supra* note 89; Steiner, *Does Advertising Lower Consumer Prices?*, J. MARKETING, October 1973, at 19 (toys).

⁹¹ See text accompanying notes 42-45 and 49 & 50 *supra*.

⁹² One author of this Article has recently argued that if consumers are assumed to have sufficient information, the existence of a standard form contract should be a neutral factor with respect to the question whether a court should enforce any of the clauses in it. See Schwartz, *supra* note 19, at 1064-71. The argument made above suggests that the existence of a standard form contract should be neutral with respect to the enforcement decision even though consumers are assumed to be imperfectly informed.

⁹³ See L. FULLER & M. EISENBERG, BASIC CONTRACT LAW 532 (1972).

and prices each firm individually chooses to offer. Even so, relaxing the antitrust laws is a proposal that deserves much more consideration than we give it here. The objection to such a relaxation of the antitrust laws is that firms may fix prices under the guise of standardizing contracts, or find it easier to police violators of cartel rules.⁹⁴ But because standardization is conducive to competitive outcomes, reducing the costs of standardization should be seriously explored.

2. Affirmative Responses When Markets Are Found to Behave Noncompetitively

In this section we shall discuss various affirmative measures designed to shift noncompetitive markets toward competitive equilibria. The analysis is suggestive rather than directive, however, because the wisdom of a particular legal initiative turns on a comparison of its costs and gains, and these cannot be assessed without an exploration of the specific contexts in which the initiative will operate. A decisionmaker, for example, should attempt to compare the welfare gains an intervention may produce by moving a market closer to the competitive outcome with both the administrative costs to the state and the costs to firms of compliance with the new legal requirement. Interventions may also produce undesirable second order effects; competition in a particular market, for instance, may be channelled along those quality or term dimensions firms are required to disclose.⁹⁵ Comparisons of possible welfare gains with administrative costs, as well as analyses of the likelihood of second order effects, are beyond the scope of this Article. Thus, the methods suggested herein to move markets to a competitive outcome are raised for serious exploration, not asserted as efficacious in all circumstances.

The most promising method of making markets behave competitively is to provide consumers with comparative price and term information. If, for example, consumers could cheaply obtain a list of all prices in a market (or just the lower ones) together with the identity of the firms charging the prices, the likelihood of obtaining competitive equilibria would be much enhanced. A recent experiment in which comparative price data were made available to consumers of certain grocery items tends to corroborate this view. The study showed that these consumers preferred lower-priced

⁹⁴ See C. KAYSER & D. TURNER, ANTITRUST POLICY: AN ECONOMIC AND LEGAL ANALYSIS 150-52, 155 (1959); F. SCHERER, *supra* note 5, at 449, 452.

⁹⁵ See Day, *supra* note 54, at 51.

brands when they were able to compare prices easily.⁹⁶ Private firms, however, seldom sell comparative price data, apparently because they could not fully appropriate the value of the information produced. Once a firm created a price list, it would have great difficulty preventing other firms and consumers from using the information it revealed without paying for it. For example, a consumer who bought such a list might freely distribute it to his friends. Consequently, private firms seldom invest in the production of such information.⁹⁷ Government agencies, however, could themselves produce and distribute comparative price data or subsidize firms to do so.⁹⁸

⁹⁶ Researchers studied the "effectiveness" of legally required unit pricing by posting next to the supermarket shelf on which particular brands appeared a list that identified each brand and gave its unit price. Consumers could compare unit prices more conveniently with such a list than if they were required to make comparisons and computations directly from the labels of products on the shelf. These price lists were compiled for three relatively homogeneous products (canned dogfood, facial tissue and dishwashing liquid) and posted for three weeks. Consumers paid from 1.4% less for dogfood to 2.9% less for dishwashing liquid because some of them switched to less expensive brands. Russo, Krieser & Miyashita, *An Effective Display of Unit Price Information*, J. MARKETING, April 1975, at 11, 17. This research and our analysis suggest that recent legislation proposed in the House of Representatives that would require pharmacists to post the prices of commonly used prescription drugs would be effective in reducing drug prices. See H.R. 10681, 95th Cong., 2d Sess. (1978); H.R. 4591, 95th Cong., 1st Sess. (1977). Price lists that saved consumers the trouble of going from firm to firm rather than from one end of a shelf to the other thus might produce significant reductions in purchase costs. Providing consumers with lists of commonly used terms (e.g., firm X warrants, firm Y disclaims) might also improve the efficiency of market outcomes.

⁹⁷ When firms can exclude "freeloaders" or capture a high portion of the returns that providing comparative price or term information yields, the market will produce such information. As an example, a subscription cable television company in Los Angeles televises comparative grocery prices because it can charge most of the recipients of this information.

In addition, firms that charge relatively low prices have an incentive to publish advertisements comparing their prices to those of their competitors, and such advertisements are sometimes seen. A disincentive to advertise in this fashion is that it can provide free and useful publicity to firms whose prices are close to those of the advertising firm, for consumers could decide that there is insufficient price dispersion to warrant searching out the firm that charges the very lowest price. Firms that engage in comparative price advertising also have incentives to misrepresent the comparisons, as, for example, by suppressing quality differences. For a discussion of the legal regulation of comparative advertisements, see Rollins, *Comparative Price Advertising*, 33 BUS. LAW. 1771 (1978).

⁹⁸ A proposed bill to simplify the Truth in Lending Act would authorize the Federal Reserve Board to "collect, publish and disseminate to the public, on a demonstration basis in a number of standard metropolitan statistical areas to be determined by the Board, the annual percentage rates charged for representative types of nonsale credit by creditors in such areas." S. 2802, 95th Cong., 2d Sess., § 136(a) (1978). The Board would also be authorized "to require creditors in such areas to furnish information necessary for the Board." *Id.* Although publishing such information is in general an excellent idea, some evidence suggests that many consumer credit markets may now be sufficiently competitive as not to justify the expense this statute would entail. See text accompanying notes 61-64 *supra*. Thus we would recommend that the Board should not use § 136(a) (assuming the bill passes) without first ascertaining the state of competition in the markets at issue.

Three objections to a comparative price information program are likely to be made, however: (1) such a program could actually raise prices; (2) consumers would not absorb the information; and (3) the information would be too expensive to provide. With respect to the first objection, if firms were prevented from charging prices above those supplied to the listing agency, they might quote higher prices than they would otherwise charge. This may be because firms anticipate cost increases or merely because of a desire to preserve flexibility. Both of these motivations could be partly assuaged by publishing price lists frequently—perhaps once a week—but the more frequent the list, the more costly the program, and the more difficult to administer. This objection, however, illustrates anew the wisdom of attempting to confine interventions to the case of noncompetitive markets. In such cases, prices are already too high, and price lists are likely to generate lower (although perhaps not competitive) prices than would exist in the market if nothing were done.

The objection that consumers would not absorb data from comparative price lists stems from the concept of “information overload” currently in vogue. This concept asserts that when consumers are provided with too much information they make dysfunctional decisions; the circuits become “overloaded.”⁹⁹ Recent experiments, however, fail to support the existence of this phenomenon. The evidence to date shows that more information enables consumers to make better purchase decisions than they would make were they uninformed, with a “better” purchase decision defined as one that yields an outcome that more closely approximates a consumer’s actual preferences.¹⁰⁰ This is not to say that

⁹⁹ As an illustration of the popularity of this concept, a governor of the Federal Reserve Board recently explained to the Senate a Board proposal to simplify the Truth in Lending Act partly as follows:

Looking at these [commonly used credit] forms, it is hard to avoid the impression of information overload. There is more information than most consumers can digest. By reducing the number of items of information disclosed as under the Board’s proposal, the important ones will receive a greater emphasis and there will be a greater likelihood of affecting consumer behavior.

*Proposed Amendments to the Truth in Lending Act: Hearings on S. 1312, S. 1501 and S. 1653 Before the Subcomm. on Consumer Affairs of the Comm. on Banking, Housing and Urban Affairs, 95th Cong., 1st Sess. 16-17 (July 11, 1977) (Statement of Philip C. Jackson, Jr., Board of Governors of the Federal Reserve System). See also Davis, *Protecting Consumers From Overdisclosure and Gobbledygook: An Empirical Look at the Simplification of Consumer-Credit Contracts*, 63 VA. L. REV. 841 (1977).*

¹⁰⁰ The only serious studies of information overload were done by Professor Jacoby. See Jacoby, Speller & Kohn, *Brand Choice Behavior as a Function of*

the information overload phenomenon never occurs, but instead that it has not been verified under experimental conditions. Moreover, no one can predict when consumers will experience "overload" in real world situations. Thus, that information overload may occur if "too much" information is provided is an observation of little relevance to decisionmakers. To be sure, consumers could decide that the potential gains from absorbing new information would exceed the costs. Given the potential savings that the provision of comparative price and term information could yield, however, assertions that such information would not be used are premature.

The administrative costs of a comparative price information program could, however, exceed the welfare gains. It would be expensive to create and maintain price-gathering and promulgating agencies, to identify the firms and products that should be included

Information Overload, 11 J. MARKET RESEARCH 63 (1974); Jacoby, Speller & Berning, *Brand Choice Behavior as a Function of Information Load: Replication and Extension*, 1 J. CONSUMER RESEARCH 33 (1974). The authors first interviewed consumers to ascertain their "ideal" brand. They then required consumers to choose from among a set of unknown brands on the basis of "bits" of information describing each brand. In these experiments, both the number of unknown brands and the bits of information per unknown brand were varied. The authors defined a "better" decision as one that selected a brand close to the consumer's ideal brand, and they reported that increasing the amount of information consumers were provided caused worse—in their words, "dysfunctional"—decisions. Their methodology and conclusions were quite critically reviewed; the most serious criticism was that they failed to compare their results to those that would occur by chance. Assume that a consumer has to choose a brand out of four available brands, and one of the brands is closer to his ideal than the others. If the consumer knows nothing at all about the brands, he should make the "best" choice 25% of the time. If the consumer must choose one from eight brands, he will be right 12.5% of the time. But assume that the consumer is provided with information in the eight-brand case and makes the right choice 20% rather than 12.5% of the time. It then cannot be said that more information is worse because in the four-brand case the ignorant consumer was right 25% of the time and in the eight-brand case the informed consumer was right only 20% of the time. What you must say is that the information helped in the eight-brand case because the consumer did 7.5% better than he would have done if he had no information at all. The authors, however, in effect said that more information is worse because in the eight-brand case the consumer was right only 20% of the time. In fact, it turns out that when the authors' data are corrected to take into account the effects of chance, more information improved the quality of decisions in about every case. For a representative sample of various criticisms of the study, see Russo, *More Information Is Better: A Reevaluation of Jacoby, Speller and Kohn*, J. CONSUMER RESEARCH, December 1974, at 68; Staelin & Payne, *Studies of the Information-Seeking Behavior of Consumers*, in COGNITION AND SOCIAL BEHAVIOR 185 (1976); Summers, *Less Information Is Better?*, 11 J. MARKETING RESEARCH 467 (1974); Wilkie, *Analysis of Effects of Information Load*, 11 J. MARKETING RESEARCH 462 (1974).

In addition, in a recent experiment consumers were given different levels of information about the quality of two consumer products—blankets and slow cookers—with the object of ascertaining whether more information influenced consumers to choose higher quality brands. This actually occurred in every case. See Sproles, Geistfeld & Badenhop, *Informational Inputs as Influences on Efficient Consumer Decision-Making*, 12 J. CONSUMER AFF. 88 (1978).

on each list—for example, Los Angeles consumers may care little about Anaheim prices—and to police firms to ensure that transaction prices are not significantly higher than the prices firms provide to the listing agency. Nevertheless, because providing consumers with inexpensive comparative price data would be so useful in moving markets toward competitive equilibria, it is a reform that decisionmakers should seriously consider.¹⁰¹

For the reasons given above, the state should also consider requiring firms to standardize methods of quoting prices and widely-used terms. In fact, standardization is one of the solutions that modern disclosure law sometimes adopts.¹⁰² If prices and terms are required to be disclosed in standard form, however, the total amount of information that firms put out could be reduced. The required standard form is likely to be concise, yet regulators may frown on the provision of additional information on the ground that it reduces the effect of or confuses the required disclosure. Further, a standardization requirement is likely to engender much litigation, particularly in the period shortly after it is imposed. It seems always to take some time—a long time in the case of the Truth in Lending Act—until courts and enforcement agencies are in even rough agreement as to the standardization requirements.¹⁰³ These difficulties are set out not to discredit the standardization method but to emphasize again the advisability of limiting intervention to noncompetitive markets.

¹⁰¹ If the government decided to make price information available, it should allow firms freely to cut the prices they quote to the agency collecting and publishing price data. Experimental studies show that equilibrium prices are higher, other things equal, when firms are required to maintain posted prices for specified periods. See J. Hong & C. Plott, *Implications of Rate Filing for Domestic Dry Bulk Transportation on Inland Waters: An Experimental Approach*, California Institute of Technology, Social Science Working Paper #164 (1976) (copy on file at the University of Pennsylvania Law Review).

¹⁰² The methods and difficulties of modern disclosure law are thoughtfully explored in P. KEETON & M. SHAPO, *PRODUCTS AND THE CONSUMER: DECEPTIVE PRACTICES* (1972), and Landers & Rohner, *A Functional Analysis of Truth in Lending* (U.C.L.A. L. REV., forthcoming, 1979). The most important federal statutes requiring standardization as a means of facilitating comparison shopping are the Truth in Lending Act, 15 U.S.C. §§ 1601-1665a (1976), which requires the price of money to be quoted in standard fashion, and the Fair Packaging and Labeling Act, 15 U.S.C. §§ 1451-1461 (1976), which requires disclosure of the net contents of each "packaged consumer commodity." The comparison shopping goal of the former statute, however, has apparently become subordinated to the goal of requiring firms to disclose information that a hypothetical consumer might consider important or useful. See Landers, *Some Reflections on Truth in Lending*, 1977 U. ILL. L.F. 669. For reasons that should by now be plain, this is an inappropriate goal for disclosure legislation. In addition, the Truth in Lending Act does not require standardization of the language of term disclosures. See Landers & Rohner, *supra*.

¹⁰³ See Landers, *Determining the Finance Charge Under the Truth in Lending Act*, 1 AM. B. FOUND. RES. J. 45 (1977).

3. Institutional Implications

The implication of the foregoing analysis is that courts should play a more limited role in responding to information problems than they do at present; the analysis also confirms the wisdom of the recent trend to place greater reliance on administrative enforcement. The unconscionability doctrine authorizes a court to decline to enforce a price or contract term if the price or term is both substantively and nonsubstantively unconscionable.¹⁰⁴ The latter requirement can currently be satisfied by evidence that a consumer lacked the information to make utility-maximizing purchase choices.¹⁰⁵ We have shown, however, that the appropriate issue is not whether a particular person who subsequently seeks redress was informed at the time of purchase, but whether the market in which he acted was behaving competitively. Further, prices and terms should be considered substantively unfair solely because of the existence of noncompetitive behavior. Thus courts should inquire into the competitive state of markets when objection is raised to the enforcement of a contract on information grounds. An unconscionability doctrine requiring courts to adopt this mode of analysis, however, would be unsatisfactory for two reasons: (1) it is very expensive in judicial proceedings to establish whether a market is actually behaving noncompetitively, and (2) courts cannot issue the remedies necessary to initiate movement of markets toward competitive equilibria.

With respect to expense, application of the criteria developed in parts III and IV of this Article requires a great deal of evidence; the most important elements of this evidence would pertain to the degree of price or term dispersion, the extent of comparison shopping, and the identification of relevant markets. Contract cases, especially those in which consumers are parties, seldom involve stakes that would outweigh the costs of compiling such evidence. It may be responded that parties to antitrust suits litigate issues of similar difficulty, but antitrust damages are generally much higher than contract damages. The private antitrust plaintiff may recoup

¹⁰⁴ See Schwartz, *supra* note 19, at 1055. Nonsubstantive unconscionability arises when certain factors, such as a lack of commercial sophistication, apparently prevent a contracting party from exercising his freedom to choose the terms of the agreement. Substantive unconscionability arises when a contract yields a result that affects a contracting party too harshly or that affects a noncontracting party adversely. An illustration is warranty disclaimers or assignments of wages.

¹⁰⁵ The doctrine of strict liability in tort also arose partly as a response to consumers' supposed inability to appreciate the risks of purchasing consumer goods. See W. PROSSER, *THE LAW OF TORTS* 655-56 (1971). See also authorities cited in note 1 *supra*.

treble damages, and the winning party to an antitrust suit is often awarded costs and attorneys' fees.¹⁰⁶ Even so, the majority of private antitrust actions are brought only after cases initiated by the government have established the existence of noncompetitive behavior in the relevant market.¹⁰⁷ Thus, neither trebling damages nor awarding attorneys' fees is likely to provide consumers with the incentive to establish the effect of imperfect information on a market's competitive state. To the extent that this observation is valid, a court would simply lack the evidence to answer the relevant normative question.¹⁰⁸

Finally, courts would remain poor institutions to resolve information problems even if they could get the evidence that proper application of the unconscionability doctrine requires, because courts can provide only "second best" remedies. The judicial power is limited to striking an offending term or price. Yet we have already shown that the preferred state response to the problem of imperfect information is not this type of intervention but action to encourage markets to move toward competitive equilibria. The most promising means of achieving this market transformation include providing consumers with comparative price and term data and requiring prices and terms to be quoted in standard fashion. Courts cannot use these methods.

For all of these reasons, the state should assign responsibility for dealing with information problems to an administrative agency. Courts should refrain from taking it upon themselves to deal with information problems. In practical effect, this would mean that a claim that the absence of information in some sense vitiated a party's consent to a certain contract price or term would no longer consti-

¹⁰⁶ 15 U.S.C. § 15 (1976).

¹⁰⁷ Posner, *A Statistical Study of Antitrust Enforcement*, 13 J.L. & Econ. 365, 371 (1970). Judgments obtained by the government in antitrust actions establish prima facie evidence against defendants as to all matters with respect to which the judgment would operate as an estoppel as between the parties to the prior governmental action. 15 U.S.C. § 16(a) (1976). Bills have been introduced in Congress to authorize consumers to bring private suits against firms previously found by the Federal Trade Commission (FTC) to have committed unfair trade practices or to have violated FTC cease-and-desist orders. See AM. ENTERPRISE INST. FOR PUB. POL'Y RES., CONSUMER CLASS ACTIONS, *Legislative Analysis No. 85* (July 11, 1977). Although evaluation of these bills is beyond our scope, we note that passage of them could obviate some of the difficulties discussed here.

¹⁰⁸ Institutional litigators, such as the FTC or the Uniform Consumer Credit Code's administrator (who is authorized to seek injunctions against "unconscionable terms or provisions of consumer credit transactions" under the UNIFORM CONSUMER CREDIT CODE §§ 6.103, 6.104 & 6.111(1)(a)), would have the resources to try the information issue fully. Thus, courts could have complete records in those cases to which institutional litigators are parties. Nevertheless, for the reasons the text next gives, a judicial response would be unsatisfactory even in such cases.

tute a defense to a suit to enforce a contract. But legal reforms sufficiently effective to make plausible the ousting of courts may not be adopted for some time; this realization necessitates an inquiry into the appropriate role for courts to play in responding to current information problems.

The answer to this query may be derived from the intervention criteria developed above.¹⁰⁹ Of those criteria, the one most susceptible of intelligent judicial use, in the absence of much evidence respecting market conditions, is the fourth, which holds that the likelihood of competitive behavior occurring varies inversely with the ease of making comparisons among the prices and terms offered by different firms. Thus a court could decide intelligently whether a challenged price or term was so obscurely quoted as to render comparisons between it and other prices or terms unreasonably difficult. Also, an inexpensive market sample sometimes could support at least a rough judgment as to whether such obscurity were common. Judicial action based on application of this fourth criterion—*i.e.*, judicial refusal to enforce a price or term on the ground that the obscure manner in which it was set forth raised the costs of comparison shopping—would have two major advantages: it would encourage firms to employ clearer contract clauses,¹¹⁰ yet it would not be excessively intrusive because firms could redraft unacceptable clauses without altering the substance of their transactions (except insofar as greater consumer awareness would force such alterations). Therefore, a court apparently would be justified in refusing to enforce obscurely drafted clauses when the evidence presented indicated widespread incidence of obscure drafting.

Courts should be cautious in exercising even this limited power of intervention, however. The comparison shopping test is only one of several criteria; a conclusion that a market is behaving non-competitively cannot rest with assurance solely on the premise that comparison shopping appears difficult. The fact that markets may be well-behaved in the face of substantial imperfect information adds to the force of this caution. Further, it sometimes may be wrong to rest a conclusion that comparison shopping is unacceptably difficult on the sole ground that contracts are hard to read. Indeed, some evidence suggests that consumers can be knowledgeable about

¹⁰⁹ See text accompanying notes 56-60 *supra*.

¹¹⁰ Section 237 of the *Restatement (Second) of Contracts* (Tent. Draft No. 5, 1970) may be intended to promote the goal of greater contract clarity by the method of judicial excision of contract clauses. Subsection (3) provides that a term in a standardized agreement will not be enforced if the party relying on it had "reason to know" that the other party "believes or assumes that the writing does not contain" the term.

market conditions even though they have difficulty reading contracts. For example, consumers apparently knew that finance companies charged higher rates than banks despite the difficulty, before the Truth in Lending Act, of calculating the annual percentage rate (APR).¹¹¹ Thus, courts should strike contract clauses on the ground of imperfect information when those clauses are egregiously obscure and when such obscure drafting is common in the relevant market.

This analysis also suggests that empowering an administrative agency to take primary responsibility for responding to information problems may be a better solution than burdening the courts with these questions. An administrative agency would have three advantages over courts. First, the agency could be given the resources to investigate market conditions adequately; second, it could be given the power to order the remedies that are likely to be effective in making markets behave more competitively; third, it would be more effective in policing disclosure schemes. Consistent with this view, primary enforcement responsibility for the two major disclosure initiatives of recent years, the Truth in Lending Act and the Magnuson-Moss Act, has been delegated to administrative agencies.¹¹²

The above proposal is made notwithstanding the dismal record that administrative agencies have so far made in economic regulation. Indeed, given this record and the great complexity of information issues, an honest and thorough attempt to devise an adequate administrative scheme could well end with the conclusion that such a scheme is impossible. Given the current level of understanding

¹¹¹ A survey conducted by Day and Brandt in 1967 reported that 79.7% of consumers sampled in states other than California and 80.1% of consumers sampled in California knew that banks and credit unions charged lower rates than loan or finance companies. Day & Brandt, *supra* note 63, at 23. Similarly, Professor Whitford surveyed new car buyers about the various liabilities manufacturers incurred under the standard automobile warranty and then asked these buyers to read the warranties. Although the car dealers had drawn the purchasers' attention to the written warranty disclaimers in less than 10 percent of the cases, and although a majority of the sample buyers did not have an accurate conception of the meaning of the disclaimer, a significant number of buyers did understand their rights against the dealers and manufacturers. Whitford, *Strict Products Liability and the Automobile Industry: Much Ado About Nothing*, 1968 Wis. L. Rev. 83, 146-51. These results may obtain because consumers receive information from sources additional to their contracts. It may therefore be something of a non sequitur to infer consumer ignorance from the complexity of contractual language alone.

¹¹² Professor Posner correctly points out that an administrative response would be inadequate unless it provided incentives to consumers to raise complaints and disincentives to firms to pressure the agency to proceed against effective competitors, but he says that these objectives to some extent are achievable. See R. POSNER, *ECONOMIC ANALYSIS OF LAW* 272-73 (2d ed. 1977).

of information problems, however, the administrative solution seems sufficiently promising to be tried.

CONCLUSION

The existence of imperfect information is commonly thought to justify market intervention by courts and legislatures because of the predominant belief that an imperfectly informed buyer cannot make utility-maximizing purchase choices. This focus on the conditions under which particular individuals can make optimal decisions is unwise. Not only does it fail to give guidance to decision-makers respecting when and how they should intervene in markets, but it is a misplaced concern: when markets are competitive, individuals are protected from the adverse consequences of making decisions in the face of imperfect information. Therefore, decision-makers should attempt to ascertain whether noncompetitive behavior is occurring in the relevant market before intervening. Such a determination would be complex, expensive, and somewhat inexact, but criteria exist that should enable it to be made with an acceptable (although not fully satisfactory) degree of accuracy. Further, once it has been decided that a market is behaving non-competitively, the preferable state response is not to regulate prices or to prohibit the use of specific contract terms; the better response is to attempt to increase competition in the market. Finally, courts can do little to increase competition; thus state responses to the existence of imperfect information should be primarily legislative and administrative.