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When Lemons Are Better Than Lemonade:
The Case Against Mandatory Used Car Warranties

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Markets in which secondhand goods are traded perform a variety of important economic functions.1 For example, the markets for financial assets provide liquidity for traders, allowing corporations to maintain viable sources of investment capital.2 Because houses are very durable while individuals’ tastes and preferences for location and style change, local real estate markets allow for spatial reallocation of households.3 Antique markets provide avenues for investors and collectors to share risks and allocate the consumption of “master” works.4 Flea markets, garage sales, and swap meets give individuals the opportunity to sell items in excess supply to people with an excess demand for the same.5 In all of these cases, efficiency is enhanced by transferring ownership of assets from lower valued uses to higher valued ones.

The market for used cars is an important secondhand market. As noted below, it is a market that has grown in size from year to year and where growth will most likely continue. Large numbers of buyers and sellers enter into transactions in any given year, moving cars from lower to higher value uses. Since new cars are expensive, low income households would often be unable to purchase automobiles without a viable used car market. The market also allows individuals to accommodate changes in tastes and preferences for style, user circumstances, and financial conditions easily, quickly, and at low

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1. Although concerned primarily with the macroeconomic implications of the secondhand markets for financial assets, a recent discussion of the importance of these markets can be found in Tibor Scitovsky, Towards a Theory of Second-hand Markets, 47 KYKLOS 33 (1994).
5. The welfare enhancing effects of trading for endowments can be found in most intermediate microeconomics texts. See, e.g., Jack Hirshleifer & Amihai Glazer, Price Theory and Applications (5th ed. 1992).
cost. In addition, the used car market reduces the need for resources to be devoted to the production and distribution of new cars, providing a higher level of economic well-being as those resources can be devoted to other uses.\(^6\)

Individuals trading in many secondhand markets, however, sometimes face a problem that can inhibit market efficiency. Informational asymmetry arises when one party to a bargain, usually the seller, has more and better information about the condition of a product than does the buyer. In the presence of informational asymmetry, inefficient transactions may be consummated or the market may completely fail. In the market for automobiles, this type of informational problem has been identified as the “lemons” problem.\(^7\)

A second type of informational problem in markets occurs when consumers fail to understand the nature of the products they buy.\(^8\) Buyers may not be informed or knowledgeable about all the components and linkages of a complex

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\(^6\) The market for used cars is not only important in its own right, as noted by Scitovsky, *supra* note 1, but also in relation to the new car market, since these goods are good substitutes. The relationship between the new and used car markets is explored in James Berkovec, *New Car Sales and Used Car Stocks: A Model of the Automobile Market*, 16 RAND J. ECON. 195 (Summer 1985). One could argue that economic dislocation may occur if consumer preferences shift significantly toward used cars and away from new cars; however such dislocation will not occur. Rising consumer incomes and population will provide “room” for both used car and new car markets to expand. Moreover, any dislocation, if it were to occur, would be minor and exist for a short time only. The purchase of used cars presupposes that new cars were produced in the past, implying a healthy new car market. The used car market has always been larger than the new car market in terms of units sold. See AAMA, *infra* note 14, for historical data on the size of the used and new car markets. Also, the discussions in Eisenstein, *infra* note 16, and Cavanaugh, *infra* note 18, discuss the relative size of the used car market. So, the large size of the used car market is nothing new. Even if a substantial reduction in new car demand reflected new consumer preferences, and resources were diverted from the new car market, the dislocation would be only temporary. The relative prices of new and used cars would change, mitigating some of the changed preference effect. The net reduction in units of new cars produced would release resources, labor, and capital, to produce other goods and services. This type of resource mobility takes place in a dynamic economy all of the time with only minor, short-term adverse impacts. Any general economic history of the United States considers episodes of rapid and dynamic change to the economy. For an example, see GARY M. WALTON & HUGH ROCKOFF, *HISTORY OF THE AMERICAN ECONOMY*, chs. 9, 10 (7th ed. 1994) (responding to changes in eighteenth century such as Civil War and introduction of railroad). *See also* SIDNEY RATNER ET AL., *THE EVOLUTION OF THE AMERICAN ECONOMY*, pt. III (2d ed. 1993) (dealing with industrialization of manufacturing). Indeed, without this resource mobility society would suffer in that consumers would not be able to obtain goods and services which they value and want.

\(^7\) The lemons problem refers to a situation in which sellers have an incentive to bring below average quality items to market for sale. As buyers discover through experience that sellers are bringing below average products to the market, the price they are willing to pay declines to reflect the lower quality. The fall in price then signals sellers to bring even lower quality items to the market. This “spiralizing” of lower prices and quality can eventually lead to complete market collapse, with no sales occurring. The economic analysis of the lemons problem was first detailed in George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 1970 Q.J. ECON. 488. For a more general discussion of uncertainty and market behavior, see JACK HIRSHLEIFER & JOHN G. RILEY, *THE ANALYTICS OF UNCERTAINTY AND INFORMATION* (1992).

\(^8\) The failure of consumers to understand the nature of a product is most likely not an absolute or complete lack of understanding. That is, the mere desire to purchase (or even shop for) a product implies that a consumer will have some understanding about a product, its attributes, and functions. However, a consumer will probably not have complete information or all of the accurate information about a product.
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product such as an automobile. Therefore, consumers might incorrectly estimate the probability of product failure and the costs associated with such a failure. The high cost of investigating for latent defects (and even some "patent" ones) may result in a non-optimal allocation of resources for product inspection, leading to excessive expenditures on repairs. These problems arise from uncertainty: Consumers may not accurately predict what will happen in the future as they use products. 9

The purchase of used cars clearly is subject to consumer uncertainty. The product itself is complex, with many highly integrated systems that are not completely familiar to most buyers. Although inspection for patent problems may be relatively inexpensive, testing for latent defects can be difficult and expensive. Even knowledge of prior ownership history does not provide complete, perfect information about a vehicle's condition. Not surprisingly, then, some observers and analysts 10 believe that used cars are traded with excessive defects and problems due to incomplete information and product uncertainty. In addition, they argue, because of incomplete or inaccurate information, consumers will not demand proper warranty protection. Thus, warranty terms generated in the market will be inefficient.

This Article evaluates relatively recent legislative attempts to deal with the perceived problems of poor quality in the used car market, namely mandatory used car warranty laws. The primary concern of the analysis is twofold. First, the used car market is growing in terms of importance for consumers and the economy. To the extent that consumers are not able to evaluate correctly and therefore overestimate the quality of used cars, they will purchase an inefficient number of used automobiles with inappropriate warranty terms. Resources will be misallocated; too many used cars will be purchased. If used car buyers receive inappropriate warranty coverage, they will incur excessive private repair and replacement costs. In addition, sellers may sell excessively defective used vehicles. 11 As used car purchases become a larger part of the automobile


10. For a discussion of the need to impose mandatory rules to help consumers, see Lee D. Dahringer & Denise R. Johnson, Lemon Laws: Intent, Experience, and a Pro-Consumer Model, 22 J. CONSUMER AFF. 158 (1988). For an argument that the market terms for used cars are not correct, see Ginter et al., supra note 9.

11. Defects will exist even in vehicles sold with warranties, since there are some defects which a seller cannot discover or cure through the exercise of reasonable care. See Used Car Defects Being Fixed But Report Finds Buyers Don't Know Rights Under Lemon Law, BOSTON GLOBE, Sept. 12, 1990, at 76 (reporting survey finding 33% of purchasers who bought used cars with express warranty encountered safety and other defects). For such defects, a warranty provides insurance to a buyer. If a vehicle is sold
market, the potential for these misallocations and costs increases in significance. Second, if the belief about the inefficiency of the used car market is incorrect, attempts (such as the imposition of mandatory warranty legislation) to solve a problem which does not exist may well lead to unintended adverse consequences.\textsuperscript{12}

This Article focuses on the role of warranty legislation as a remedy for the problems of asymmetric information and consumer choice under uncertainty in the used car market. The principle question addressed in this Article is whether mandatory warranties in the sale of used cars are an appropriate way to deal with buyer informational problems.\textsuperscript{13} The issue to be considered is the extent to which asymmetric information and resulting buyer purchasing behavior present problems in the used car market. This is more complex than just asking what each used car buyer knows about a product. In a market, any individual buyer's knowledge about a product is irrelevant as long as some buyers (and sellers) possess accurate information and bring it to the market. Rather, the issue goes to the heart of how prices and other contract terms, such as warranties, are formulated in markets. If, indeed, the market provides appropriate terms, the imposition of mandatory warranties will result in suboptimal terms and may generate adverse unintended consequences. These consequences will manifest themselves both in terms of efficiency problems and equity effects.

This Article will demonstrate that the used car market provides efficient warranty terms without mandatory warranty legislation, and that the negative unintended consequences of such legislation are likely to outweigh any intended benefits. First, the Article presents some basic information about the market for used cars in the United States. The way in which warranty law operates in the absence of mandatory legislation is described in Part II. Part III analyzes warranties currently offered in the sale of used cars and presents the arguments offered as to why, under existing warranty law without mandatory warranty legislation, there is market failure attributable to consumer ignorance. Part IV describes the contents of warranty legislation designed to deal with this perceived market failure. Responding to the market failure arguments, Part V analyzes the structure of the used car market and how that market operates to generate appropriate and efficient warranty terms. Part VI examines some existing warranties to determine whether their terms are consistent with efficiency. Finally, since the market does provide appropriate and efficient
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warranties, i.e., ones consistent with buyers' preferences and sellers' costs and that attempt to mitigate ancillary insurance-based problems, absent any mandatory requirements, Part VII considers some of the adverse implications that are likely to arise from the adoption of mandatory warranty legislation.

I. THE USED CAR MARKET IN THE UNITED STATES

Every year the sales and operation of used cars in the United States increases. In 1993, 95.6% of the 121 million cars registered in the United States were produced before 1993.14 Even ten years earlier, the percentage of used cars in operation was 95.4% of the total registered fleet of passenger cars. In 1993, approximately 9.8 million used cars were sold for an aggregate price of $150 billion.15 By 1996, one commentator and market analyst had suggested that this industry will grow to a dollar volume of between $200 and $300 billion.16 In 1993, for every $2.12 spent on new cars, American purchasers spent one dollar on a used car. About 33% of the total value of automobile purchases went for used car purchases. In the mid-1980s, this ratio of the automotive sales dollar was $3.66 for new cars to each dollar spent on used vehicles—that is, only 21% of all automobile expenditures went for used car purchases.17

This trend toward the increasing importance of the used car fleet and sales will continue.18 Better made and better maintained cars are lasting longer, and more will be resold through the secondhand market. The median age of cars in the United States has increased steadily. In 1980, the median age of the passenger car fleet was 6.0 years; by 1993 the median age had increased by 22% to 7.3 years.19 Although car owners can defer new purchases during economic bad times, there is no evidence that the trend toward cars lasting longer is solely due to delayed purchasing. Indeed, national production and unemployment rates were very similar in 1980 and 1993.20 In addition to cars

15. See Michael Clements, A Drive to Used Cars, Dealers Try to Shake Slimy Image, USA TODAY, Dec. 28, 1993, at 1B.
16. This dollar volume increase will be caused by more used cars being sold and the average price of a used car increasing. See Paul A. Eisenstein, Cruising the Auto Mega Mart, WORLD TRAVELER, International Edition (Northwest Airlines), May 1996, at 60, 61-64.
17. These estimates are based on personal consumption expenditures for new autos and net purchases for used vehicles. See AAMA, supra note 14, at 60.
18. A recent National Automobile Dealers Association report suggested that two reasons for this continued growth are “the rapidly increasing prices of new cars and an ample supply of spiffy, low-mileage used cars.” Tim Cavanaugh, Classy Used Chassis, 18 AM. DEMOGRAPHICS 21 (July 1996).
20. The capacity utilization rate for all industries was 82.1% in 1980 and 81.9% in 1993. See ECONOMIC REPORT OF THE PRESIDENT 327 tbl. B-52 (1994). For all civilian workers the unemployment rate was 7.1% in 1980 and 6.8% in 1993. See id. at 314 tbl. B-40. Both the capacity utilization rate and the unemployment rate are standard measures of how effectively the overall economy is using its resource base. The unemployment rate measures the percentage of individuals who are willing and able
lasting longer, the increase in leased passenger car activity will put more used cars on the road. Between 1973 and 1983, the number of individually leased passenger cars rose by two-thirds from just under a million units to almost 1.7 million. From 1983 to 1993, the increase was nearly 50%, with 2.4 million units now in the leased passenger car fleet. Moreover, an additional 7.9 million passenger cars in 1993 were in leased fleets of four or more cars (primarily in corporate and rental car fleets). As these leases expire, these cars will enter the used car market. As a result, according to one source, dealers anticipate moving more than 30 million used car units per year. Although there is no single explanation for the growth in the size of the used car market, attractive pricing relative to new cars, better maintenance and quality of used cars, as well as more buyers in the market all contribute to the growth of this market.

This marked growth in the size and scale of the used car market is leading to changed sales and operating practices. Some companies are setting up new types of factories to recondition thousands of used cars for resale. The role of the used car lot at new car dealerships is being expanded, highlighted, and promoted. Firms from non-automotive industries are entering the used market as sellers and brokers, based on the success of Circuit City’s operation outside of Atlanta. In addition, used car dealers are offering more and expanded terms, including warranties and service contracts.

The used car market is highly competitive. Indeed, there is not just one market for used cars, but many. As economic theory suggests, since the transport cost to value ratio is high for used cars, markets are localized with...
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little effort directed at moving units from one market to another. Within any market there are many sellers and buyers. Entry into the used car market is particularly easy with limited regulation,\textsuperscript{26} required training, and transaction costs. In fact, non-merchant sellers can dominate a local market. While no one tracks completely the number of used car sellers, one industry observer\textsuperscript{27} believes that 50\% to 60\% of sales occur through private transactions, non-merchant sales through newspaper advertisements, magazine give away notices, and word of mouth. In addition to private sales, formal markets for used cars exist in every urban area, accounting for more than 70\% of the United States population. Formal markets include not just used car dealers and new car dealerships selling trade-ins, but also rental car companies disposing of their fleets to individual buyers, and wholesale markets in which dealers and individuals can participate. Of course, unlike the new car market with a finite number of major sellers, the concentration ratio in any used car market is likely to be very low, a sufficient condition for competition.\textsuperscript{28}

Finally, the competitive nature of the used car market is enhanced by the number of good substitutes. A buyer interested in an automobile can choose between new and used cars, among various models and styles, and between purchasing and leasing. In most urban markets, buyers can choose between owning (or leasing) a car and using public transit. It is even the case that a large fraction of buyers could forego the purchase of a car by relying on alternative, non-automotive forms of movement. With many good and attractive substitutes for used cars and many sellers among which to choose, the market

\textsuperscript{26} In most jurisdictions, dealers have to comply with statutes that require obtaining a license prior to engaging in the business of selling of automobiles. See, e.g., CAL. VEH. CODE § 11700 (West 1995); MASS. ANN. LAWS ch. 140, § 57 (Law. Co-op. 1991); MINN. STAT. § 168.27(3) (1994); N.Y. VEH. 
& TRAF. LAW § 415 (Law. Co-op. 1994); WASH. REV. CODE § 46.70.021 (West 1994). To obtain a license a person must pay a fee. See, e.g., MASS. ANN. LAWS ch. 140, § 5 (no more than $100); N.Y. VEH. 
& TRAF. § 415.6 ($25 application, $150 annual renewal); Wash. Rev. Code § 46.70.061 ($500 initial, $250 annual renewal). In some jurisdictions an individual must post a surety bond, see WASH. REV. CODE § 46.70.070 ($15,000); have a place of business, see MASS. ANN. LAWS ch. 140, § 59; MINN. STAT. § 168.27(10)(1)(a); WASH. REV. CODE § 46.70.023; and an area to display motor vehicles, see WASH. REV. CODE § 46.70.02. A license may be denied for a variety of reasons related to the applicant's fitness to be a dealer, including convictions for offenses such as dealing in stolen cars. See, e.g., CAL. VEH. CODE § 11703(d); MINN. STAT. § 168.27(11); N.Y. LAW VEH. 
& TRAF. § 415.9 (fraud or misleading conduct); WASH. REV. CODE § 46.70.101(ii). Similarly, a license may be suspended or revoked for inappropriate dealer behavior. See, e.g., MINN. STAT. § 168.27(12) (odometer tampering); WASH. REV. CODE § 46.70.101 (dealing in stolen vehicles). Although the requirements for obtaining and retaining a license impose costs on used car dealers, they do not present substantial barriers to entry that make the market uncompetitive.

\textsuperscript{27} Clements, \textit{supra} note 15.

\textsuperscript{28} The importance of wholesale used car auction markets in the U.S. and how the wholesale and retail markets are linked in a particular (Chicago area) local car market are presented in David Genesove, \textit{Adverse Selection in the Wholesale Used Car Market}, 101 J. POL. ECON. 644 (1993).
for used cars meets the necessary and sufficient conditions to be competitive.\textsuperscript{29}

II. WARRANTY LAW WITHOUT MANDATORY WARRANTY LEGISLATION

Although a new car generally is sold with warranties,\textsuperscript{30} a used car, including one sold by a dealer, may not be, subjecting the buyer to the risk of product failure.\textsuperscript{31} Concerned about the existence of defects in cars sold by dealers,\textsuperscript{32} the Federal Trade Commission adopted a rule in 1984 requiring

\textsuperscript{29} Evidence, based on price elasticities, that good alternatives to private vehicle use exist is presented in Kenneth A. Small, Urban Transportation Economics (1992); evidence of alternatives based on policy responses is presented in Anthony Downs, Stuck in Traffic: Coping With Peak-Hour Traffic Congestion (1992).

\textsuperscript{30} In the sale of a new car, the manufacturer ordinarily makes an express warranty, and an implied warranty of merchantability under U.C.C. § 2-314. Since the manufacturer’s express warranty ordinarily constitutes a written warranty under the Magnuson-Moss Warranty—Federal Trade Commission Improvement Act, 15 U.S.C.A. § 2301 (1982), the manufacturer is precluded from disclaiming or modifying the implied warranty of merchantability if the vehicle is a consumer product sold to a consumer. See 15 U.S.C.A. at § 2308. The new car dealer frequently makes no express warranty to the buyer but makes an implied warranty of merchantability under U.C.C. § 2-314.

\textsuperscript{31} If a seller fails to warrant under U.C.C. § 2-313 that a product such as a car shall have certain attributes, and effectively disclaims any implied warranties under U.C.C. § 2-316, there is no breach of contract if the seller delivers a car that fails to possess such attributes or the attributes that would be implied by law. Even though a used vehicle is sold without a warranty, a buyer may have a claim or basis for rescission for nondisclosure, see Restatement (Second) of Contracts § 161 (1979); Restatement (Second) of Torts § 551 (1977); misrepresentation; see Restatement (Second) of Contracts § 162; Restatement (Second) of Torts § 525; and deceptive trade practices, see, e.g., 15 U.S.C.A. § 45 (1982); Wash. Rev. Code § 19.86.020.

\textsuperscript{32} See Federal Trade Commission, Sale of Used Cars, Final Staff Report to the Federal Trade Commission and Proposed Trade Regulation Rule, 16 C.F.R. § 455, (1978) [hereinafter FTC Staff Report]. The staff report is part of a protracted FTC rule-making process pertaining to warranties and misrepresentations in the sale of used cars by dealers. In 1973, the Seattle Office of the FTC began a study of used car sales practices, a study which was continued by the staff of the Bureau of Consumer Protection at the direction of the FTC. See id. at 1. Thereafter, Title I of the Magnuson-Moss Federal Trade Commission Improvement Act directed the Federal Trade Commission (FTC) to originate a used motor vehicle rule by January 4, 1976. See 15 U.S.C. § 2309(b) (1975). The FTC promulgated two notices of proposed rulemaking; 41 Fed. Reg. at 1089 (1976); 41 Fed. Reg. at 20896; for a rule that would have required a used car dealer to post a sticker on a vehicle window disclosing any known work that had been done on a vehicle, the extent of warranty coverage, and other information. The staff received written comments pertaining to the notices, and conducted hearings through May 4, 1977. 41 Fed. Reg. at 39337. Consumer groups, used car dealers, dealer associations, law enforcement officials, auto rental and leasing associations, and other interested parties commented at the hearings. 46 Fed. Reg. at 39337 n.11. In addition the staff received a number of FTC funded research reports. FTC Staff Report, supra, at 4. Based on this evidence, the staff prepared the FTC Staff Report. The report recommended adoption of an expanded dealer disclosure rule, one which would have required used car dealers to inspect vehicles for and disclose defects. Id. at app. F. Based on post-record comments, the staff and the Bureau of Consumer Protection recommended that the FTC replace the mandatory dealer inspection requirement with an optional inspection requirement. 46 Fed. Reg. at 41328, 41330 (1981). On April 14, 1981, the FTC rejected both versions of the rule, adopting instead a rule that required a dealer to disclose on a window sticker information about a car including any warranty and certain mechanical defects known to the dealer at the time of the sale. 46 Fed. Reg. 41328-78 (1981). The FTC submitted this rule to Congress on September 9, 1981 pursuant to Section 216(b) of the Federal Trade Commission Act, which required the FTC to submit any final rule to Congress for review. 15 U.S.C. § 57a-1(a) (Supp. IV 1980). In Senate Concurrent Resolution 60, Congress vetoed the rule. 128 Cong. Rec. S5402 (daily ed. May 18, 1982); 128 Cong. Rec. H2883 (daily ed. May 26, 1982). In Consumers Union of U.S., Inc. v. Federal Trade Commission, 691 F.2d
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dealers to place a sticker in the windows of cars informing buyers whether the vehicles are being sold with or without a warranty. Since the FTC promulgated its rule, a number of states have adopted or considered legislation mandating warranties in the sale of used cars by dealers.

Aside from mandatory warranty legislation, Article II of the Uniform Commercial Code governs the existence and creation of warranties. Under the Code, there are two types of warranties, express and implied. A seller creates an express warranty by any affirmation, promise or description which relates to the goods sold and which becomes part of the "basis of the bargain" between the seller and the buyer. Any written or oral statement by the seller that meets these requirements, and that is more than a mere commendation of a good or "puffing," is sufficient to be an express warranty. An express warranty, therefore, consists of some voluntary manifestation or representation on the part of a seller which forms the basis of the warranty. An implied warranty, on the other hand, arises independently of any manifestation by a seller; rather, it is based on the characteristics of the sales transaction. A warranty that goods shall be merchantable applies to a sale if the seller is a "merchant with respect to goods" of the kind involved in the sale. To be merchantable, a good must at least be fit for its ordinary

575, 576 (D.C. 1982), the court held the veto resolutions unconstitutional for violating the principle of separation of powers. On August 9, 1983, the FTC decided to reconsider the rule to determine if modifications were appropriate. 49 Fed. Reg. 45692, 45694 (1984). As a result of further comment, the FTC adopted the current rule, which requires the dealer to disclose on a window sticker whether the vehicle is warranted, but does not require the dealer to disclose knowledge of certain mechanical defects. Used Motor Vehicle Trade Regulation Rule, 16 C.F.R. § 455 (1996).

33. See 16 C.F.R. § 455.2. In addition to the FTC rule, Congress adopted the Magnuson-Moss Warranty Act in 1982. 15 U.S.C.A. § 2301. The Act governs the issuance of warranties in the sale of consumer products, but has limited relevance to the sale of used automobiles since the Act primarily applies to warrantors who give written express warranties of the type denominated by the statute. See id. Used car dealers do not appear to give the express written warranties of the type covered by the Act with much frequency.

34. The National Conference of Commissioners on Uniform State Laws and the American Law Institute currently are revising Article II of the Uniform Commercial Code. None of the revisions, however, would affect the substance of express or implied warranties as discussed in this Article. See AMERICAN LAW INSTITUTE & NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS, UNIFORM COMMERCIAL CODE REVISED ARTICLE 2, SALES, Discussion Draft (July 1996).

35. An express warranty can also be created by model or sample. See U.C.C. § 2-313 (1989).


purposes or pass without objection in the trade. An implied warranty that goods shall be fit for a particular, rather than their ordinary, purpose arises if the seller has reason to know of the particular purpose and that the buyer is relying on the seller's skill or judgment in providing appropriate goods. Thus, if a dealer knew that a buyer were relying on her to furnish a vehicle that would pull an unusually heavy trailer, an implied warranty would be created that a vehicle sold by the dealer to the buyer would be capable of performing that task.

Although warranties may be created under the above circumstances, they may be excluded or modified by the parties to a sale. So long as they comply with certain formalities, such as mentioning the word "merchantability," parties to a sale can disclaim or modify the implied warranties of merchantability and fitness for purpose. Moreover, a seller can disclaim implied warranties with representations such as that the sale is "as is." Antecedent express warranties can be excluded if the parties adopt a writing as the final embodiment of their contract terms, and the warranty either contradicts a term in the writing or the writing constitutes the entire agreement between the two parties.

Thus under the Uniform Commercial Code the creation and exclusion or modification of warranties is left to freedom of contract. The parties can determine for themselves the content of any warranty terms. The implied warranties provided by the Code serve simply as standard form "gap fillers," reducing bargaining costs by supplying the warranty obligations that the law assumes the parties would prefer. These gap fillers can be excluded or

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40. See U.C.C. § 2-315.
41. See Overland Bond & Inv. Corp. v. Howard, 292 N.E.2d 168, 173 (Ill. App. Ct. 1972) (defendant's knowledge that plaintiff was relying on defendant to select automobile for plaintiff's business as salesman sufficient to create warranty that vehicle was suited for that purpose).
42. See U.C.C. § 2-316(2). To modify or exclude the implied warranty of merchantability, the parties must use the term "merchantability," and if the exclusion or modification is in writing it must be conspicuous. An exclusion or modification of the implied warranty of fitness for particular purpose must be in writing and conspicuous. As discussed in note 71, infra, a number of jurisdictions preclude the modification or disclaimer of implied warranties in consumer transactions.
43. Implied warranties can also be excluded or modified as a result of buyer inspection which ought to reveal defects, and by course of dealing or performance and usage of trade. See U.C.C. §§ 2-316(3)(a),(b),(c). 16 C.F.R. § 455.2 precludes the use of a simple "as is" statement in the sale of used cars by a dealer. Rather, the rule requires a window sticker which says "as is—no warranty." The FTC required inclusion of the no warranty language based on a staff study finding that a number of consumers do not know what "as is" means. FTC STAFF REPORT, supra note 32, at 262.
modified as the parties prefer so long as the parties comply with the formal rules for exclusion or modification set forth in the Code.45

III. PERCEIVED DEFICIENCIES IN EXISTING WARRANTIES AND WARRANTY LAW

Empirical data pertaining to warranties sold by used cars dealers are difficult to obtain. It appears, however, that many if not most vehicles, particularly older and high mileage ones, are sold without a warranty, express or implied.46 Similarly, the data available on the nature of warranties are rather sparse. The most comprehensive analysis of warranty terms is the Federal Trade Commission staff report on the sale of used cars.47 Copies of warranties the authors of this Article have obtained, one used on a national basis and the other throughout a single state,48 contain some terms that may be more substantial than those found in warranties reviewed by the FTC, but others that are comparable.

Various deficiencies have been perceived in used car warranties and in the law regulating such warranties. Although some used cars are sold with express warranties, there is alleged to be a "wide disparity"49 in their terms, the implication being that some, if not many, warranties provide inadequate protection. Coverage may vary with respect to the parts covered, the duration of the warranties, and the nature of the remedy should the warranties be breached.50 Many warranties cover parts such as drivetrain components51 but

45. Several cases have held disclaimers of warranty complying with the requirements of U.C.C. § 2-316 unconscionable under U.C.C. § 2-302. See, e.g., Martin v. Joseph Harris Co., 767 F.2d 296 (6th Cir. 1985); A & M Produce Co. v. FMC Corp., 186 Cal. Rptr. 114 (Ct. App. 1982).
46. See FTC STAFF REPORT, supra note 32, at 250-52 ("as is" sales widespread); 1991 REPORT AND RECOMMENDATIONS OF THE ATTORNEY GENERAL'S EXECUTIVE COMMITTEE ON AUTOMOTIVE SAFETY, SALES, AND SERVICE app. C, at 10-11 [hereinafter 1991 WASH. ATT'y GEN. REP.] (indicating that used car purchasers in State of Washington could purchase car "as is" with no warranty, or purchase car with service contract but with no warranty). Although many, if not most, used cars may be sold without a warranty, a substantial percentage are sold with service contracts. According to the National Automobile Dealers Association (NADA), in 1993, 29.8% of used cars sold by dealers were sold with a service contract. See Letter from Thomas Webb, Chief Economist, NADA (July 26, 1994) (on file with authors) [hereinafter NADA Auto Executive]. Although a service contract may not assure that a car is defect-free or possesses certain attributes at the time of purchase, it may, as literature for one contract plan represents, "minimize the uncertainty of purchasing a used vehicle" by providing for repair of a defect preexisting the sale of a vehicle, at least to the extent that the defect was not obvious prior to sale. Ford Extended Service Plan (1994) (on file with authors). The content of service contracts is discussed more fully in the text accompanying notes 165-71 infra.
47. See FTC STAFF REPORT, supra note 32.
48. The authors obtained two warranties, one issued by CIM Insurance Corporation in conjunction with General Motors, and the other a standard form provided by the Washington State Independent Automobile Dealers Association to its member dealers. In addition, the authors obtained a number of service contracts issued by national companies including automobile manufacturers.
49. FTC STAFF REPORT, supra note 32, at 251.
50. See id. at 253.
51. See, e.g., Dealer's Limited Warranty (Washington State Independent Automobile Dealers Association) (engine, transmission, drive axle and other parts individually negotiated between dealer and
exclude items such as tires and batteries.\textsuperscript{52} Warranties vary in duration from thirty days or 1000 miles to twelve months or 12,000 miles.\textsuperscript{53} Warranties also vary in their allocation of the responsibility for the cost of repair, repair being a typical remedy for breach of warranty. Many warranties allocate the costs between dealer and the purchaser, sometimes on a 50-50 basis.\textsuperscript{54} Some perceive these warranties as meaningless.\textsuperscript{55} Since the dealer and not a market sets the price of repairs, the dealer can establish a greatly inflated price, and the consumer will pay the entire actual cost of repair.\textsuperscript{56} In addition, even when the warranty covers some or all of the actual costs of repairs, there is no incentive for the dealer to repair the vehicle in a reasonable time, and the buyer incurs substantial consequential losses as a result of the dealer's procrastination.\textsuperscript{57}

Some buyers are thought not to understand the nature of warranty terms,\textsuperscript{58} and this misunderstanding is believed to lead to inefficient purchase decisions. This belief is predicated on the false assumption\textsuperscript{59} that buyers must be fully informed for the market for warranty terms to operate efficiently.\textsuperscript{60}
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With respect to implied warranties, consumers are perceived to be ignorant either of the existence or content of such warranties or the requirements for their disclaimer.61 The concept of merchantability in particular is considered difficult to understand. Despite their ignorance of implied warranties, consumers expect a dealer to cure vehicle defects62 or are considered to have a legitimate expectation that a seller is responsible for the quality of goods that she sells.63

The problem is compounded by consumer ignorance of the various requirements for the disclaimer of implied warranties.64 Although the FTC has attempted to alleviate part of that ignorance by requiring the posting of stickers on used cars sold by dealers stating that the term "as is" means "no warranty,"65 some states have imposed requirements beyond those set forth in U.C.C. § 2-316(2) and (3) for disclaiming implied warranties.66 Ignorance may result in failure to recognize either that implied warranties have been disclaimed or that such warranties continue to exist because of ineffective disclaimers.

The implicit conclusion of these analyses of consumer ignorance and misunderstanding is that there is a market failure. Because consumers do not understand or are not aware of warranty terms, the market is believed not to provide appropriate terms. The perceived market failure in warranty terms results in part in used automobiles being sold with excessive defects. Dishonest dealers are thought to have no incentive to disclose defects in their cars since they can sell their cars at the same price as honest dealers who reveal defects to buyers.67 The market will not discipline dishonest sellers since buyers are considered unable to distinguish between them and honest dealers.68 If honest sellers with good quality cars are unable to differentiate themselves from dishonest sellers, conventional analysis indicates that the owners of good cars

62. See FTC STAFF REPORT, supra note 32, at 291.
63. See 1991 WASH. ATT'Y GEN. REP., supra note 46, at 12, 18; Post, supra note 55, at 972.
64. See 1991 WASH. ATT'Y GEN. REP., supra note 46, at 10.
66. In Washington, for example, in addition to meeting the other requirements of U.C.C. § 2-316, a seller must particularize the attributes not being warranted, see WASH. REV. CODE § 62A 2-316(4) (1995), and in some instances individually negotiate the disclaimer. See Berg v. Stromme, 484 P.2d 380 (Wash. 1971) (warranty ineffectual unless explicitly negotiated and set forth with particularity); see also Thomas v. Ruddell Lease-Sales, Inc., 716 P.2d 911 (Wash. Ct. App. 1986) (same); Thomas J. Holdych & George Ferrell, Individual Negotiation of Warranty Disclaimers: An Economic Analysis of an Assumedly Market Enhancing Rule, 13 U. PUGET SOUND L. REV. 237 (1990) (criticizing Washington statute and cases requiring individual negotiation and particularization of disclaimed attributes in disclaimers).
67. See FTC STAFF REPORT, supra note 32, at 132.
68. See id.
will keep them off the market.\textsuperscript{69} As a result, the quality of used cars in the market will deteriorate, and the equilibrium price will be that for inferior cars, a result of what is characterized as the “lemons” problem.\textsuperscript{70}

IV. MANDATORY WARRANTY LAWS

Enacted in seven jurisdictions since the mid-1980s,\textsuperscript{71} mandatory warranty legislation for used automobiles contains several provisions to respond to the perceived deficiencies of the market. Such legislation provides that any sales by a used car dealer must include an express warranty\textsuperscript{72} when the vehicle is purchased by a consumer or for nonbusiness use.\textsuperscript{73} Generally, the warranty

\textsuperscript{69} See Akerlof, supra note 7.
\textsuperscript{70} See id.
\textsuperscript{71} See, e.g., CONN. GEN. STAT. ANN. §§ 42-220 to 42-260 (West 1992); HAW. REV. STAT. ANN. § 481J (Michie 1995); MASS. GEN. LAWS ANN. ch. 90, § 7N\textsuperscript{4}(a) (West 1989); MINN. STAT. ANN. § 325F.662 (West 1995); N.J. STAT. ANN. § 56:8-69 (West 1996); N.Y. GEN. BUS. LAW § 198-b (McKinney 1995); R.I. GEN. LAWS §§ 31-5.4-1 to 31-5.4-6 (1995). Legislation mandating express warranties in the sale of used cars by dealers came under consideration during and shortly after passage of new car “lemon laws,” generally in the early 1980s. Such lemon laws commonly require a new car manufacturer to replace or give a refund for a new vehicle that fails to conform to a warranty, after a specified number of attempts at repair. See, e.g., CAL. CIV. CODE § 1793.2 (West 1996); CONN. GEN. STAT. § 42-179; WASH. REV. CODE ANN. § 19.118 (West 1989). See generally BARKLEY CLARK & CHRISTOPHER SMITH, THE LAW OF PRODUCT WARRANTIES, § 7.03[5] (1984) (providing overview of new car lemon laws); Joan Vogel, Squeezing Consumers: Lemon Laws, Consumer Warranties and a Proposal for Reform, 1985 ARIZ. ST. L.J. 589. Some other, early and later, attempts to pass used car warranty legislation resulted in failure. See 1991 WASH. ATT’Y GEN. REP., supra note 46 (proposing legislation that was not enacted in Washington); The Hearts Are Bleeding for the Car Dealers This Afternoon, UPI, Apr. 19, 1982, available in LEXIS, Nexis Library, UPI File (describing initial failure of Connecticut to pass legislation requiring used car dealers to provide warranties on cars selling for more than $1500); Timothy Kenny, UPI, Apr. 17, 1981, available in LEXIS, Nexis Library, UPI File (discussing proposed legislation in Oregon). Such legislation was first adopted in New York and Rhode Island. See 1984 N.Y. Laws 645; 1985 R.I. Pub. Laws § 1, ch. 342 §1. Proponents of the legislation consisted, at least in part, of consumer groups such as the Connecticut Public Interest Research Group and the Massachusetts Public Interest Research Group. See Bay State Tries to Give “Lemon Law” Safeguards to Used Car Buyers, CHRISTIAN SCI. MONITOR, Mar. 12, 1984, at 6; Kenny, supra. Arguments in favor of the legislation pointed to the number of defects occurring in used cars shortly after purchase, the increase in the number of used cars being sold, and the increased price of used cars. See Bay State Tries to Give “Lemon Law” Safeguards to Used Car Buyers, CHRISTIAN SCI. MONITOR, Mar. 12, 1984, at 6; Thomas Conroy, UPI, Oct. 28, 1984 available in LEXIS, Nexis Library, UPI File. The principal opponents of the legislation consisted of used car dealers and their associations. See Conroy, supra at 6. Opponents argued that the legislation would increase the price of used cars sold by dealers, cause purchasers to buy cars in states not having such legislation, and drive dealers out of business. See id. Moreover, they argued that used car dealers sold cars with warranties, at least those cars with a higher price. See id. In addition to legislation mandating express warranties in the sale of used cars, some jurisdictions preclude disclaimers of the implied warranty of merchantability, including in the sale of used cars. See CONN. GEN. STAT. ANN. § 42-221(a); KAN. STAT. ANN. § 84-2-316 (1983); ME. REV. STAT. ANN. tit. 11 § 2-316 (West 1995); VT. STAT. ANN. tit. 9A § 2-316 (1994).

\textsuperscript{72} In some states the warranty must be in writing. See, e.g., HAW. REV. STAT. ANN. § 481J-2(a); R.I. GEN. LAWS § 31-5.4-2.
\textsuperscript{73} See, e.g., CONN. GEN. STAT. ANN. §§ 42-221(a)-(c); HAW. REV. STAT. ANN. §§ 481-J-1 to 481-J-2; MASS. GEN. LAWS ANN. ch. 90, § 7N\textsuperscript{4}(2)(A)(i); MINN. STAT. ANN. §§ 325F.662 subds. 1 to 2; N.J. STAT. ANN. § 56:8-69; N.Y. GEN. BUS. LAW §§ 198-b (a)-(b); R.I. GEN. LAWS §§ 31-5.4-1 to 31-5.4-2.
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must cover all defects that would impair the safety or use of the vehicle, or, alternatively, any defects or malfunctions in a specified list of parts. The warranty must cover the full cost of parts and labor with respect to a covered defect. Warranty duration varies with mileage and, in one state, the purchase price of the car. The warranties run for thirty to ninety days or 1000 to 4000 miles, whichever comes first.

The laws generally exclude from mandatory coverage sales between dealers or for business use, and general maintenance such as normal tune-ups and the consequences of normal wear. All contain provisions designed to deal with the problem of moral hazard; they exclude from coverage defects or malfunctions resulting from consumer abuse, accident, vandalism, negligence or lack of maintenance.

For breach of warranty, the legislation provides that the dealer shall repair, or pay the buyer to repair, the vehicle. If the dealer fails to repair
within a specified period, the dealer must refund the purchase price to the buyer. In some instances the legislation provides for arbitration of disputes between a buyer and dealer, and for public enforcement for certain violations of the statute.

Based on the premise that the market and private ordering fail to provide appropriate warranty terms, some of the legislation either prohibits waiver of its provisions or allows waiver under limited conditions. With one exception, the statutes that allow waiver of the warranty do so only if the dealer identifies in writing a part as defective.

V. THE USED CAR WARRANTY MARKET

Whether the legislation described above is a necessary response to deficiencies in the used car market depends on two factors. The first is the structure of the used car market, and the second is the extent to which the market can be expected to generate appropriate warranty terms. This Part examines these two issues to determine whether imposing mandatory warranties is an appropriate response to market deficiencies.

A. The Structure of the Used Car Market

It has been argued that markets will generate inappropriate warranty terms if they are not competitive in nature. This contention is subject to the criticism that in order to maximize profits even monopolists will provide the terms preferred by buyers, albeit at a monopoly price. Regardless, to the extent one accepts the former argument, it does not apply to warranty terms

86. See, e.g., CONN. GEN. STAT. ANN. § 42-221(b) (warranty must cover full cost of parts and labor); HAW. REV. STAT. ANN. § 481J-2(c) (dealer must repair or reimburse buyer for full cost of repair); N.Y. GEN. BUS. LAW ch. 20 § 198-b(b)(2); R.I. GEN. LAWS § 31-5.4-2(b)(2) (dealer must repair or reimburse buyer for cost of repair).
87. See e.g., MASS. GEN. LAWS ANN. ch. 90, § 76-14(b)(3)(A)(ii) (three attempts at repair or if the car is out of service for 10 or more days); N.J. STAT. ANN. § 56:8-71(c)(1) (three attempts presumed reasonable opportunity to repair); N.Y. GEN. BUS. LAW § 198-b(c)(1) (dealer must repair within “a reasonable period of time”).
88. See, e.g., MASS. GEN. LAWS ANN. ch. 90, § 76-14(3)(A)(ii); MINN. STAT. ANN. ch. 325F § 662 subd. 2(b); N.J. STAT. ANN. § 56:8-71; N.Y. GEN. BUS. LAW ch. 20 § 198-b(c)(1).
89. See, e.g., N.Y. GEN. BUS. LAW ch. 20 § 198-b(d)(1).
90. See, e.g., CONN. GEN. STAT. ANN. § 42-221(d); HAW. REV. STAT. ANN. § 481J-3(b); MINN. STAT. ANN. § 325F.662 subd. 4; N.J. STAT. ANN. § 56:8-73.
91. See, e.g., N.J. STAT. ANN. § 56:8-73 (waiver allowed for vehicles with more than 60,000 miles which need not identify part).
92. See, e.g., CONN. GEN. STAT. ANN. § 42-221(d); HAW. REV. STAT. ANN. § 481J-3(b); MINN. STAT. ANN. § 325F.662 subd. 4.
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generated by used car markets. As discussed previously, the used car market is competitive according to the standard tests of economic theory. First, large number of sellers, both commercial and noncommercial, compete for consumers' dollars. Second, competition extends over space—in any given area there are numerous markets available to consumers. The high degree of competition in the used car market is evident by the spatial structure of the marketplace. Most commonly, the market is organized in a compact geographic locale with many dealers located in close proximity. Third, consumers also have numerous substitutes to purchasing particular used cars or purchasing from a specific seller: purchasing new cars, buying from non-merchants, maintaining an older car and foregoing purchasing, or using non-automotive transportation. In addition, as predicted by the competitive market model, sellers react to changing market conditions by altering prices to balance inventory holdings and sales. Consumers respond to new information about automobile performance and consequently cause market prices to adjust, following the pattern of change implied by a competitive market model. Consistent with the competitive paradigm, specialty institutions, most notably the local wholesale auction, facilitate the movement of vehicles between dealers in local markets. Finally, there are many buyers active in the market for used cars. Given this evidence of the competitive character of used car markets, there is no basis for requiring warranties based on the uncompetitive nature of the market.

95. See supra text accompanying note 24.

96. Statistically significant discounts from "sticker prices" were exhibited in ten major urban markets for two types of vehicles. See Noel M. Lavenka & Allen F. Jung, Automobile Prices and the Value of Shopping, 15 J. CONSUMER STUD. & HOME ECON. 15, 17 (1991).

97. Consumers were able to differentiate experience data from experimental results on automobile crash-worthiness, and market shares responded accordingly. See George E. Hoffer et al., Market Responses to Publicly-Provided Information: The Case of Automotive Safety, 24 APPLIED ECON. 661 (1992). The competitive linkage between information about new vehicle performance and used vehicle market prices is presented in Gregory B. Rodgers, All-Terrain Vehicles: Market Reaction to Risk Information, 31 ECON. INQUIRY 29 (Jan. 1993).

98. Commenting on the wholesale auction market, Genesove notes "the auto auction is probably as close as one can get to the idealized Walrasian exchange economy. . . ." Genesove, supra note 28, at 646. The Walrasian exchange economy is a competitive auctioneer construct where quantity adjustments generate a competitive equilibrium.

99. As previously discussed, see infra text accompanying note 94, there is no reason to believe that inadequate bargaining power of buyers, attributable to concentration of market power in sellers, is likely to result in inferior warranty terms. See George L. Priest, A Theory of the Consumer Product Warranty, 90 YALE L. J. 1297 (1981) (finding no correlation between market concentration and warranty terms) (hereinafter Priest, Consumer Product Warranty). Moreover, the used car market is not concentrated but highly competitive. See supra text accompanying notes 93-97. Nor is there reason to believe that inappropriate warranty terms result from lack of buyer information about used car defects and their costs. See infra text accompanying notes 110-139.

There is no reason to assume a market problem even if used cars are purchased predominantly by lower income buyers. Low income buyers can be, and probably are, as knowledgeable and discerning as higher income or new car buyers. Indeed, the same type of information from third parties (Consumer Reports, e.g.) is available to low income purchasers. To the extent that a used car purchase may account for a higher percentage of a lower income family's budget, that family would have a stronger incentive...
B. Market Creation of Appropriate Warranty Terms

Given the competitive nature of the used car market, it is reasonable to believe that dealers will provide attractive warranty terms in order to maintain and expand market share. If the market is responsive to buyers' preferences, the question is whether buyers will demand appropriate warranty terms. Whether buyers will demand appropriate warranty terms depends on whether buyers accurately assess the likelihood and cost of product failure. If buyers have inaccurate information about product failure, they may demand either too much or too little warranty protection.

One of the central contentions about the purported failures in the used car market is that there is substantial asymmetry in the information about product defects between dealers and buyers. Sellers have virtually complete information about vehicle defects, based on inspections of cars prior to purchase, inspections by third-party insurers in evaluating cars for insurance, and preparation of cars for sale. Additionally, merchant sellers (as opposed to non-merchant sellers or individuals not dealing in used cars in the normal course of business) have experience from trade information and past sales activities to rely upon, and non-merchants have particularistic knowledge based on their care and use of vehicles. Buyers, however, are considered to have limited information about the defects in the cars they consider buying because automobiles are complex products with defects that cannot be discovered by a superficial inspection. Moreover, dealers tend to restrict buyer inspections to a brief test drive. Inspections of this character are insufficient to reveal many vehicle defects.

Were buyers' defect information limited as posited above, there would be substantial reason to believe that buyers would demand and sellers provide inappropriate warranty terms. In addition, if the existence of defects in used automobiles is an event that occurs with low frequency, buyers may underestimate that occurrence because of the difficulties in attributing correct probabilities to investigate information and shop more carefully than a higher income family would. Moreover, lower income implies lower opportunity cost for search activities, suggesting more a intensive search. These conclusions are supported by research indicating that there is a negative correlation between income and search, meaning that lower income people engage in more search. See Geoffrey C. Kiel & Roger A. Clayton, Dimensions of Consumer Information Seeking Behavior, 18 J. MKTG. RES. 233, 237 (1981). Hence, a low income purchaser should be a more informed buyer, less subject to market power.

100. See FTC STAFF REPORT, supra note 32, at 71-99, 131.
101. See id. at 71-81.
102. See id. at 83-84.
103. See id. at 86-93. One alternative way for buyers to obtain more complete information is to engage an independent expert. See Daniel Kahneman & Amos Tversky, Prospect Theory: An Analysis of Decision Under Risk, 47 ECONOMETRICA 263 (1979). The FTC staff reports, however, that dealers tend to restrict off-lot inspections by mechanics for buyers. See FTC STAFF REPORT, supra note 32, at 86-88.
104. See id. at 86-87.
ties to such events. If buyers substantially underestimate the risk of product failure, they will demand insufficient warranty protection since they will only pay a price for warranty protection consistent with the level of perceived product risk.

Treating buyer defect information as limited to that which is obtained by buyer inspection prior to the purchase of a particular car is inappropriate. Rather, in assessing whether buyers use sufficient information to demand correct warranty terms, one must look at all the information buyers possess, including that derived from prior transactions and third-party sources. So long as a buyer can establish a correct expectation of the probability that a used car has a defect, the fact that she lacks exact information about the defects in the car is irrelevant. With that expectation and an accurate assessment of the defect's cost, a buyer can demand appropriate warranty protection.

From what sources can a buyer establish such an expectation? The primary source for most buyers is likely to be prior experience. If the buyer previously has purchased a used car from a dealer, the buyer has experience with the level of defects in such cars. It might be contended that this information could be inaccurate since it might be based on a limited, unrepresentative sample. The availability heuristic suggests that people rely on information that is readily brought to mind even though it is not representative of all the information that exists. This heuristic might be relevant if the occurrence of defects in the purchase of used cars were not widely distributed among purchasers of used cars, or if one were not concerned about bad performance of the car to avoid a conflict with the previously formed belief. See Richard L. Oliver, An Interpretation of the Attitudinal and Behavioral Effects of Puffery, 13 J. CONSUMER AFF. 8 (Summer 1979). Buyers, however, are likely to contrast, as opposed to assimilate, information inconsistent with prior beliefs when the problems confronted are substantial or costly. The purchase of another vehicle also brings about a new event involving another vehicle at which time a buyer is not as likely to engage in assimilation. See Alan Schwartz & Louis L. Wilde, Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests, 69 VA. L. REV. 1387, 1436 (1983).

105. See Kahneman & Tversky, supra note 103.

106. Cf. Barry L Bayus, The Consumer Durable Replacement Buyer, 55 J. MKTG. 42 (1991) (finding that 70% of automobiles purchased in 1986 and 1988 were replacement purchases); Howard Beales et al., Consumer Search and Public Policy, 8 J. CONSUMER RES. 11, 12 (1981) (suggesting that consumer external search limited by wealth of internal information including past experience). Some might contend that cognitive dissonance would preclude buyers from recognizing defects in their vehicles. Cognitive dissonance is a state in which a person's beliefs and attitudes conflict with anticipated behavior or past actions. See STEUART HENDERSON BRIFF, PSYCHOLOGICAL PRINCIPLES OF MARKETING AND CONSUMER BEHAVIOR 89 (1978). To avoid cognitive dissonance, people assimilate such beliefs with the behavior or actions, thereby skewing their perception of information to achieve consistency between their beliefs and action. Thus a buyer who may have read substantial literature and formed the belief that a certain make of car was a good car might ignore or assimilate information about bad performance of the car to avoid a conflict with the previously formed belief. See Richard L. Oliver, An Interpretation of the Attitudinal and Behavioral Effects of Puffery, 13 J. CONSUMER AFF. 8 (Summer 1979). Buyers, however, are likely to contrast, as opposed to assimilate, information inconsistent with prior beliefs when the problems confronted are substantial or costly. The purchase of another vehicle also brings about a new event involving another vehicle at which time a buyer is not as likely to engage in assimilation. See Alan Schwartz & Louis L. Wilde, Imperfect Information in Markets for Contract Terms: The Examples of Warranties and Security Interests, 69 VA. L. REV. 1387, 1436 (1983).

107. The buyer may have purchased a vehicle containing few defects, whereas the defect rate of all automobiles the seller sells is quite high.

the impact on warranty terms of information available to all buyers, particularly marginal buyers, in the market. Yet data indicate that roughly one-third of used car purchasers report defects in their cars, and the information available to all buyers, particularly marginal buyers who are concerned about defects and warranty terms, is determinative in establishing what warranties the market will offer. If buyers enter the market every five to ten years to replace their vehicles, a substantial number of them at any given time are likely to be repeat buyers who have encountered defects in their cars. To the extent that automobile defects can result in substantial losses, these buyers are likely to be sensitive to the existence and character of warranty terms. As will be discussed below, the preferences of these buyers as marginal buyers will determine the content of warranty terms. In addition to individual experiences in purchasing a used car, purchasers obtain information from third party sources such as friends, acquaintances, and publications such as Consumer Reports and Road and Track. Again, if one-third of all used car purchases from dealers involve cars with defects, it is likely that an inquiring buyer will obtain fairly representative information about the probability of defects.

As indicated above, buyers might demand incorrect warranty protection if they underestimate the likelihood or cost of used car defects. People are positioned to have difficulty in processing information about low probability events and events that involve a very low cost. For example, if asked to assess the cost of an event with a one-tenth of a one percent chance of


110. If the average cost of defects suffered by all buyers exceeds the cost at which a seller can protect against the defect's occurrence and/or make repairs, the seller will provide a warranty if the seller can protect against the defects or make repairs more cheaply than the buyers. Unless there is market segmentation that allows the seller to discriminate among buyers, the seller will offer a warranty based on the demand for such a term by buyers as a whole, which in turn will be based on information available to all the buyers in the market (See infra note 129 for a discussion of when this type of segmentation can occur). Of course, as we have discussed, see infra text accompanying note 128, the seller ordinarily responds to the preferences and the information of so-called marginal buyers who are particularly interested in the term in question. Since these buyers are particularly interested in the term in question, it is reasonable to believe that they, at least as a group, have as good and probably better information about the matter at issue, here defects and warranties, than the market as a whole.

111. See Monroe Friedman, Survey Data on Owner-reported Car Problems: How Useful to Prospective Purchasers of Used Cars?, 14 J. CONSUMER RES. 434, 435-37 (1987) (finding Consumer Reports reliability surveys useful in predicting reliability of same make and model for ensuing year); Michael J. Houston, Consumer Evaluations of Product Information Sources, in CURRENT ISSUES AND RESEARCH IN ADCVERTISING 135, 139-40 (1979) (finding that consumers relied on third persons for information about attributes such as durability for durable goods); cf. Ginder, et al. supra note 9 (finding used car quality as indicated by Consumer Reports reliability surveys not reflected in price).

112. See FTC STAFF REPORT, supra note 32, at 133 (stating that buyer can establish expectation of probability that particular car contains defects).

113. See Kahneman & Tversky, supra note 103.
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occurring and inflicting a one cent loss, many people might respond that the cost is zero. This response is attributable either to the psychological difficulty of assessing low probability events or the cost of processing information with so little value. However extensive these phenomena might be, they do not appear to apply to defects in used cars sold by dealers. As indicated above, one-third of used car purchasers report defects in the vehicles they purchase, making the probability of such defects for consumers as a whole 33%. The occurrence of these defects would not be low probability events. Second, a 1978 study found that the mean reported cost of repairs for such defects was $109. This amount is not so trivial that buyers might be expected to discount it substantially because of their inability to process low cost events.

At least in the market for motor vehicles, there is growing empirical literature suggesting that individual consumers are capable of assessing vehicle related risks and forcing the market to adjust accordingly. Gregory B. Rodgers analyzed the response of consumers and the market when risk information concerning three- and four-wheel all-terrain vehicles became public. In particular, he assessed the impact of information implicit in a consent decree imposing a stop-sale order on the sale of new three-wheel ATVs. He found the new information changed buyer behavior and caused prices of more hazardous vehicles to decline by approximately the present value of the associated risk. He concluded: "[T]he statistical results suggest

114. See FTC STAFF REPORT, supra note 32. An extensive search of the literature and numerous discussions with representatives of the automotive industry revealed a paucity of quantitative repair data for used cars. The primary reason is the cost and difficulty of coding repair records to indicate whether the work was done on a vehicle that was bought new or used.

115. See id. at 59.

116. Although no more current data have been obtained on the mean cost of repairing used car defects, it is implausible that the amount has decreased to a trivial level. Indeed, given inflation and the practice of replacing entire parts or modules in newer model vehicles, it is probable that the cost has risen substantially.

117. Rodgers, supra note 97.

118. All-Terrain Vehicles might be viewed as "different" from traditional automobiles in the sense that they were "designed" for primarily off-road and recreational uses. However, certainly some (if not many) ATV owners use their vehicles in the same manner (at least part of the time) as do owners of more traditional vehicles. To some extent, then, ATVs have become like on-road, non-recreational vehicles: used by some for work, commuting, family travel, and "about town" errands. Since ATVs are sold both new and used, information about this sub-market is applicable to automobile markets in general. The data from the ATV study, combined with the results of Hoffer et al., supra note 97, provide the best data that vehicle buyers are generally able to absorb new information and bring it to the market. The safety concerns and problems of ATVs became public information quickly. Consumers were quick to respond to this information, forcing sellers to react by changing the production process or reducing the price. See Rodgers, supra note 97.

that providing risk information to the public can alter consumer market behavior . . . "  

George E. Hoffer and his colleagues, found that consumers not only properly evaluate automotive safety information, but also distinguish between laboratory test results and actual experience related data. Consumers did not value crash test information provided by the National Highway Traffic Safety Administration (NHTSA) as much as actual bodily injury data released by the Highway Loss Data Institute (HLDI). Consumer purchases moved away from automobiles with poor HLDI reports and toward models with better HLDI records. Consumers did not respond in a similar manner to information presented by NHTSA reports. The NHTSA information is generated by laboratory tests and the HLDI is privately collected insurance industry data from actual crash reports. Because NHTSA data "exhibit little, if any, correlation with the actual frequency of bodily loss experience," the authors conclude "the public's disregard of the government's crash test data when making their purchase decisions may be rational." These studies indicate that consumers not only do understand risk information, but that they translate this information into changes in market behavior in a rational fashion.

Even if all buyers are not adequately informed about the probability or cost of used car defects, or the existence or content of warranties, the used car market will provide appropriate warranty terms if sufficient numbers of buyers exist who are adequately informed and are concerned about the existence of such terms. In a competitive market, such as that for used cars, the interaction of large numbers of buyers and sellers, some of whom have an interest in and information about contract terms, produces the correct terms. Consumers who value contract terms will shop the market and express the general sentiment of all buyers to sellers. To attract sufficient buyers so that their marginal revenues from sales equal marginal costs, 

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120. Rodgers, supra note 97, at 37.
121. See Hoffer et al., supra note 97.
122. The authors conclude: "The hypothesis that consumers find the government's crash data of little use is consistent with the evidence. . . ." Id. at 665.
123. Id.
124. Id. at 666.
125. See Holdych & Ferrell, supra note 66, at 252-63; Schwartz & Wilde, supra note 106, at 1409, 1425-42.
126. The fact that the used car segments of the market are spatially well-defined does not present any problems. As long as some consumers shop between markets for comparison purposes, and as long as advertising is offered to the entire market, the spatial separation of market areas will not alter the competitive nature of the markets. Marginal buyers and shoppers will "move" information from one market segment to another when profitable. Thus, information will flow between segments, preventing monopoly-like behavior in any specific segment. The used car market is also subject to arbitrage. Should prices in any spatial segment rise above general market levels, someone has an incentive to buy in the low price segment and sell in the higher price segment. Indeed, the active regional wholesale markets for used cars do exactly this.
127. A seller will seek to sell a quantity of goods where the last or marginal dollar of revenue from selling the last item just equals the last or marginal cost of selling that item. A seller who sells more items will incur a loss, since the incremental revenue from selling the item will be less than the cost of
sellers will have to alter their prices, quality, and contract terms to be acceptable to knowledgeable consumers. Sellers who fail to respond to the preferences of informed buyers are likely to lose market share and be driven from the market. As long as some sellers try to respond to the preferences of some buyers and the market is competitive, the market will provide appropriate terms regardless of the overall knowledge or shopping behavior of all buyers. A competitive market, then, will provide terms suitable to buyers and sellers without the particular terms of every sale having to be individually negotiated. For competitive markets to establish efficient terms, it is not necessary for all, or even many, buyers to have complete information about product attributes, risks, and alternative terms. In fact most buyers will have very little information in most cases. What is required is that there be some buyers who are responsive to terms and who comparison shop.

Although no studies appear to examine the search or shopping behavior of used car buyers, studies of shopping for consumer durables, including new cars, and of the determinants of consumer search demonstrate the presence of sufficient purchaser shopping to compel used car sellers either to provide the terms buyers prefer or risk losing market share. Studies of the information-seeking behavior of new car buyers indicate that such purchasers visit between 3.3 and 6.2 dealers prior to making a purchase. Another study found that only 34% of new car buyers visited only one dealer prior to purchase.

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128. When used car buyers have to obtain third-party financing, lenders will provide additional information to buyers. In particular, to the extent that lenders rely on Blue Book guidelines for value determination, the market, through the lenders' conditions on loan to value amounts, will provide information about the "average" quality and condition of a used car. Blue Book prices for used cars are adjusted for special features as well as mileage, implying that prior experience is relevant to current prices.

129. Buyers who demand different terms than those prevailing on the market can negotiate individually with sellers. Moreover, sellers will attempt to ascertain whether there are sufficient buyers who prefer terms different from those offered generally, and markets will arise or "segment" in order to meet those buyers' preferences. The general conditions under which separating equilibria will be generated through market segmentation are discussed in ANDREU MAS-COLELL ET AL., MICROECONOMIC THEORY 450-60 (1995). When the market will not support a separating equilibrium, the result will be a pooled equilibrium where the terms are the same for all buyers. Under reasonable conditions (competitive buyers and sellers and no barriers to entry or exit) both supporting and pooled equilibria can be efficient.

130. See Holdych & Ferrell, supra note 66, at 252-53; Schwartz & Wilde, supra note 106, at 1409.


133. See John W. Newman & Richard Staelin, Prepurchase Information Seeking for New Cars and Major Household Appliances, 9 J. MKTG. RES. 249, 250 (1972). These findings are consistent with those of Westbrook and Fornell who found that 68% of purchasers of major appliances visited more than
With more than a majority of buyers visiting more than one dealer, sellers have sufficient incentive to provide terms those buyers prefer or risk becoming unprofitable. Based on the determinants of consumer search, used car buyers are likely to engage in more search than new car buyers. Evidence tends to support the theory that consumers use a cost-benefit approach to determining the amount of search in which they will engage. Thus when consumers purchase higher priced, more complex products, or when a transaction involves a higher degree of risk, consumers are likely to engage in more search. Similarly, as search costs are lowered, for example, by the close proximity of sellers to one another, buyers are likely to conduct more search. Finally, purchasers with lower incomes tend to search more than buyers with higher incomes.

The characteristics of the used car market indicate that buyers in that market are likely to engage in greater search or shopping than new car buyers. The risk of a bad purchase is likely to be higher for a used car since it is more likely to have undergone substantial use and to possess worn or defective parts. Although lower than that for a new car, the price of the used car is still relatively high. Sellers of used cars tend to be located in close proximity to one another, thus reducing shopping costs. Finally, the income of used car buyers is lower than that of new car buyers.

It is not only likely that there is substantial shopping by buyers in the used car market, but also that a significant percentage of those buyers are interested one dealer, with the mean number of stores visited being 2.7. See Robert A. Westbrook & Claes Fornell, Patterns of Information Source Usage Among Durable Goods Buyers, 16 J. MKTG. RES. 303, 305, 307 (1979).

134. To determine what types of products, specific attributes or pricing strategy will be profitable in the market, a seller does not need to know what every potential consumer thinks. Indeed, trying to ascertain the preferences of everyone would be prohibitively costly. Rather, sellers rely on information from the most concerned and product sensitive consumers, the marginal buyers. These buyers have an interest in, concern for, and expressed desire to consider alternatives to what is available on the market. Through market research, direct customer contact, or trial-and-error, profit maximizing sellers try to "reach" these buyers. If sellers can attract the marginal buyers, those just willing to pay for a new product or attribute, then the sellers will also attract all buyers who place a higher value on the new product or attribute than do the marginal buyers. Thus, if a change in market terms is attractive to the buyers on the margin, it will be profitable for the market in total, and the change will occur. How many marginal buyers are required for a change to be profitable is idiosyncratic to each product. In some markets (mainframe computers, for example) one large buyer may be sufficient. In other markets (computer software, for example) it may take a larger number of buyers to generate sufficient information to sellers. As indicated supra note 133 and accompanying text, it is highly likely that most used car buyers do shop more than one dealership. This suggests that sellers are able to acquire information from concerned, marginal buyers. Haggling over prices, changed sales techniques, new terms, and the entry of new sellers into the market all provide evidence that sufficient numbers of marginal buyers are active in the market to make a difference.

135. See Punj & Staelin, supra note 131, at 378.
136. See Beatty & Smith, supra note 131, at 84.
137. See Srinivasan & Ratchford, supra note 131, at 239.
138. See Beatty & Smith, supra note 131, at 84; see also Punj & Staelin, supra note 131, at 378 (showing cost negatively related to amount of search).
139. See Kiel & Clayton, supra note 99, at 237.
in warranty terms. The latter point is demonstrated by the existence and variety of warranty terms. Although some critics appear to regret the variety of warranty terms available in the used car market, it is strong evidence of sellers responding to buyers' preferences. Were they not doing so, one would expect a market where all cars were sold without warranties. Warranties not only provide protection against product failure, but also impose costs on both the seller and the buyer. These costs consist of the price of the warranty, the cost of ascertaining the existence of a defect, the cost of enforcing the warranty, and the cost of providing a remedy in the event of breach by the seller. Dealers would not include warranties and buyers would not pay for them, given these costs, unless buyers attached a value to them exceeding their costs. Thus the existence and variety of warranties in the market demonstrate that there are buyers concerned about warranties and who therefore discipline the market for all buyers, including those who are totally ignorant of warranty terms.

The above argument demonstrates that it is reasonable to believe that the used car market generates appropriate warranty terms. It also demonstrates that the market deals appropriately with the disclaimer of implied warranties. As indicated above, some states require individual negotiation of warranty disclaimers for such disclaimers to be effective. These requirements appear to be premised, at least in part, on the idea that unless buyers are aware of, and individually acknowledge or participate in the disclaimer of implied warranties, they will receive inappropriate terms. The preceding analysis demonstrates, however, that this belief is false. So long as there are sufficient numbers of buyers who are concerned about warranty terms and disclaimers, they will discipline the market to provide the warranty terms and disclaimers buyers prefer. The fact that any one buyer fails to negotiate a disclaimer is irrelevant to the question of whether she received optimal warranty terms.

140. See FTC STAFF REPORT, supra note 32, at 252-53.
141. Whether the value of a warranty is due to its ability to provide a quality signal or due to the comparative cost advantage of the warrantor to protect and insure against product defects does not matter. In fact, empirical evidence for automobile warranties indicates the market values warranties for both reasons. Boulding and Kirmani provide evidence in support of the comparative advantage reason. See William Boulding & Amna Kirmani, A Consumer-Side Experimental Examination of Signaling Theory: Do Consumers Perceive Warranties as Signals of Quality?, 20 J. CONSUMER RES. 111, 119 (June 1993) (providing theoretical support and empirical evidence that warranty is valuable as "bonding" signal between buyer and seller where strength and value of bond are related to cost advantage of warrantor and quality of item sold by warrantor provides valuable signal of credibility, and concluding, in part, that "a better warranty is an effective strategy for the high-credibility firm relative to the low-credibility firm"). Douglas, et al. show that within a particular vehicle class warranties provide a quality signal but that between classes the warranty serves a comparative cost function. See Evan J. Douglas et al., Warranty, Quality and Price in the U.S. Automobile Market, 25 APPLIED ECON. 135 (1993).
142. See supra note 66.
143. For further analysis of warranty disclaimers, see Holdych & Ferrell, supra note 66.
VI. WARRANTIES CREATED BY THE USED CAR MARKET

Since there appears to be no market failure at work in the sale of used cars, the warranties that exist in that market and the sale of many cars without warranties must have another explanation. Before undertaking a more particular analysis of the warranties created through the used car market, it is appropriate to analyze the conditions under which markets will generate warranties to determine the circumstances under which they are likely to occur. The first Section of this Part presents two general arguments for the existence of warranties—the signaling and the comparative advantage theories—and considers two important problems that arise due to the insurance feature of warranties—moral hazard and adverse selection. The next Section sets forth the differences in warranty terms and demonstrates why such differences exist in accordance with the signaling and comparative advantage theories of warranties and in order to avoid the problems of adverse selection and moral hazard. The final Section of this Part provides a market based explanation of why warranties do not arise in all transactions for used cars. Evidence is presented to indicate that there are times and conditions under which providing warranties is not an efficient response to buyer and seller needs.

A. Why Warranties Are Provided: Signaling and Comparative Advantage

Warranties arise on at least one of two bases. The first is as a signal of product quality. In the sale of most complex products, such as used cars, there is asymmetrical information between the seller and the buyer about the product’s attributes. In many instances, it is excessively costly for the seller to convey this information to the buyer. Without this information, however, the buyer may be unwilling to purchase or purchase without a price discount that the seller considers excessive. To avoid these buyer responses, the seller includes with the product a legally enforceable commitment reassuring the buyer about the product attributes and the product’s quality. This commitment acts as a signal to the buyer about the contents and quality of the complex product.\footnote{See Priest, Consumer Product Warranty, supra note 99, at 1310-12.} The signal becomes part of the product being sold and is valuable to the buyer because it eliminates the need to inspect the product.

A second basis for the existence of warranties is the comparative advantage theory.\footnote{A general discussion of the signaling theory of warranties together with the comparative advantage theory discussed below can be found in ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 422-30 (1988). The role of warranties as special signals of quality in markets with asymmetric information is discussed in ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 604 (1995).} According to this theory, a seller and buyer will allocate between themselves the costs of maximizing a product’s usefulness by either making
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investments to increase or maintain the product's usefulness or by insuring against the product's failure.\textsuperscript{146} How they allocate these costs depends on the comparative prices and outcomes of the different expenditures. Thus if it is cheaper for a seller to pay for the cost of product failure than the buyer, the seller will guarantee this payment in the form of a warranty if the buyer is willing to pay the price for this protection. A buyer will procure this protection if the value of the protection is less than the price of the warranty. On the other hand, the buyer may be able to pay the cost of some forms of product failure more cheaply than the seller.\textsuperscript{147} In that circumstance, the buyer would not procure a warranty from the seller.

B. The Problems of Adverse Selection and Moral Hazard

Whether a seller will provide and a buyer will purchase a warranty as well as the character of a warranty depend not only on the producer's comparative cost of service and value of the informational signal to the consumer but also on two other factors: adverse selection and moral hazard. Adverse selection exists when those persons most likely to encounter a risk procure insurance against it. Thus if an insurance company insures against a particular disease, those engaging in activity most likely to contract the disease are more likely to procure the insurance. Rather than obtaining insureds from the general population, the insurer is more likely to attract an unrepresentative pool of insureds from those most likely to contract the disease. Moral hazard is the risk that the event insured against will occur because the insured is indifferent between not having the event occur and having the event occur and being paid the amount of the insurance policy. When the insured is indifferent between these two conditions, she will either fail to take reasonable precautions against the event occurring or may engage in behavior that will cause the event to be more likely to occur.

C. Market Operations: The Variability in Warranty Terms

According to the 1978 FTC study and data collected by the authors of this Article, express warranties offered by used car dealers vary significantly in content.\textsuperscript{148} Although criticized,\textsuperscript{149} this variation in part represents the attempt of sellers in a competitive market to respond to consumer preferences. It also represents the fact that there may be differences in the quality of the cars being sold.\textsuperscript{150} Three principal areas of variation in warranties are: (1)

\textsuperscript{146} See id. at 1308-13.
\textsuperscript{147} See id. at 1308.
\textsuperscript{148} See FTC STAFF REPORT, supra note 32, at 253.
\textsuperscript{149} See id.
\textsuperscript{150} That such differences in warranty terms reflect differences in the quality of the vehicles being sold is indicated in the FTC staff report, which states that dealers offer different warranty terms for
duration, (2) parts coverage, and (3) allocation of the cost of repairs. Each area is considered below in light of the signaling and comparative advantage theories of warranties and the problems of adverse selection and moral hazard. As will be discussed, the character of the terms in each of these areas is consistent with a market that generates warranty terms based on the relative costs and preferences of buyers and sellers.

1. Length of warranty coverage

One of the areas in which a variation in terms is found is that of warranty duration. Warranties run from 30 days or 1000 miles to 12 months or 12,000 miles, with the latter generally being sold with more expensive or newer model cars. That warranties vary with the age of a vehicle appears consistent with the signaling theory of warranties. Newer cars generally would have less wear and tear and be of higher quality, resulting in lower insurance or warranty costs. Therefore, one would expect that the warranty "signal" would be greater than that for a lower quality or older car.

Similarly, the warranty periods for used cars are significantly shorter than those for new cars. One would expect such a difference in signals between a product that has been used, and thus is likely to have some parts that are subject to failure, and an unused product free from wear and tear. A shorter duration for used cars is also consistent with the comparative advantage theory of warranties. A dealer may have a comparative advantage in protecting against part failures manifested shortly after sale by inspecting the vehicle and making required repairs prior to sale. At the time it inspects a vehicle in preparation for sale, a dealer may be expected to have lower marginal costs than a buyer for finding defects and making repairs. For part failures that occur substantially after this time, the ability to take presale precautions becomes much more costly. Thus one has to decide whether, for example, to replace a part that might fail in six months or two years. At this point, the comparative advantage in maintaining the vehicle shifts to the buyer. One of the principal factors affecting whether a part will fail will be how the buyer drives and maintains the vehicle. Here buyers are heterogeneous in their behavior, which means that buyers who drive poorly are likely to suffer part failure earlier than those who

older and newer model cars. See id. at 254-57.
151. See id. at 253-55.
152. See id. at 254.
153. See id.; see also "Off-Lease" Cars, supra note 53 (reporting that Toyota off-lease cars sold with 12 month, 12,000 mile warranty); Treece, supra note 53 (reporting that Mercedes-Benz used cars with fewer than 100,000 miles have 12 month warranty).
154. New car basic warranties tend to vary in duration from 24 months or 24,000 miles to 48 months or 50,000 miles with warranties of 36 months or 36,000 miles being most common. Powertrain warranties on the same vehicles tend to be longer with the longest being 120 months or 100,000 miles. See Christopher P. Myer, Cyberspace Automotive Performance (visited Mar. 29, 1995) <http://www.-cyberauto.com/info/sales/warranty.html>.

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drive better. Because dealers have no way of discriminating among buyers by price based on their driving behavior, the price of the warranties will be established on an average cost basis; in other words, all buyers will pay the same price regardless of how they drive or maintain their vehicles. As a result, good drivers will subsidize bad drivers if an extended warranty is sold. Shorter duration warranties may also be sold to avoid adverse selection and moral hazard. Longer warranties from dealers may attract buyers into their market who drive their cars harder and maintain them less, contributing to product failure. Similarly, buyers who have longer warranties have an incentive to drive a vehicle harder during the warranty period.

2. *Component part coverage*

Another portion of warranties that varies significantly is the coverage of automobile components. Some warranties cover only limited parts, such as the "drivetrain" (the engine, transmission and drive axle) or "safety components," those that must be satisfactory for the vehicle to pass a state safety inspection. A warranty limited to the latter category of parts is explainable on the comparative advantage theory. The dealer has possession of the vehicle prior to sale and clearly has superior information about whether it is suitable for passing inspection. Repairs to enable the vehicle to pass inspection would generally be valuable to any purchaser and would not tend to depend on any personal preferences. The nature of the work would not tend to depend on any subsequent use by the buyer, therefore avoiding problems such as moral hazard. The buyer may not have possession of the car for any significant time prior to the inspection and may lack information about whether the vehicle will pass inspection. Moreover, the value of the purchase will diminish significantly, if not totally, if the vehicle fails inspection. The dealer's warranty functions

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155. Providing extended, as well as regular or short term, warranties raises the cost to warrantors for two reasons. One is that the longer term of coverage allows for the inclusion of more problems of general use. The second is that more intensive users of the product will value the longer term more than will less intensive users. This attractiveness to more intensive users gives rise to the problem of adverse selection and raises the expected costs of honoring the extended warranty. Sellers can provide extended warranty coverage by either average cost pricing for both a regular and an extended warranty or by significantly raising the price of the extended warranty only. Using the first pricing scheme would have less intensive users subsidize the more intensive users, exacerbating the problems of moral hazard and adverse selection. The second approach may make the price of an extended warranty greater than the value to the consumer. Hence an extended warranty will not be offered. The increased costs in providing an extended warranty explains, in part, why the duration of warranty terms for used cars is generally less than for new cars. See Zhiqi Chen & Thomas W. Ross, *Why Are Extended Warranties So Expensive?*, 45 ECON. LETTERS 253, 253 (1994).

156. See FTC Staff Report, supra note 32, at 255-56.

157. See id. Of the two warranties obtained by the authors, the one provided by CIM Insurance Corporation is restricted exclusively to drivetrain parts, whereas the one furnished to Washington State dealers by the Washington State Independent Automobile Dealers Association allows the dealer and buyer to add parts in addition to those in the drivetrain.
in the nature of a pre-use commitment that the vehicle can be used in a lawful manner on the highways.

A warranty covering only drivetrain parts may also be explained by comparative advantage. Although failure of other parts (e.g., brakes, starter, fuel injectors or alternators) may affect an automobile's operability, buyers may be more concerned about failure of a drivetrain part. Unlike defects in parts such as brake pads, defects in the engine or transmission may be very costly to discover. If a drivetrain part fails, repair is likely both to be more costly and require a more specialized mechanic. Drivetrain part failures may also inflict greater collateral or consequential costs on a buyer through the vehicle being unavailable for a longer period of time. These factors mean that the \textit{ex ante} cost of the failure of one of these covered parts is greater to the buyer; therefore a warranty is more valuable. Moreover the existence of a warranty creates greater incentives for a dealer to take precautions at the time of vehicle inspection or preparation to assure the functioning of these parts. Given the specialized nature of the dealer's business, taking these precautions may be cheaper for the dealer to take \textit{ex ante} than for the buyer to take thereafter. These parts can be distinguished in particular from those parts which warranties tend to exclude—batteries, tires, trim, and glass.

The latter are parts that are highly subject to buyer use so that any advantage in maintenance clearly is with the buyer.

3. \textit{Repair cost allocation}

The final warranty term is that pertaining to the cost of repair. Warranties vary significantly, with the dealer bearing the full cost of repair for late model, more expensive cars, the buyer paying a deductible per repair for some vehicles, and the dealer and the buyer splitting repair costs for other vehicles. Although some may perceive an invidious motive in providing for a deductible or splitting the costs of repair, allocating part of the cost of repair to the buyer is a form of co-insurance designed to protect against adverse selection and moral hazard. If the buyer bears part of the cost of repair, she is more likely to maintain the vehicle and drive it in a manner which reduces the risk of part failure. Although it is common to think of product failure as involving only conduct by the seller, buyer utilization of a product also affects its performance and freedom from defects. This fact

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158. See FTC STAFF REPORT, supra note 32, at 256 & 256 n.20.

159. The CIM warranty obtained by the authors provides for a $50 deductible per breakdown requiring repair. The utilization of a deductible comports with the terms of contemporary service contracts that can be purchased at the time of the purchase of a used car (contracts on file with authors).

160. FTC STAFF REPORT, supra note 32, at 257-58.

161. See Post, supra note 55, at 976.

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is recognized by warranty statutes that exclude from warranty coverage defects resulting from product misuse and lack of maintenance.\textsuperscript{163} Even if there is no provable misuse, buyer use affects freedom from defects.

D. Third-Party Provision of Warranties and Service Contracts

In addition to express warranties provided by a dealer, the used car market provides warranties and service contracts through third-party providers.\textsuperscript{164} Some service contracts provide only for repair or replacement of a defective part which suffers a mechanical breakdown,\textsuperscript{165} whereas others also cover parts that fail through wear and tear.\textsuperscript{166} The coverage provided by the service contracts may be quite extensive, covering vehicles with as many as 100,000 miles.\textsuperscript{167} The number of miles for which the contract applies generally depends on a vehicle's mileage at the time of sale. Although some contracts are limited to drivetrain parts, the same companies offer contracts that are much more extensive.\textsuperscript{168} Some policies offer optional coverages based solely on the purchaser's willingness to pay.\textsuperscript{169} As indicated above, the contracts contain deductibles, in one instance assessing a buyer a deductible of $50 per component or part replaced.\textsuperscript{170} In addition to providing for repair or replacement of defective parts, the contracts also provide for a rental car for the purchaser, towing of the car needing repair, and in some instances travel expenses incurred as a result of a breakdown.\textsuperscript{171}

Although some may criticize the availability of a service contract in place of a warranty,\textsuperscript{172} the existence of these third-party contracts clearly reflects a market response to demand for insurance against product failure that in many

\textsuperscript{163} See, e.g., CONN. GEN. STAT. ANN. § 42-221(b) (West 1992); MASS. GEN. LAWS ANN. ch. 90, § 7Nk (3)(B) (West 1989); MINN. STAT. ANN. ch. 325F, § 662(2)(g) (West 1995); N.J. STAT. ANN. § 56:8-70 (West 1996); N.Y. GEN. BUS. LAW ch. 20 § 198-b(4)(b) (McKinney 1995); R.I. GEN. LAWS § 31-5.4-2(e) (1995).

\textsuperscript{164} As indicated previously, 29.8% of used cars sold by dealers in 1993 were sold with a service contract. NADA Auto Executive, \textit{supra} note 46, 46.

\textsuperscript{165} See, e.g., Associates Underwriting Limited Service Contract; 1995 Firemen's Fund VIP Mechanical Breakdown Service Contract; PRco's Specimen Service Contract; Wynn's or Wynn's Diamond Service Protection (contracts on file with authors).

\textsuperscript{166} See, e.g., Ford Extended Service Plan, Power Train Care Plan (wear and tear failures) (1994);

\textsuperscript{167} General Motors Repair Protection Plan (any part failure) (1994) (on file with authors).

\textsuperscript{168} See, e.g., Associates Underwriting Limited Service Contract (1995) (no limit on mileage);

\textsuperscript{169} General Motors Repair Protection Plan (1994) (100,000 miles).

\textsuperscript{170} See, e.g., Firemen's Fund VIP Mechanical breakdown Service Contract; Ford Extended Service Plan, ITT Advantage Service Agreement Program; General Motors Value Guard Plan.

\textsuperscript{171} See, e.g., Heritage Warranty Corp. Contract; PRco's Specimen Service Contract; Wynn's Diamond Protection.

\textsuperscript{172} See, e.g., Heritage Warranty Corp.
instances is not provided by sellers. As indicated above, the terms of such contracts are largely similar to, and in some instances, more generous than those in express warranties provided by dealers. Moreover, the contract terms are tailored to buyers’ preferences and willingness to pay since buyers can select the type of parts or components covered by the contracts. Based on the nature of the terms and the number of companies offering service contracts, there is no reason to believe that the contracts provide suboptimal or uncompetitive terms.

E. When Warranties Are Not Provided

Although a substantial percentage of used cars sold by dealers are sold with warranties, many are not. Not only are some vehicles sold without an express warranty, but they are also sold without an implied warranty of merchantability and an implied warranty of fitness for a particular purpose. Disclaiming the implied warranty of merchantability appears inappropriate to some who do not understand why a merchant does not commit that her product is at least fit for its ordinary purposes, and who believe that the risk of product failure ought to be spread among all purchasers of a product rather than be concentrated on one unfortunate buyer. The following materials will demonstrate that when the expected value of a warranty to a buyer is small relative to the price of warranty coverage, the buyer will not prefer or purchase a warranty. Symmetrically, when the cost of providing a warranty to a potential provider

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173. As noted above, some service contracts provide for towing, a rental car, and travel expenses while a covered vehicle is being repaired. See supra text accompanying note 171.

174. See supra notes 168-169 and accompanying text.

175. The authors obtained service contract forms and materials from ten providers in the Puget Sound area of the State of Washington (on file with authors).

176. A number of states regulate the provision of motor vehicle service contracts. See, e.g., ARIZ. REV. STAT. ANN. §§ 20-1095.0 to 1095.10 (West 1995); ARIZ. COMP. ADMIN. R. & REGS. R20-6-408 (1995); ARK. STAT. ANN. §§ 4-90-501 to 512 (1996); COLO. REV. STAT. § 42-13-101 to 109 (West 1990); IDAHO CODE §§ 49-2803 to 2804 (West 1996); IOWA CODE § ANN. 321.1 (West 1996); MINN. STAT. ANN. § 65B.29 (West 1996); NEB. ADMIN. R. & REGS. 44-3520 to 3526 (1993); WASH. REV. CODE § 48.96 (West 1996). The regulations vary in content. Some require inclusion in the contracts of certain mandatory terms. See, e.g., ARIZ. COMP. ADMIN. R. & REGS. R20-6-408.D.3.b. Among the mandatory terms are those providing cancellation rights for a buyer. See, e.g., ARIZ. COMP. ADM. R. & REGS. § R20-6-408.D.2; ARK. CODE ANN. § 4-90-507; IDAHO CODE § 49-2804 (10); WASH. REV. CODE § 48.96.047. Others prescribe the use of certain terms or practices, including those considered misleading. See, e.g., ARIZ. CODE ANN. § 4-90-512; IOWA CODE ANN. § 321.11. The measures frequently provide that service contracts must contain a set of disclosures concerning the contract’s terms and information related to obtaining service under the contract. See, e.g., ARIZ. COMP. ADM. R. & REGS. § R20-6-408.D.3.c; ARK. CODE ANN. § 4-90-506; IDAHO CODE § 49-2804(1); IOWA CODE ANN. § 321.5; MINN. STAT. ANN. § 65B.29 subd. 5; NEB. ADMIN. R. & REGS. § 44-3522(3)(4); WASH. REV. CODE §§ 48.96.040., .045. Finally, and most commonly, the statutes and regulations require the contract provider to maintain a policy of reinsurance with a qualified insurance company to insure the provider’s obligations of performance under the contract, thereby protecting buyers from nonperforming contract providers. See, e.g., ARIZ. REV. STAT. ANN. § 20-1095.06.B.2; ARK. STAT. ANN. § 4-90-505(a); COLO. REV. STAT. § 42-13-102; IDAHO CODE § 49-2803(1)(a); MINN. STAT. ANN. § 65B.29 subd. 2; NEB. ADMIN. R. & REGS. § 44-3522(1); WASH. REV. CODE § 48.96.020.

177. See 1991 WASH. ATT’Y GEN. REP., supra note 46, at 9 n.9.
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exceeds what a buyer will pay for coverage, no warranty will be offered. As will be discussed, when a warranty claim is presented, disputes about the source of a problem and the meaning of the warranty may give rise to additional interpretation and enforcement costs that may make the providing of warranty coverage inefficient. Finally, differential buyer use may contribute to enforcement cost problems, cause some buyers to subsidize others, and result in cars being sold with no warranties.

1. The value of a warranty

The main reasons dealers may sell used cars without a warranty, either express or implied, are comparative advantage and differential buyer use. If it is not cheaper for a buyer to pay a dealer to make investments to assure a vehicle’s continued use or to insure against the vehicle’s subsequent breakdown, she will not purchase nor will the dealer offer a warranty. That it may not be cheaper in many transactions for a buyer to pay a dealer for warranty protection is demonstrated by evidence in the 1978 FTC study that some buyers prefer purchasing at a discount to paying for a warranty. That buyers may be unwilling to pay for a warranty appears curious in light of the fact that empirical data indicate that one-third of used car buyers from dealers report defects in their cars, that perhaps a majority of defects materialize within a month after purchase, that buyers report that they are concerned about the mechanical condition when they purchase a used car, and that the self-inspection that buyers use at the time of purchase generally is inadequate to discover malfunctions in the complex machinery of an automobile.

Although these factors indicate that there may be a significant probability that a used car will be defective when sold, they do not demonstrate that it is cheaper for a dealer to protect or insure against a defect than a buyer. To determine that, one has to know in part what a warranty is worth to a buyer. The 1978 FTC study reported that the mean cost of repairs for defects reported

178. See FTC STAFF REPORT, supra note 32, at 252 n.9.
179. See supra note 109 and accompanying text.
180. See FTC STAFF REPORT, supra note 32, at 47.
181. See id. at 58.
182. See id. at 83-84.
183. A separate concern arises when safety problems are inadequately evaluated by the market, and injuries are inflicted on third-parties. Even in this situation, mandatory warranty legislation is not the best way to correct for market failure. A more effective means to deal with these third-party concerns is through vehicle equipment safety statutes. See, e.g., CAL. VEH. & TRAF. CODE § 24002. Under the negligence per se doctrine, a person who causes injury to a third person as a result of operating a vehicle in violation of such a statute would be liable in negligence for damages. See Brannan v. Nevada Rock & Sand Co., 823 P.2d 291 (Nev. 1992); Jonathan M. Purver, Annotation, Effect of Violation of Safety Equipment Statute As Establishing Negligence in Automobile Accident Litigation, 38 A.L.R.3d 530 (1971). The operator, of course, can insure against such liability with liability insurance. The use of mandatory warranties in this case would increase the problems of moral hazard and adverse selection.
by used car buyers was $109.\textsuperscript{184} If, as indicated, one-third of buyers experienced defects in the cars they purchase, then the probability of encountering a $109 defect is 33%. Therefore, at the time of purchase, the expected cost of the defect is $37, or the mean cost of repair, multiplied by 33%, the likelihood of needing repair. Absent any enforcement or other costs, the maximum value of the warranty to the buyer is $37. If the warranty provides for splitting the costs of repairs equally between the dealer and the buyer, it is worth $18.50.

If a warranty covered this defect, the buyer might have to return the vehicle to the dealer to have the vehicle repaired if the warranty provided for an exclusive repair or replacement remedy.\textsuperscript{185} Returning the vehicle might impose significant enforcement costs compared to taking the vehicle to a local mechanic. This cost might be particularly high if the car is purchased at some distance from the buyer’s residence, say in another city or state.\textsuperscript{186}

2. \textit{Dispute resolution and enforcement costs}

In addition to the enforcement costs in returning a vehicle to a dealer, the buyer and dealer would incur costs determining whether the warranty covered the problem. This issue might not be straightforward with a used vehicle. If the warranty requires that the automobile or the part is defect free at the time of sale and that the warranty extends for 30 days, one would have to determine whether the problem was attributable to a defect that existed at the time of sale or whether it was unrelated to a defect or arose thereafter. If it occurred because of buyer abuse, the problem probably would not be covered by the warranty.

Making these determinations is costly but necessary to avoid the problems of adverse selection and moral hazard. Nevertheless, these enforcement costs affect the value of the warranty. If the joint cost to the seller and the buyer of determining whether the warranty covers the problem is hypothetically, on average, $20, the value of the warranty is reduced from $37 to $17.\textsuperscript{187} If the

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184. See FTC \textsc{Staff Report}, \textit{supra} note 32, at 59.
185. See U.C.C. § 2-719(1)(b) (1989) (stating if remedy is agreed to be exclusive, it is sole remedy). A used car dealer who offered a “full” Magnuson-Moss Warranty Act warranty might be precluded from imposing the cost of returning a vehicle for return on a buyer unless the dealer established in an administrative proceeding that requiring the buyer to pay such an expense was reasonable. See 15 U.S.C.A. § 2304 (West 1982). Since full warranties are infrequently offered in the sale of new goods, it is highly unlikely that they are offered in the sale of used cars.
186. If a consumer believes that she will not reside in close proximity to the warrantor who provides the service, the cost of returning the vehicle for service will increase significantly. The amount the buyer would be willing to pay consequently will fall. When the transaction cost of returning the vehicle to the service location exceeds the value of the service itself, even ignoring the other costs of adjudicating the dispute and possible co-payments, the amount a buyer would be willing to pay for the warranty will approach zero and it will be in both parties’ best interests to disclaim even implied warranty coverage.
187. Even though a portion of the resolution cost is nominally borne by the seller, the incidence of the cost at the margin may be borne by the buyer.
\end{flushright}
cost to the buyer of returning the vehicle to the dealer to determine whether there is a covered defect and perhaps to have the vehicle repaired is $10, the value of the warranty to the buyer is $7. If the buyer bears half the $37 in repair costs, the warranty is valueless. Even if the warranty is worth $7, it may be cheaper for the buyer to purchase at a discount and self-insure against vehicle defects.

3. Dealer costs in performing warranty obligations

In determining the value of a warranty, one must also consider the cost to a dealer of maintaining a repair facility, having a relationship with a facility to perform repairs, or maintaining personnel to process warranty claims and work by third-party mechanics. If the joint costs to a dealer and buyer of enforcing a warranty exceed the costs to a buyer of purchasing a car without a warranty and taking it to an independent mechanic for repairs, rational dealers and buyers will take the less costly course of action. Ordinarily a warranty would include, either expressly or implicitly under the Uniform Commercial Code, a remedy either providing for repair of a covered part or paying the buyer the costs of repairs effectuated by a third-party mechanic. Used car dealers are in the business of selling automobiles, and there is no reason to believe that it is cheaper for them to maintain repair facilities, particularly for vehicles that may only be warranted for 30 days, than it is for a buyer to take the vehicle to an existing mechanic whose business indicates that she has a comparative advantage in repairing cars. Some dealers may employ mechanics to conduct presale inspections and repairs, but the employment of such mechanics does not mean that the dealership has a comparative advantage in maintaining a repair shop to cover the range of repairs that might be required under a warranty. Even if the remedy under a warranty simply reimburses a buyer for the costs of making repairs with her own mechanic, a dealer must employ someone not only to determine whether there is a covered defect as discussed above but also

188. The cost of returning the vehicle for this determination would be the marginal cost in excess of the cost of simply taking the vehicle to a mechanic for the needed repair. It is assumed that cost would exist in any event if a part proves defective.

189. Instead of the dealer providing a remedy of repair, the warranty might simply require the warrantor to pay the buyer a sum equal to the amount of repairs.

190. That other guarantees or mandatory disclosure might not be that beneficial to buyers is demonstrated by two recent studies. In the first, the authors found that a “buy back” program by Chrysler Corporation, under which the manufacturer promised to purchase from one of its new car buyers a vehicle that was bought within the previous thirty days, was worth $218 to purchasers of full-size cars and $138 to purchasers of intermediate cars but only $2 to buyers of compacts. See Charles W. Smithson & Christopher R. Thomas, Measuring the Cost to Consumers of Product Defects: The Value of “Lemon Insurance,” 31 J. L. & ECON. 485, 502 (1988). Similarly, Pratt and Hoffer found no statistical difference in the repair costs faced by purchasers of used pickup trucks in states having and not having mandatory defect disclosure laws. The authors concluded that the mix of used cars in the states having mandatory disclosure laws could not be considered of higher quality than those in the states not having such laws. See Pratt & Hoffer, The Case of Used Vehicles, supra note 9, at 316.
to verify the extent and costs of the necessary repairs and perhaps to determine the adequacy of the work to protect against future warranty claims. These expenses must also be incurred to avoid significant fraud and error costs.

4. Differential buyer use

Even if a dealer's cost of repair is not excessive, a buyer may prefer self-repair. This preference will exist if a buyer can inspect and repair a vehicle more cheaply than a dealer. 191 Even if she cannot perform this work herself, a buyer may have a mechanic whose work she values more highly than a dealer's, making it preferable to procure the vehicle at a discounted price without a warranty.

Error costs in enforcing warranties combined with differential buyer use also affect a warranty's value. As mentioned above, determining whether a defect is covered by a warranty may be more costly with a used, as opposed to a new, product. Consequently, there are likely to be higher error costs in deciding whether a problem is covered by a warranty. If randomly distributed, these error costs will not affect the value of a warranty. The times for which a dealer incorrectly determines that a defect is not covered will equal those in which she erroneously decides that one is covered. If, however, in attempting to maintain lower costs, dealers systematically err in finding defects that should be covered are not, the value of a warranty will be lowered. Conversely, differential buyer use may affect the error cost. Buyers who drive their cars harder or do not maintain them are more likely to suffer product failure. 192 With a warranty, they have an incentive to file an illegitimate claim. Given the difficulty in segregating legitimate from bogus claims, some number of these claims are likely to be granted. If a significant number of bogus claims are granted, the cost of warranties will increase with no value to legitimate warranty claimants.

In addition to error costs in deciding whether defects are covered by a warranty, differential buyer use will result in buyers who are more careful in using their vehicles subsidizing less careful or higher intensity automobile users. How a buyer maintains or uses a vehicle is likely to contribute to the occurrence of part failure. 193 Lack of maintenance and abusive driving are obvious behaviors contributing to such breakdowns. Perhaps less obviously, simply driving an automobile more frequently or for more extended periods of time may cause earlier or more frequent part failure. 194 Since the administrative costs of price discriminating among buyers based on how they drive or

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191. See Priest, Consumer Product Warranty, supra note 99, at 1308-09 (observing that consumer frequently can provide some repair services more cheaply than manufacturer).
192. See id. at 1312.
193. See id.
194. See id. at 1316.
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maintain their vehicles is excessive, dealers must sell warranties on an average cost basis. As a result, the buyer who maintains her car and drives it more carefully subsidizes the buyer who uses her vehicle more intensively or with lower maintenance, since the former buyer is less likely to incur part failure and presents a lower cost of warranty coverage to the dealer. To avoid paying this subsidy, the careful, low intensity user is likely to prefer not purchasing a warranty through a dealer.

5. The meaning of merchantability

Elimination of the cross-subsidy is an issue affecting the disclaimer of implied warranties as well as the failure to include an express warranty in a transaction. In addition, for an implied warranty of merchantability to provide the intended benefits, it is necessary that the term “merchantability” have a relatively certain, understandable, and enforceable meaning. When a term’s meaning is not clear, disputes arise concerning the scope of the term’s application requiring costly resolution procedures. The vagueness of the merchantability concept may be one reason merchants often disclaim that warranty.

The term is especially vague when applied to a used car, particularly one with a substantial number of miles. Is a car with 40,000 miles “fit for its ordinary purposes,” for example, if the brake pads are 1/8 inch thick? If the vehicle has 61,000 miles and has its original timing belt? Rather than incur the costs of resolving these issues and discount the value of a warranty based on the probability that a defect will not be covered, a rational buyer may prefer to purchase a used vehicle at a reduced price without a warranty.

VII. THE CONSEQUENCES OF MANDATORY WARRANTY COVERAGE

From the foregoing, there appears to be no market failure that would require adoption of mandatory warranty legislation, and the warranty terms that the market has produced appear rationally explainable in terms of sellers’ and buyers’ preferences. The question, then, is what effect mandatory warranty

195. See T. J. Stevenson & Co. v. 81,193 Bags of Flour, 629 F.2d 338 (5th Cir. 1980); Fear Ranches, Inc. v. H. C. Berry, 470 F.2d 905 (10th Cir. 1972); E. ALLEN FARNSWORTH & WILLIAM F. YOUNG, CASES AND MATERIALS ON CONTRACTS 245-47 (4th ed. 1995) (recounting that warranty of merchantability stated in U.C.C. § 2-314 is, according to one lawyer, “a very broad, subjective standard that juries can interpret to mean that buyer is entitled to relief if buyer is dissatisfied in virtually any way with the product”).

196. See Priest, Consumer Product Warranty, supra note 99, at 1344 (finding that juries subject to error in deciding consumers and uses for which product is designed and charge warrantor with use not preferred by dominant class of consumers).

197. It is common to replace a timing belt at 60,000 miles, at least on vehicles driven long distances at low speeds. See 1989 Toyota Camry Repair Manual MA-2 (1988).
legislation is likely to have on the used car market and the behavior of dealers and buyers.

The first effect of the legislation is to increase the cost of selling used cars. A warranty imposes costs on a dealer including initial preparation expenses to make a vehicle conform to a warranty, administrative costs to determine whether there has been a breach of warranty, and the expense of providing a remedy. These costs are increased under mandatory warranty legislation that compels a dealer to give a buyer a refund if the dealer fails to repair a vehicle within a specified number of attempts.\footnote{\textsuperscript{198}}

To the extent that dealers cannot shift the incidence of these costs to buyers, some dealers will go out of business. Although the exiting of the market by marginal dealers may be applauded by some, it will reduce consumer choice and to some extent make the market less competitive.

To the extent dealers can shift the additional costs to buyers,\footnote{\textsuperscript{199}} prices for used cars will rise. Unless buyers value mandatory warranties sufficiently highly, the quantity of used cars sold by dealers will decrease.\footnote{\textsuperscript{200}} Since the price differential between new and used cars will diminish, some potential used car buyers will upgrade their purchases to new cars. Other buyers will choose to retain their existing cars longer, spending more on maintenance. Finally, some will choose to purchase used cars from non-merchant sellers.\footnote{\textsuperscript{201}}

\footnote{\textsuperscript{198}} See, e.g., \textit{CONN. GEN. STAT. ANN.} § 42-221(b) (West 1992); \textit{HAW. REV. STAT. ANN.} § 481-6(a) (Michie 1995); \textit{MASS. GEN. LAWS ANN.} ch. 90, § 7N k(3)(A)(ii) (West 1989); \textit{N.I. ANN. STAT.} § 56:8-76; \textit{N.Y. GEN. BUS. LAW} ch. 20 § 198-b(c) (West 1996). Depending on the jurisdiction, the refund may include not only the purchase price but also registration fees, insurance, and taxes paid by the buyer upon purchase of the vehicle.

\footnote{\textsuperscript{199}} Although in the short run the relative elasticities of the supply and demand curves may preclude dealers from shifting some or all of the costs of providing warranties to buyers, in the long run the market would adjust, and the full cost would be borne by buyers. Otherwise, the rate of return on used car dealerships would fall below that of other businesses and result in capital being shifted to those businesses. For the market impacts of cost shifting based on elasticity conditions, see Pindyck & Rubinfeld, supra note 144, at 36. The argument for a perfectly (or almost perfectly elastic) supply curve is based on the assumption of capital mobility and the free flow of resources. This most likely holds in the market for used automobiles due to its competitive nature, lack of entry requirements, and low start up costs.

\footnote{\textsuperscript{200}} With a price increase, the quantity demanded at the new price would be lower than at the prior lower price. If buyers attached value to a warranty, the quantity demanded at each relevant price would be higher than without a warranty. If buyers valued a warranty sufficiently highly, the quantity demanded at the new price might be as high or higher than at the original non-warranty price.

\footnote{\textsuperscript{201}} The option of purchasing from non-merchant sellers could present a number of problems. Buyers from non-merchants may find it more difficult and expensive to procure warranty coverage. Non-merchant sellers are probably unlikely to have a comparative advantage vis-a-vis buyers to assure that vehicles possesses warranted attributes. Moreover, non-merchant sellers may not be able to offer warranties or service contracts sold by third parties, as the sellers of these warranties and contracts may make them available only through merchant dealers. In addition, when "after market" warranties or service contracts are available from third-parties, individuals who purchase from non-merchant buyers will encounter the additional cost of searching for these sellers and negotiating the sale. These additional transaction costs may be sufficiently high to discourage some potential buyers from securing this type of coverage, even though absent the additional cost it would have been efficient for them to do so. Buyers who want an express warranty will shop the merchant part of the market. Buyers who do not value this coverage will be more inclined to search the non-merchant sector. Allowing buyers to choose
For those who choose to purchase used cars from non-merchant sellers, which may represent the largest segment of those who will not purchase a used car from a dealer, it is not clear that the enforced warranty provisions will improve the consumers' positions. Indeed, it is possible, if not probable, that their condition could be made worse. Non-commercial sellers are not subject to market discipline, such as loss of goodwill, and therefore may be likely to sell inferior cars. For those who choose to drive older cars suffering from greater wear and tear, and possessing less safety equipment, the safety level of used cars is likely to be reduced. Thus, those customers pushed out of the dealer market may suffer increased harm due to mandatory warranties.

Some of these effects have been observed in markets where states have required mandatory disclosure of defects or passage of safety inspections in the sale of used vehicles. Michael Pratt and George Hoffer examined the consequences of a Wisconsin law requiring seller disclosure of used vehicle defects and an Iowa law requiring a used vehicle sold by a dealer to pass a safety inspection. They found no significant differences for repair costs or vehicle quality between purchasers in those two states and buyers in a state, Minnesota, not imposing such requirements. They observed, however, a significant decline (from 60% to 34%) in the share of the market for used cars for licensed car dealerships and a corresponding shift to sales through private transactions (not covered by either law). They concluded that one impact of the disclosure and inspection laws would be “a relative shift of sales to the private
market. It would then follow that an individual would have a greater likelihood of purchasing a lemon.\textsuperscript{204}

Importantly, the higher price for used cars will generate an equity effect. Used car buyers have significantly lower incomes than new car buyers.\textsuperscript{205} One of the important functions of a market for secondhand assets such as used cars is to provide an avenue for lower income households to acquire assets, such as durable goods, which are expensive when purchased new. As Tibor Scitovsky notes: “Secondhand markets for consumer durables therefore perform the socially valuable service of mitigating the inequalities of income distribution . . . ”\textsuperscript{206} To the extent, then, that mandatory warranties will increase the price of used cars, the burden will fall disproportionately on lower income households. The “socially valuable service of mitigating the inequalities of income” will be lessened. For lower income buyers who cannot absorb this price increase, the options are twofold: go without or shop in the private used car market. Choosing the former, of course, makes the opportunity cost of transportation for the poor increase significantly. Opting for the latter will not only frustrate the intent of the mandatory law, but, as argued below, will probably reduce the safety of cars purchased by these buyers.

To the extent that buyers do not prefer mandatory warranties, dealers will purchase and sell more vehicles that are outside the mileage range of the particularly more extensive warranties\textsuperscript{207} or less expensive vehicles for which a warranty is not required.\textsuperscript{208} They will tend to purchase and resell older, higher mileage automobiles which will probably tend to have greater defects and be less safe. Similarly, if the mileage on a vehicle is at the dividing point between less and more extensive warranties, a dealer has an incentive to place additional miles on the vehicle to avoid the costs of the more extensive warranty. Such behavior would simply be a waste of resources.

Contrary to what might be expected, mandatory warranty legislation might increase the cost of repairs in cars sold by dealers. Those buyers who formerly accepted used cars without warranty protection because they could repair their vehicles more cost effectively than the dealer will have an incentive to let the dealer take care of warranty problems. Buyers who are in possession of and probably have more knowledge about nonconformities in cars than dealers will have reduced incentives to repair such vehicles themselves and more costly resources are more likely to be allocated to repairing vehicle defects.

\textsuperscript{204} Pratt & Hoffer, The Case of Used Vehicles, supra note 11, at 318.
\textsuperscript{205} See Friedman, supra note 111.
\textsuperscript{206} See Scitovsky, supra note 1, at 37.
\textsuperscript{207} Post found that one New York dealer discontinued purchasing vehicles with fewer than 36,000 miles since he did not want to be obligated under the mandatory 60 day warranty. See Post, supra note 55, at 998 n.138.
\textsuperscript{208} See, e.g., CONN. GEN. STAT. ANN. § 42-221(c)(1) (West 1995); MINN. STAT. ANN. ch. 325F § 662(3)(1) (West 1995) (mandatory warranty not required for vehicle whose price is less than $3000).
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The incentive for buyers to take less care with their vehicle is exacerbated by the requirement in some legislation that the dealer pay the entire cost of repair.\textsuperscript{209} Warranties requiring the buyer to pay a percentage of the repair costs are forbidden. As indicated above, such payment is a form of co-insurance designed to provide an incentive for a buyer to protect against the risk of vehicle failure. Without such payment, buyers are likely to provide less maintenance and drive their vehicles in a manner which increases the risk of part failure.

The response of mandatory warranty legislation to the problem of increased moral hazard is to exclude, or allow the dealer to exclude, from mandatory warranty coverage defects that arise from buyer negligence, lack of maintenance, or abuse.\textsuperscript{210} Although these exclusions tend to minimize the problem of moral hazard, they do so in a less effective manner than co-payment requirements. The principal reason is that a dealer would have to establish that a defect resulted from abuse or lack of maintenance. There are likely to be error costs in making such a determination and disagreements as to what constitutes abuse or proper maintenance. As a result, a mandatory warranty is likely to be found to cover some defects that are the result of abuse or lack of maintenance. Moreover, even if there is no provable misuse or lack of maintenance, buyer use of a product in terms of how well it is used can affect its freedom from defects. Buyers who care for or drive their vehicles more poorly than others are likely to experience more defects and receive warranty coverage.

As indicated previously, mandatory warranty coverage is likely to result in a cross-subsidy from one set of buyers to another. When all buyers must purchase warranty protection, those who do not want it or could provide the service themselves must pay part of the cost of providing the protection, giving a subsidy to those who value the coverage more highly and would have purchased it anyway. This subsidy generally flows from those who do not suffer as great a loss from the failure of a defective car, \emph{i.e.}, those who are comparatively poorer, who do not use a car as intensively, or who use it more carefully, to those who are more affluent and those who use a car with more intensity or less care.

Many of the efficiency and equity effects of mandatory warranties could be eliminated if the legislation provided that a buyer could contract out of or waive the mandatory warranty. Some of the statutes either have no provision

\textsuperscript{209} See, e.g., \emph{CONN. GEN. STAT ANN.} \textsection 42-220 (West 1992); \emph{HAW. REV. STAT. ANN.} \textsection 4811-2(a) (Michie 1995). \textit{But see MASS. GEN. LAWS ANN.} ch. 90 \textsection 7N\textsuperscript{1/4}(2)(A)(i) (West 1989) (allowing $100 deductible for first set of repairs under mandatory warranty); \emph{N.J. STAT. ANN.} \textsection 56:8-70 (West 1996) (allowing $50 deductible for each repair).

\textsuperscript{210} See, e.g., \emph{CONN. GEN. STAT. ANN.} \textsection 42-221(b); \emph{MASS. GEN. LAWS ANN.} ch. 90, \textsection 7N\textsuperscript{1/4}(3)(B); \emph{MINN. STAT. ANN.} ch. 325F \textsection 662(2)(g); \emph{N.J. STAT. ANN.} \textsection 56:8-70; \emph{N.Y. GEN. BUS. LAW ch. 20} \textsection 198-b(b)(4); \emph{R.I. GEN. LAWS} \textsection 31-5.4-2(e) (Michie 1995).
regarding or precluding waivers. 211 Others permit a waiver but only as to parts which the dealer specifies in writing are defective, 212 or as to vehicles with more than a specified number of miles. 213 Clearly the former is the more onerous in preventing the parties from entering into a contract that maximizes the value of the transaction to themselves. But the latter legislation is not significantly better. A dealer and buyer may want to purchase and sell a used car, regardless of mileage and without a warranty even if there are no known defects. The latter legislation does not allow a disclaimer of the mandatory warranty in that situation, limiting a waiver to specified defective parts or high mileage vehicles for which it is either assumed or mandated 214 that the dealer will receive a lower price. A buyer who simply wants to purchase a car at a reduced price without a warranty is precluded from doing so. Preventing such a buyer from making such a waiver is inefficient since it precludes the buyer from selecting the optimal product attribute mix for herself and is inconsistent with the philosophy of consumer sovereignty.

One area in which some assert that mandatory warranty legislation provides superior treatment to consumers to that available under the Uniform Commercial Code is that of remedies. 215 Under the Uniform Commercial Code a warrantor is liable, on breach of warranty, for one of several remedies. If a buyer discovers a breach prior to accepting a vehicle 216 and gives the seller proper notice, 217 she may reject the car and force the seller to take it back. A buyer who has accepted a vehicle and discovers a defect may not reject but may have one of two other remedies. The buyer can revoke her acceptance of the vehicle and force the seller to retake the automobile if the defect substantially impairs the value of the vehicle to the buyer, and she accepted it on the reasonable but erroneous assumption that the defect would be cured, or she accepted the car without discovering the defect either because of the difficulty of discovery or the seller’s assurances. 218 If the defect is not of sufficient

211. See, e.g., MASS. GEN. LAWS ANN. ch. 90 § 7N 1/4 (no provision on waivability); N.Y. GEN. BUS. LAW ch. 20 § 198-b(d)(1) (waiver void as contrary to public policy); R.I. GEN. LAWS § 31-5.4-2 (no provision on waivability).
212. See, e.g., CONN. GEN. STAT. ANN. § 42-221(d); HAW. REV. STAT. ANN. § 481J-3; MINN. STAT. ANN. ch. 325F § 662(4)(1).
213. See, e.g., N.J. STAT. ANN. § 56:8-73 (over 60,000 miles).
214. See id. (waiver permissible only if buyer and seller negotiate price adjustment).
215. See Post, supra note 55, at 975-91.
218. U.C.C. § 2-608. The revoking buyer is also entitled to damages based on the failure of the seller to deliver a vehicle that conformed to the warranty. These damages would be based on either the difference between the contract price and the market price at the time when the buyer discovered the
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magnitude to allow her to revoke her acceptance or she does not choose that remedy, she is entitled to damages based on the difference in value between the vehicle as received and the value of the vehicle as warranted together with any consequential loss. 219

The Code allows parties to a contract to modify or limit the remedies for breach of warranty to specified or limited remedies. 220 It is common for contracts for the sale of goods to provide that a buyer’s remedy is restricted to repair or replacement of a product that does not conform to a warranty, and that the buyer cannot reject, revoke, or recover money damages. If a car proves defective, for example, a buyer must return the vehicle to the dealer for repair or replacement and cannot revoke her acceptance and obtain the price back, unless she can establish that the limited or exclusive remedy of repair “failed of its essential purpose” 221 and that the defect substantially impaired the value of the vehicle to her. Establishing failure of essential purpose is indeterminate, based on whether the seller repaired the vehicle to conform to the warranty within an appropriate or reasonable period of time. 222 Thus a buyer who has returned a vehicle for repair four or five times may not be able to establish that the limited repair remedy has failed of its essential purpose. Even if she can prove that the remedy has failed of its essential purpose, a buyer may not be able to revoke and obtain a refund if she cannot prove that the defect or breach of warranty substantially impaired the value of the vehicle to her. 223

Mandatory warranty legislation has dealt with these perceived deficiencies by specifying the number of attempts at repair after which the dealer must provide the buyer with a refund, and by specifying the nature of the defect which will permit the buyer to seek a refund. 224 With respect to the latter issue, legislation in two jurisdictions eliminated the Code requirement that the defect constituting the breach of warranty must substantially impair the value of the vehicle to the buyer. 225 Instead, it provides for a refund if a dealer fails to repair a defect as defined by the statute within a specified period of time. Under the statutes, a defect is any defect or malfunction that impairs a

breach, or the difference between the contract price and the price of a substitute or “cover” vehicle. See U.C.C. §§ 2-712, 713.

219. See U.C.C. § 2-714. Typically, the former amount would equal the cost to repair the defect to have the vehicle conform to the warranty. See JAMES J. WHITE & ROBERT S. SUMMERS, UNIFORM COMMERCIAL CODE § 10-2(a) (3d ed. 1988).

220. U.C.C. § 2-719.

221. Id.


223. See U.C.C. § 2-608.

224. See, e.g., HAW. REV. STAT. ANN. § 481J-6(b) (Michie 1995); MASS. GEN. LAWS ANN. ch. 90, § 7N 14 (3)(A) (West 1989); N.Y. GEN. BUS. LAW ch. 20 § 198-b(c) (West 1996).

225. See HAW. REV. STAT. ANN. § 481J-2(a); MASS. GEN. LAWS ANN. ch. 90, § 7N 14 (2)(A)(i).
vehicle's use or safety. The statutes do not require that a malfunction significantly impair the use of a vehicle. The only attempt in the legislation to preclude a refund for trivial defects is the exclusion of defects in appearance.

Precluding a buyer from obtaining a refund for trivial defects is important because without such an exception, compelling a seller to retake a car and provide a refund may not be an efficient remedy. George Priest has demonstrated that where the loss from a defect is less to the buyer than to the market, returning the goods to the seller is generally not the cheaper remedy. The remedies provided by the Uniform Commercial Code consist of paying a buyer damages based on the loss in value of the defective goods which she retains or allowing the buyer to return the goods for a refund. If the goods are less valuable to the buyer than to the market and the seller's costs of retrieving the goods and selling them on the market are lower than the buyer's cost of either repair or resale, the more efficient remedy is for the seller to retake the goods and give the buyer a refund. For a consumer purchaser of a used car, the costs of reselling a car are probably higher than they are for a merchant dealer. Moreover, the costs of returning a vehicle to a dealer probably are not very high. The question then is whether the car is more valuable to the market than to the buyer. If the defect is substantial to the buyer, the vehicle is more likely to be valuable to the market, since it is likely that someone in the market values the vehicle more highly than the buyer. Moreover, a used car is not like a specially manufactured good which is more likely to have higher value to the purchaser than anyone else in the market. Therefore, having the seller retake the vehicle and provide a refund is the appropriate remedy.

If the defect is insignificant or trivial to the buyer, the car may still be more valuable to the market than to the buyer, but the transaction costs of retaking and reselling the vehicle probably exceed the loss to the buyer. Moreover, a buyer allowed to obtain a refund for a trivial defect could use the defect to speculate on a falling market, or to avoid a transaction which she

230. See U.C.C. §§ 2-602, 608, 711. A buyer who rejects a nonconforming tender or revokes acceptance of goods is also entitled to damages based either on the difference between the contract price and the market price, see U.C.C. §§ 2 711(1), 713(1), or the contract price and the price of obtaining substitute goods, see U.C.C. § 2-712.
231. See Priest, supra note 228, at 965.
232. The principal costs of resale are preparing a vehicle for sale and advertising the car to the market, for both of which the dealer has existing facilities that the buyer probably does not.
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subsequently discovers is less suitable than originally believed. Subsequently permitting a buyer to obtain a refund in either circumstance increases the \textit{ex ante} cost of the transaction by giving the buyer an unbargained for satisfaction clause. This satisfaction clause is one that can be exercised after the buyer has had substantial utilization of a car, thereby increasing the cost to the seller of permitting the buyer to return the car for a refund.

To avoid incurring the costs of retaking a car, reselling it, and providing a refund, a dealer will spend an amount on repairs and \textit{ex ante} vehicle preparation equal to the expected costs of these activities. If the defect for which the buyer may obtain a refund is trivial in value to her, the seller may spend an amount on avoiding the costs of providing a refund that is greater than the value of the harm to the buyer. The dealer may do so either by spending excessive resources in preparing the vehicle prior to sale or in repairs after a defect is discovered.

Mandatory warranty legislation in the referenced jurisdictions do an imperfect job of precluding refunds for trivial defects. Trivial malfunctions may impair the use of a vehicle and thereby entitle a buyer to a refund. Although it is still true that a defective vehicle may be more valuable to the market than to the buyer, and that a dealer can probably resell the vehicle more cheaply than a consumer, the legislation ought to be interpreted or amended to avoid the above problems by precluding the buyer from obtaining a refund where the defect is trivial. The difficulty with such an amendment or interpretation is in defining a standard for the defect that allows the buyer to return a vehicle in such a manner so as to avoid high dispute resolution costs.

Mandatory warranty legislation has also dealt with the issue of when a dealer must provide a refund after having attempted and failed to repair a vehicle. A buyer may obtain a refund if a seller fails to correct a defect within

\textbf{233.} See Priest, supra note 228, at 967.


\textbf{235.} See Priest, supra note 228, at 974.

\textbf{236.} A rational dealer, at least when the situation involves post breach repairs, may simply bargain with the buyer for the cost of the trivial breach in exchange for the latter's waiving the right to a refund. The buyer, having had possession of the vehicle and perhaps valuing it substantially less, may attempt to extract a monopoly price. In any event, the bargaining between the buyer and dealer will involve a bilateral monopoly, and the buyer's right to a refund may lead to substantial bargaining costs.

\textbf{237.} Mandatory warranty legislation in New York deals with this issue by retaining the requirement in \textit{U.C.C.} § 2-608(1) that a defect must substantially impair the value of the automobile to the buyer before the latter can obtain a refund. See \textit{N.Y. Gen. Bus. Law} § 198-b(c)(1).

\textbf{238.} An additional solution would be to allow the parties to contract for a remedy should the seller be unable to repair the defect in the statutorily provided time. Rational parties would adopt a cost-effective remedy. They would not choose an inefficient remedy that shifted losses to the buyer, since the latter would simply discount for the inefficient remedy in the purchase price.
a specified time. In three jurisdictions, a dealer must correct a defect within a reasonable period of time as specified by a certain number of attempts at repair or after a vehicle has been out of service for a designated period of time. Another statute simply provides that the buyer may obtain a refund if the seller fails to repair a defect within a specified number of repair attempts or if the car is out of service for a certain number of days. All four statutes provide greater determinacy than U.C.C. § 2-719, which provides that a buyer is no longer bound to an exclusive or limited repair remedy and may seek a refund if the repair remedy fails of its essential purpose. To the extent that the statutes establish a fixed time period rather than a presumptive time, they reduce dispute resolution costs.

By making the time periods more determinate and relatively short, the statutes provide incentives for dealers to spend more resources earlier in the repair process to avoid having to take back a car. These incentives reduce the proclivity of some dealers to underinvest in repairs until expiration of the warranty period. They also reduce consequential losses to buyers caused by extended loss of their vehicles either as the result of defects or during repair.

However these limitations may also lead to excessive investments in repair. As alluded to above, a seller faced with the remedy of providing a buyer with a refund has an incentive to overinvest in repairing a vehicle to avoid incurring the costs of retaking and reselling. Mandatory warranty legislation may place some limit on the amount of repair by limiting the number of opportunities for repair before a buyer can obtain a refund, but it does not limit the amount spent on repair on each occasion on which a vehicle is returned. A dealer still has an incentive to spend an amount on repairs up to the total cost that it would incur if a buyer returned a vehicle. This amount may well exceed the cost of the defect to a buyer. Thus, the legislation may cause a dealer to spend an inefficient level of resources on a repair at a quicker rate. It may be more efficient to return a vehicle on several occasions both to attempt to ascertain the nature of the defect and then to correct it, making earlier repair less efficient than later repair. A more efficient approach might be to allow parties to contract for a liquidated amount of damages if the vehicle is not

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240. See Haw. Rev. Stat. Ann. § 481J-6(a)-(b); N.J. Stat. Ann. § 56:8-71 (West 1996); N.Y. Gen. Bus. Law § 198-b(c)(2). The presumption that a dealer has had a reasonable time to cure defects after three attempts at repair may have greater effect than one might assume. In Jandreau v. LaVigne, 566 N.Y.S.2d 683, 685 (App. Div. 1991), the court indicated, albeit apparently in dictum, that once a claimant proved that a dealer had three attempts to repair a defect, the burden shifted to the dealer to prove either that the defect did not substantially impair the value of the vehicle or that the defect was the result of unreasonable use or neglect. The court failed to mention the ability of the dealer to prove that a further period of time to repair the defect was reasonable.
242. See Priest, supra note 228, at 974.
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repaired within the statutory period, and either allow the parties to contract for further repairs or simply allow the liquidated amount to compensate the buyer.243 Permitting such arrangements would place a limit on excessive investments in repair while providing an appropriate incentive for a dealer to make the correct investments in repair.

VIII. CONCLUSION

The question of whether the law should require express warranties in the sale of used cars is a significant one. It is important for society to avoid inefficient levels of defects in used cars, and to discourage inappropriate allocation of risks for such defects. Likewise, it is crucial that society not adopt measures that will impose excessive harm in seeking to accomplish these objectives. Efforts to avoid excessive defects and inappropriate risk allocation must assess whether there exists market failure that causes these two problems. As this Article has demonstrated, there is little reason to believe such market failure exists in the used car market.

The principal argument for imposing warranties on the sale of used cars is that buyers are relatively uninformed about the condition of used vehicles and underestimate the value of warranty protection. There is little doubt that not all buyers of used cars are completely informed about the probability of vehicle defects, repair costs, consequential damages, or the value of warranty protection. But, as discussed herein, these issues are not determinative of how a market operates or whether it will produce efficient terms. Rather, as demonstrated, the used car market will provide appropriate warranty terms to the extent there are sufficient buyers who are adequately informed and are concerned about the existence and content of warranties. That such buyers exist and that the market provides warranties they prefer is forcefully demonstrated, in part, by the existence of warranty and service contracts sold by dealers and third party providers in the absence of statutory mandates.

Although well-intentioned, mandatory warranty legislation is likely to produce excessively harmful effects and counter-productive outcomes. Rather than improving the market position of used car buyers, their position will worsen. The price of used vehicles will increase, reducing the number of vehicles purchased and pricing low-income buyers out of the market. For those who do purchase, the problems of moral hazard and adverse selection will increase the cost of repairs and service claims and shift the production of these services to less cost-effective providers. The higher price will encourage owners of used cars to hold their cars longer, leading either to increased maintenance costs or reduced safety, less fuel efficiency, and more environ-

243. Cf. id. at 981.
mental problems. Finally, to avoid the consequences of express warranties, some buyers will purchase from non-merchant sellers of used vehicles who are not governed by mandatory warranty laws. As a result, cars will continue to be sold without warranty coverage. As non-merchant sellers probably have no comparative advantage in preparing vehicles for sale, the safety and quality of used cars moving through this segment of the market may decline. Moreover, non-merchant sellers are more likely to be idiosyncratic market participants, suggesting an increase in market problems from sellers who are less subject to the discipline of competitive market forces.

The extent to which legislatures will continue to enact mandatory used car warranty laws is difficult to predict. Despite the failure of mandatory warranty legislation in the State of Washington, Hawaii and New Jersey have recently enacted such laws. In contrast, evidence about the operation of markets, such as that presented in this Article, and the existence of warranties and service contracts voluntarily contracted for in the purchase of used vehicles should demonstrate that the used car market functions sufficiently well in providing appropriate and efficient voluntary warranties. Nevertheless, perceptions of market failure (due to lack of information or bargaining power) continue to exist, and many of the unintended adverse consequences of mandatory warranty legislation are difficult to observe or are counter-intuitive. Nevertheless, as demonstrated in this Article, there is no compelling public policy purpose to be served or market failure to be remedied by mandatory used car warranty laws. Indeed, the “cure” is worse than the “cold.”

244. See supra note 34.