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AUTO INSURANCE

State Regulation Affects Cost and Availability

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The Honorable James J. Florio
Chairman, Subcommittee on Commerce,
Transportation and Tourism
Committee on Energy and Commerce
House of Representatives

The Honorable Peter W. Rodino, Jr.
Chairman, Committee on the Judiciary
House of Representatives

In accordance with your requests, this report analyzes the effects of state regulation on the cost and availability of private passenger automobile insurance. Specifically, the report examines differences in the methods that states use to regulate insurance rates and to ensure the availability of insurance, and reviews the experiences of states that have placed restrictions on the factors that insurers may use to establish different rates for different types of drivers.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will send copies to other interested congressional committees and members and other interested parties. We will also make copies available to others upon request.

Lawrence H. Thompson

Lawrence H. Thompson
Chief Economist

Executive Summary

Purpose

The Congress has become increasingly concerned over whether continued state regulation of the insurance industry is in the public interest and whether insurance companies should continue to have limited immunity from federal antitrust statutes. In part, these concerns have arisen because states have changed dramatically the ways they regulate this industry since Congress passed the antitrust immunity legislation in 1945.

The Chairman of the Subcommittee on Commerce, Transportation, and Tourism, House Committee on Energy and Commerce, and the Chairman of the House Committee on the Judiciary asked GAO to examine the effects of states' increased reliance on competitive market forces to regulate the insurance industry. In response to this request, this report (1) analyzes how the cost and availability of automobile insurance was affected by states using more competitive approaches and (2) examines the experiences of states that restrict the factors that automobile insurers may use in establishing different premiums for different types of drivers.

Background

States generally use their regulatory authority to ensure that insurance companies remain solvent, that insurance coverage is affordable and widely available, and that premiums are not unfairly discriminatory. Until the 1960's, nearly all states used a "prior approval" method of rate regulation to ensure that automobile insurance premiums were adequate to maintain company solvency, but were not excessively high. Under this approach, the premiums that insurers wished to charge had to first be approved by state insurance departments. Since the early 1960's, however, 27 states have adopted more competitive approaches to rate regulation. In these states, competition is relied on to ensure that premiums do not become excessively high and insurance companies are not required to receive state approval before establishing their rates.

States also differ in the methods they use to ensure that auto insurance is widely available and that premiums are not unfairly discriminatory. The predominant method of ensuring availability is through established state automobile insurance plans, which provide coverage to drivers whom insurance companies are unwilling to insure voluntarily. In addition, some states have prohibited differences in premiums based on such factors as gender and age.

,esults in Brief

GAO developed two measures of automobile insurance costs, average inflation-adjusted premiums and average premiums per dollar of losses, for the period 1975-1983. After considering various other influences, GAO found that the cost of liability coverage under either measure was generally higher in states using competitive approaches to establish rates. Among states with compulsory insurance laws, average physical damage premiums were higher in competitive states. However, GAO found no differences in physical damage premiums among states not having such laws and no differences among the states in average premiums per dollar of losses. (See Chapter 2.)

GAO also found that, although the overall extent of insurance coverage was greater in states with compulsory insurance laws, it was unaffected by whether those states used a prior approval or a competitive approach for establishing rates. However, in competitive rating states, insurance companies voluntarily insured more drivers. (See Chapter 3.)

In states that prohibit premium differences on the basis of a driver's age or sex, insurance companies are able to adjust by using other factors, such as driving records and length of driving experience, to establish premium levels. However, in some states, the proportion of young male drivers who had to obtain coverage through state auto plans increased. One state also encountered serious problems when it restricted allowable premium differences among geographical areas, and subsequently rescinded these restrictions. (See Chapter 4.)

AO's Analysis

GAO first made comparisons among group average insurance costs. For physical damage coverage, these simple cost comparisons showed that, while average premiums were lower in competitive rating states, the cost of this coverage per dollar of losses was higher in competitive rating states than in states maintaining prior approval rate regulation. For liability coverage, no significant differences were found between competitive and noncompetitive states using either cost measure.

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Because other factors also affect the cost of auto insurance, GAO used regression analysis to determine if the cost differences found in the simple comparison might be attributable to factors other than the method used to establish rates. The regression analysis showed that, when other factors were controlled for, the cost difference for physical damage coverage disappeared in all but one case. Specifically, average premiums were estimated to be about 8 percent higher in competitive

rating states with compulsory insurance laws, but no differences were found among states not having compulsory insurance laws. Also, no significant difference was found between competitive and noncompetitive states in the cost of physical damage coverage per dollar of losses.

The analysis also revealed that the cost of liability coverage was generally higher in competitive rating states. The size of the cost differences depended on the degree of urbanization of a state. At the average level of urbanization, liability premiums were estimated to be about 5 percent higher in competitive rating states. In more urbanized states, average liability premiums were estimated to be about 13 percent higher under competitive rating system. In contrast, in less urbanized states, average liability premiums were estimated to be about 4 percent lower in competitive rating states.

When expressed as a ratio of premiums to losses, the cost of liability coverage was always estimated to be higher in competitive rating states. It was about 4 percent higher in less urbanized states, while in more urbanized states it was estimated to be about 14 percent higher. At the average level of urbanization, the cost of liability coverage per dollar of losses was about 9 percent higher.

Availability

GAO's analysis showed that, although the overall extent of insurance coverage was greater in states with compulsory insurance laws, it was unaffected by whether those states used a prior approval or a competitive approach for establishing rates. However, in competitive rating states, insurance companies voluntarily insure relatively more drivers. In prior approval states, relatively more drivers had to obtain coverage through state automobile insurance plans. While the extent of coverage available in state plans is often limited, it is generally less costly in prior approval states than in competitive rating states.

Restrictions on Risk Classification

GAO conducted case studies of auto insurance regulation in three states—Massachusetts, Michigan and North Carolina—that have enacted restrictions on the factors that insurance companies may use to establish premiums. In Massachusetts and North Carolina, state prohibitions on the use of age and gender in establishing premiums resulted in insurance companies no longer insuring certain drivers voluntarily. In contrast, in Michigan, prohibitions on the use of gender and marital status were followed by only slight changes in the size of the state's

plan. Some unexpected problems were also encountered in Massachusetts and North Carolina when individual driving records were used to establish premiums. These problems appear to be solvable. Michigan encountered problems which it could not solve, however, when it restricted geographic differences in premiums, and subsequently repealed the restrictions.

ecommendations

GAO is making no recommendations.

ıdustry Comments

GAO requested comments on a draft of this report from a consumer group, several industry organizations, and those states GAO visited. The comments received were primarily of a technical nature and were incorporated into this report where appropriate. (See p. 14.)

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Abbreviations

AIPSO	Automobile Insurance Plans Services Office
EIA	Essential Insurance Act
FIA	Federal Insurance Administration
FIUA	New Jersey Automobile Full Insurance Underwriting Association
GAO	General Accounting Office
ISO	Insurance Services Office
NAIC	National Association of Insurance Commissioners

Introduction

State governments have always had the primary responsibility for regulating the insurance industry. Since 1945, the legislative basis for this arrangement has been the McCarran-Ferguson Act, in which the Congress declared that continued state regulation of insurance is in the public interest.[1] The act also specifically exempted certain insurance company activities from federal antitrust statutes to the extent that the insurance industry is regulated by state laws.

The primary purpose of state insurance regulation is to protect the public interest by pursuing four basic goals.

- Ensuring the solvency of insurance companies. Because an insurance contract represents a company's promise to pay should certain events occur, a policy with a firm that becomes insolvent is of little value to the consumer. States attempt to protect policyholders from company insolvency by examining the financial condition of insurance companies, requiring them to maintain certain levels of reserves to pay future claims, and requiring that the rates charged for insurance policies be adequate to maintain company solvency.
- Ensuring the affordability of insurance. To achieve affordability, states require that rates not be excessive. Obviously, prohibiting excessive rates while also ensuring company solvency requires balancing two conflicting concerns.
- Ensuring the availability of insurance. Reaching this goal may involve creating institutions designed specifically to insure the individuals that insurance companies reject because they consider them too "high-risk."
- Ensuring that rates do not discriminate unfairly. Although states allow insurance companies to charge different premiums to different customers on the basis of differences in risk exposure, states prohibit premium differences that are unfairly discriminatory. Judgments about which differences are unfairly discriminatory can vary, leading to debates about the desirability of particular risk classification systems.

Although they share common regulatory goals, states often take substantially different approaches to achieve them. For example, to maintain affordability, some states require insurers to file their proposed rates with the state insurance department for review and approval. Other states rely more on competitive market forces to establish rate levels. Although rates can still be challenged by the state insurance departments in most states favoring the competitive approach, competition among insurers is generally presumed to keep rates from becoming

[1]Pub. L. No. 15, 79th Cong., 1st Sess., 59 Stat. 33, March 9, 1945, 15 U.S.C. §§1011-1014 (1982).

excessive. This report analyzes how the affordability and availability of insurance—specifically, private-passenger automobile insurance—have been affected in states that use more competitive approaches to regulate the insurance industry.

The Nature of Insurance

Fundamentally, insurance is a device through which an individual transfers the risk of a financial loss imposed by an uncertain future event to a company that specializes in assuming such risks. Neither the insured individual nor the insurance company knows whether or when the loss may occur or how big the loss may be. But by pooling the risks of many different individuals, the company is able to predict fairly accurately the aggregate cost and timing of such losses. On the basis of such predictions, the company establishes the premium that it will have to charge each individual in order to have sufficient income to cover the losses it is insuring, its normal business costs, and the profit it needs to earn to make staying in business worthwhile.

Among the most important activities of any insurance company are those associated with predicting and controlling future losses. For many kinds of insurance, including private-passenger automobile insurance, companies use actuarial analyses of past experience to determine which personal and other characteristics correlate with losses. Insurance companies then classify their customers according to these characteristics to compute expected losses. To the extent that state laws permit, these characteristics are formalized into a risk classification system, with premiums for each risk category set at the level that will allow companies to cover the costs and losses they expect to incur from issuing policies to individuals in that category.

The process of deciding whether to accept or reject a particular potential customer is known as the underwriting function. When a company believes that the expected cost of insuring a given individual exceeds the premium the company can earn, it will probably refuse to insure the individual, unless state law constrains its underwriting decision.

Property and Casualty Insurance Includes Automobiles

Automobile insurance is a form of property and casualty insurance. Property insurance provides compensation to the insured individual in the event that the insured's own assets (in this case, the individual's automobile) lose value. Automobile property insurance is called "physical damage coverage." Liability insurance, on the other hand, provides

compensation to others when the insured individual has a legal responsibility to provide indemnification for a loss caused by his or her actions. As of early 1984, more than 3,000 companies sold some form of property and casualty insurance in the United States, with 910 providing automobile insurance. Of the automobile insurers, 182 had annual sales in excess of $10 million.

Typically, insurance premiums are paid before insurance companies are required to compensate for the losses they insure. Insurance companies are able, therefore, to invest premium income until the losses materialize. In 1983, among all property and casualty insurance companies in the United States, premiums made up 87 percent of total revenues, and investment income made up the remaining 13 percent. In that same year, losses arising from claims totaled 71 percent of revenues, administrative and sales expenses totaled 22 percent, and profits totaled a little less than 7 percent.

Objectives, Scope, and Methodology

Since the mid-1950's, the Congress has periodically reviewed the regulatory arrangement affirmed by the McCarran-Ferguson Act. In considering various proposals to amend or replace the act, the Congress has examined both the adequacy of state insurance regulation and the implications of the limited antitrust immunity the Congress granted to the industry in 1945. As part of this continuing oversight activity, the House Subcommittee on Commerce, Transportation, and Tourism asked us to examine the implications of the recent trend toward greater state reliance on competitive market forces to establish insurance premiums.[2] The House Judiciary Committee subsequently joined in this request.

We performed our review between May 1984 and February 1986. The principal objective of our review was to analyze how the affordability and availability of insurance have been affected in states that use more competitive approaches to regulate the insurance industry. We sought to determine whether the cost of insurance is affected by various economic and legal factors, such as the number and size of insurance companies operating in a state, and the existence of state laws prohibiting insurance companies from jointly determining their prices. We also attempted to determine the effects of states' restrictions on the methods of risk classification that insurance companies use to establish different prices for different customers.

[2]A glossary of insurance terms follows the report.

In consultation with the congressional requesters, we restricted the scope of our review in several major ways. First, we limited our analysis to the market for private-passenger automobile insurance. This type of insurance made up about 20 percent of all industry revenue in 1983 and is a major focus of state regulatory activity. Second, because the Federal Trade Commission was studying the availability and utility of consumer information in automobile insurance markets,[3] we did not address those issues in our study. Third, data limitations and methodological problems prevented us from evaluating the predictive value of current rate classifications and analyzing the relationship between state regulation and the profitability of insurance companies.

We used three methodological approaches in conducting our study. First, we reviewed the existing literature on state regulation of the insurance industry. This literature consists of numerous journal articles, books, government reports, and congressional hearing transcripts that describe and analyze the methods and effects of state insurance regulation. To supplement our literature review, we interviewed representatives of industry organizations, state regulators, and the president of a national consumer-oriented insurance organization.

Second, using data we obtained from recognized sources of information on the insurance industry, we conducted statistical analyses of the affordability and availability of insurance. We did not attempt to verify the information these sources supplied. Specifically, we obtained information on provisions of state laws from recent insurance industry association surveys. In addition, we obtained data on total premium expenditures and losses for private passenger automobile insurance for each state and the District of Columbia for each year during the period from 1975 to 1983 from A.M. Best and Company. We obtained a standardized measure of the number of automobiles insured in a given year in each state from the Automobile Insurance Plans Services Office, Inc., (AIPSO), a non-profit association of insurance companies. We were able to obtain these data for the slightly longer period from 1974 to 1983. We also obtained statistical data on a number of other aspects of state insurance markets. In most cases, we only obtained this information for a few years within the 1974 to 1983 time period. As a result, different statistical comparisons in this report use different time periods, which limits the comparability of some of our findings. In all presentations of statistical data, the time period for each specific comparison is clearly

[3]The Availability and Utility of Consumer Information on Auto Insurance, Mark L. Plummer, Bureau of Economics, Federal Trade Commission, Sept. 1985.

identified. For our comparisons, we include only those states that maintained the same approach to rate regulation throughout the period of our study.

Third, we conducted case studies in four states— Massachusetts, Michigan, New Jersey, and North Carolina—that have developed innovative approaches to achieving the regulatory goals of affordability, availability, and nondiscrimination. Although we did not attempt to evaluate the desirability of these approaches, we did seek to identify problems that have arisen when these innovative regulatory policies have been implemented.

We obtained comments on a draft of this report from a consumer group, the National Insurance Consumer Organization, and three industry associations: the Alliance of American Insurers, the Insurance Services Office (ISO), and the National Association of Independent Insurers. Those portions of the report discussing regulatory developments in Michigan, New Jersey and North Carolina were also reviewed by appropriate state and industry insurance officials. The comments we received were primarily of a technical nature and were incorporated into this report where appropriate. We requested, but did not receive, comments from Massachusetts insurance officials, the National Association of Insurance Commissioners (NAIC), AIPSO, the Federal Trade Commission, and the Federal Emergency Management Administration.

We performed our work in accordance with generally accepted government auditing standards.

State Regulatory Practices Affect Insurance Costs

Assessing the impact of different state regulatory practices on the affordability of automobile insurance required us to (1) develop meaningful measures of automobile insurance costs, (2) classify states according to their regulatory approach to establishing rates and the presence or absence of various other economic and legal attributes that could affect costs, and (3) estimate the effects, if any, of these factors on the cost of private passenger auto insurance.

We first made comparisons of average insurance costs among states based on the presence or absence of each single factor. We then examined whether these factors influenced costs differently in states using different regulatory approaches to establish rates. Lastly, we used regression analysis to control for the simultaneous effect of these factors on insurance costs. In general, our analyses showed that, after adjusting for various other influences, the cost of auto liability coverage is higher in states using competitive approaches to establish rates, while the cost of physical damage coverage is similar in competitive rating states and states that require their insurance departments to review and approve rates prior to their use.

We also found significant relationships between average insurance costs and the existence of state no-fault and compulsory insurance laws and the extent of urbanization. Other factors we examined, such as state restrictions on group sales of insurance and joint pricing and two measures of market power, bore little, if any, relationship to insurance costs.

Two Cost Measures Used to Assess Impact of Regulation

One of the major challenges in analyzing how different regulatory policies influence the cost of insurance to the consumer is developing a meaningful measure of the price of insurance. Many goods and services can be purchased at the same price by all consumers; the cost of producing the good or service does not depend directly on who purchases it In contrast, the expected cost of offering a given level of insurance protection to a consumer varies with differences in the probability that the consumer will incur a loss. If insurers believe that two prospective customers differ in their probability of incurring a loss, they will charge the customers different premiums for the same level of coverage.

In establishing premiums, insurance companies classify people into various risk categories on the basis of their individual characteristics. One way to develop a measure of price would be to obtain from different companies in different states actual premium quotations for each risk

category. This method would allow price comparisons for specific categories of individuals among states. One disadvantage of this approach, however, is that it creates an unwieldy number of rate comparisons. Another disadvantage is that, within any given risk category, much of the variation from one state to another will simply reflect state-to-state variations in the claims experience for that particular risk category. One would expect that, to the extent that premium variations simply reflect variations in losses, such variations would exist regardless of how insurance is regulated and regardless of what other economic and legal factors may exist.

Because of these disadvantages, we did not collect premium information for each individual risk category. We did, however, construct a measure of the average, inflation-adjusted automobile insurance premium in each state for each year during the period from 1975 through 1983. This price measure represents the total amount of premiums collected in the state each year (net of dividends paid by mutual companies), adjusted to purchasing power in 1984 by the implicit price deflator for the gross national product, and divided by the number of car-years of insurance written in the state. This measure varies from state to state because of variations (1) in the average loss experienced by drivers in a given rate category, (2) in the average amount of insurance coverage purchased, (3) in the relative number of higher-risk and lower-risk drivers in each state, and (4) in insurance company administrative costs and profits. Notwithstanding its conceptual shortcomings, this measure of price does convey a sense of what consumers are actually paying for automobile insurance in each state.

To adjust for state-to-state differences in average losses, we also computed, for each state for the period 1975 through 1983, the ratio of premiums (net of any dividends) to losses incurred. This premium-to-loss ratio, sometimes referred to as the inverse loss ratio, is the price measure used most commonly to analyze the effects of state automobile insurance regulation. The premium-to-loss ratio can be thought of as the amount the average consumer must pay for each dollar he or she incurs as a loss or, alternatively, as the premium revenue the company receives for each dollar it pays to reimburse losses.

Because it does account for state-to-state variations in loss experience, this price measure is preferable to the average premium measure. However, it is also imperfect. Premiums are only one of the two major sources of insurance company revenue, and claims losses are only one of the uses of revenue. Variations in the premium-to-loss ratio may reflect

variations in administrative costs per dollar of losses, investment income per dollar of losses, or profit per dollar of losses.

Some of these variations are legitimate cost variations that are not pertinent to an analysis such as this one and ought not to be affected materially by regulatory policies and other competitive restrictions. For example, while variations in administrative expenses may reflect variations in the efficiency with which companies service their customers, they may also reflect tendencies for customers in some states to prefer, and be willing to pay for, a higher level of service than customers in another. If administrative expenses are not proportional to the dollar amount of losses incurred, some variation in the premium-to-loss ratio may simply reflect the fact that consumers in one state tend to purchase more insurance per automobile than do consumers in another state. Finally, over time, variations in the rate of return that insurance companies earn on their investments can be expected to produce variations in premium-to-loss ratios.

Variations that are relevant to this analysis include variations in profit and those variations in administrative costs that reflect the efficiency of company operations. Since it is not possible to know precisely why premium-to-loss ratios vary from one state to another, correlations between state regulatory policies and average premium-to-loss ratios need not necessarily reflect the effects of regulation. However, when states are grouped according to the presence or absence of a particular regulatory attribute, most of the variations discussed above should cancel each other out, and the differences in the group averages should reliably indicate the effect of the regulatory attribute.

Rate Regulatory Practices Vary Among States

Currently, all states have insurance statutes requiring that rates be adequate to ensure company solvency but not excessive or unfairly discriminatory. All states also have state insurance departments charged with enforcing these laws. However, the stringency of state regulation, in general, and the manner in which rates are established, in particular, vary among the states.

Until the 1960's, nearly all states used a "prior approval" system of rate regulation, which required insurance companies to submit their proposed premiums in advance to the state insurance department. Proposed premiums could not go into effect until they were approved. Beginning in the early 1960's, many states adopted a more competitive rating approach that California pioneered in 1947. Much of the impetus for

this trend stemmed from the belief that a more competitive approach would result in lower insurance prices to consumers.

By 1975, the first year of our review period (1975 to 1983), the prior approval system was still used by 31 states, while 20 states (including the District of Columbia) used a more competitive approach to establish rates. Even though insurance rates do not have to be approved in advance in states using more competitive approaches, premiums can still be challenged by the states' insurance departments after they have gone into effect. During the period we reviewed, seven states adopted more competitive rating systems.

We classified the 24 states that retained prior approval rate regulation during the 1975 to 1983 period into two general groups. The first group comprises three states—Massachusetts, North Carolina, and Texas—that have "state-made" or "mandatory bureau" rates. In these states the insurance department establishes maximum rates which cannot be exceeded by any company. The second group of 21 states requires prior approval of rates but does not set maximum prices. In these states, the insurance companies must submit rates to the state insurance department for approval before the rates can go into effect and must justify their proposed rates on past loss experience. We refer to the 24 states using these two approaches to rate regulation as "prior approval" or "noncompetitive" rating states.

Many of the 20 states which used a more competitive approach to establish rates during the 1975 to 1983 period have what is called either a "file-and-use" or a "use-and-file" rating law. In these states, insurance companies establish their rates and submit them to the state insurance departments, which can later challenge the rates if they are deemed excessive. Insurance companies in these states, however, can implement their rates without formal prior approval by state regulatory authorities. A few states do not even require insurance companies to file their rates with the state insurance department. We call states with file-and-use, use-and-file, or no filing laws, "competitive" rating states. A list of the states according to our competitive/noncompetitive classification, and a more detailed discussion of the different types of state rating laws, are contained in appendix I.

Two Types of Factors Can Affect Costs

Academic researchers and industry analysts have advanced two opposing hypotheses about the effect of prior approval (noncompetitive) rate regulation on the cost of automobile insurance. The first

hypothesis asserts that state regulators are primarily concerned about maintaining the solvency of insurance companies and thus may allow insurance companies to charge higher prices under prior approval rate regulation than would exist otherwise. The second hypothesis asserts that the primary concern of state regulators is to keep insurance afforc able to consumers and that prior approval rate regulation produces lower insurance rates than would otherwise exist.

In addition to the method of rate regulation prevailing in a state, we identified two other types of factors that can affect the cost of automc bile insurance: those other factors imposed by state regulations and l and those factors that can affect insurance costs regardless of how thc industry is regulated.

The first type of factor includes:

- State restrictions on joint pricing. In states allowing joint pricing, insur ance companies may collectively establish and file (if necessary) proposed rates based on their aggregate loss experience. Insurance costs may be higher in these states if joint pricing significantly restricts the extent of price competition. Some states, however, prohibit joint pricin to discourage collusive behavior that might raise prices. Insurance c could be lower in these states. In 1983, 10 states restricted joint pricin and 41 did not.
- State restrictions on group underwriting. In 1984, 39 states restricted the sale of automobile insurance to groups of individuals, including s to groups organized solely for the purpose of purchasing insurance at lower group rates. Other factors equal, such state restrictions on group underwriting might increase insurance prices by negating consumers' ability to achieve lower prices either through increased consumer bargaining power or through capturing some part of the cost savings derived from servicing a large group.
- No-fault liability laws. Some states have enacted no-fault liability laws that limit an individual's right to recover losses through tort action require the purchase of personal injury protection insurance. Under th no-fault approach, policyholders are directly compensated by their insurers for injuries in automobile accidents regardless of who is at fault. By mandating purchase of minimum amounts of insurance, such laws could increase the overall demand for insurance, leading to highc aggregate premiums and losses. No-fault laws could also affect the rat of premiums to losses for liability insurance by reducing the proportic of the premium dollar going toward litigation expenses, and thus increasing the proportion of the premium dollar going to cover losses.

- Compulsory insurance laws. To ensure that all motorists are protected against losses incurred in accidents caused by other drivers, many states have enacted compulsory insurance laws requiring all drivers to purchase minimum amounts of liability coverage. Like no-fault laws, compulsory insurance laws could affect both liability premiums and losses by increasing the overall demand for insurance. Without such laws, some drivers might purchase less coverage and other drivers might choose not to purchase any coverage at all.

The second type of factor that can affect auto insurance costs includes:

- Extent of urbanization. Greater urbanization of auto traffic can increase the frequency of accidents, leading to higher losses and premiums in more urbanized states. In addition, evidence from at least one previous study[1] suggests that rate regulation may have a different effect on insurance prices in states that have larger urbanized driving populations than in states with smaller urbanized driving populations. In particular, this study argued that, among states with prior approval rate regulation, insurance commissioners in urbanized states are likely to be more consumer-oriented and less likely to approve proposals for large premium increases.
- Extent of ISO affiliation. The Insurance Services Office (ISO) is a major rating bureau that collects and aggregates loss statistics from a number of independent automobile insurance companies. In some states, ISO files rates on behalf of its member companies. In other states, ISO rates are only advisory. Concern has been expressed that, if the extent of insurer affiliation with ISO becomes too great, it could enhance the market power of insurance companies and result in higher insurance costs. The likelihood of this occurring is greater in competitive rating states that lack the potentially countervailing power of prior approval rate regulation.
- Extent of seller concentration. Insurers that operate in highly concentrated markets could also possess market power. If so, insurance costs could be higher in states where there are fewer insurers with larger market shares than in less concentrated states. As with the extent of ISO affiliation, the impact, if any, of seller concentration is more likely to be observed among states with competitive rating laws.

[1]Eisenach, Jeffrey A., Auto Insurance Ratemaking Under Antitrust Immunity, Ph.D. dissertation, Department of Economics, University of Virginia, 1984, Ch. 6.

Variations in Rate Regulatory Practices and Other Factors Affect Costs Differently

To analyze how the different rate regulatory practices and the other economic and legal factors we identified affect automobile insurance costs, we did three things. First, we examined the independent effect noncompetitive and competitive rating systems on insurance costs. Second, we examined the effects of seven separate factors: (1) state restrictions on joint pricing, (2) state restrictions on group underwriti (3) no-fault liability laws, (4) compulsory insurance laws, (5) degree of urbanization, (6) extent of rating bureau affiliation and (7) extent of seller concentration.[2] For each of these seven separate factors, we examined both the effect on costs independent of other influences and the effect on costs controlling for the regulatory approach used for establishing rates.

Our analysis of each factor independently found that some factors appear to affect automobile insurance costs while others do not. Moreover, some factors appear to influence costs differently in competitive rating states than in noncompetitive rating states. This latter finding suggested that a more complicated analysis was required to underst more fully the independent effect of the rate-setting system, because that effect may vary from state to state depending on the presence or absence of other factors influencing rates. Therefore, we also perfor a regression analysis to examine the effect of the rate-setting system while accounting simultaneously for the effects of other factors.

Noncompetitive Rating Laws

Table 2.1 compares average premiums, average losses, and average pr mium-to-loss ratios between those 20 states with competitive rating la and those 24 states with noncompetitive rating laws during the 1975 1983 period.[3] For physical damage coverage, both average premiums and average losses are significantly higher in noncompetitive rating states.[4] The difference in average losses more than offsets the differ in average premiums, however, with the result that the ratio of premiums to losses for physical damage insurance is significantly lower noncompetitive rating states than in competitive rating states. For liability coverage, both measures of insurance costs—average pr

[2]We present the classification of states according to each of these factors in App. I.

[3]The premium-to-loss ratios are averages of the individual premium-to-loss ratios, rather than r of average premiums and average losses among states. Therefore, the table entry "premiums/l will not necessarily equal the ratio of "average premiums" and "average losses."

[4]We conducted two tests for statistical significance. One test, the "Z-test", assumes equal variance between groups of states. The second, the "U-test", assumes unequal variances. We report the diff ences among group averages as being statistically significant only if both tests showed this result.

and the average premium-to-loss ratio—are lower in noncompetitive rating states, but these differences are not statistically significant.

Table 2.1: Comparison of Costs in Competitive and Noncompetitive Rating States (1975 to 1983)

	Competitive Rating States (180 Observations)	Noncompetive Rating States (216 Observations)	Difference
Physical damage:			
Average premiums	$134.79	$143.20	$−8.41[a]
Average losses	88.93	96.86	−7.93[a]
Premiums/losses	1.53	1.49	0.05[a]
Liability:			
Average premiums	197.30	194.22	3.08
Average losses	133.77	134.76	−0.98
Premiums/losses	1.49	1.47	0.02

[a]Difference is statistically significant at the 0.95 level of confidence.

Note: In this table and those in the remainder of this chapter, premiums and losses are expressed in 1984 dollars Also, columns may not subtract exactly because of rounding.

Restrictions on Joint Pricing

Table 2.2 compares average premiums, losses, and the ratio of premiums to losses between 7 states that restricted joint pricing in 1983 and 37 states that did not. For physical damage coverage, both average premiums and average losses are slightly higher in states that restricted joint pricing, but these differences are not significant. For liability coverage, average premiums are unexpectedly higher by $26.92 in those states that restricted joint pricing. The degree of variation in premiums, losses, and premium-to-loss ratios within each group, however, also renders this difference statistically insignificant. The ratios of premiums to losses for both types of insurance coverage is unaffected by whether or not joint pricing was restricted.

Table 2.2: Comparison of Costs in States That Restrict Joint Pricing and States That Do Not (1983)

	States With Restrictions (7 Observations)	States Without Restrictions (37 Observations)	Differenc
Physical damage:			
Average premiums	$145.70	$141.21	$4.4
Average losses	90.81	87.50	3.3
Premiums/losses	1.62	1.62	0.0
Liability:			
Average premiums	209.09	182.17	26.9
Average losses	154.86	136.75	18.1
Premiums/losses	1.36	1.35	0.0

Note: No differences are significant at the 0.95 level of confidence.

Because the impact of joint pricing restrictions is more likely to be observable in states without prior approval rate regulation, we also examined the data for those 20 states in our sample that had competitive rating laws. Once again the data, contained in table 2.3, show no significant differences in the cost of automobile insurance between states that restrict joint pricing and those states that do not.

Table 2.3: Effect of Joint Pricing Restrictions on Costs in Competitive Rating States (1983)

	States With Restrictions (6 Observations)	States Without Restrictions (14 Observations)	D
Physical damage:			
Average premiums	$143.97	$130.28	$13.6
Average losses	89.26	81.91	7.3
Premiums/losses	1.63	1.61	0.0
Liability:			
Average premiums	194.37	177.29	17.0
Average losses	147.59	133.00	14.5
Premiums/losses	1.34	1.34	0.0

Note: No differences are significant at the 0.95 level of confidence.

Restrictions on Group Underwriting

Table 2.4 compares average premiums, losses, and the ratio of pr... to losses between 36 states that restricted group underwriting and 8 states that did not. As with joint pricing laws, there are no statistically significant differences in the cost of automobile insurance in states th... restricted group underwriting and those that did not. We also examinec

cost differences associated with the presence or absence of group underwriting restrictions separately by whether these states used a competitive or noncompetitive approach to rate setting. Once again, we found no statistically significant differences.

Table 2.4: Comparison of Costs in States With Group Underwriting Restrictions and States Without Such Restrictions (1983)

	States With Restrictions (36 Observations)	States Without Restrictions (8 Observations)	Difference
Physical damage:			
Average premiums	$139.58	$152.46	$−12.87
Average losses	86.81	93.53	−6.72
Premiums/losses	1.62	1.65	−0.03
Liability:			
Average premiums	181.78	207.46	−25.68
Average losses	136.81	152.35	−15.54
Premiums/losses	1.35	1.37	−0.02

Note: No differences are significant at the 0.95 level of confidence.

No-Fault Liability Laws

Table 2.5 compares cost data for the 1975 to 1983 period between states that had no-fault liability laws and those states that had tort liability laws. For physical damage coverage, both premiums and losses are significantly lower in no-fault states than in tort states: Average premiums are lower by $11.61 and average losses are lower by $8.10. However, no significant difference exists in the ratio of premiums to losses. This result suggests that the lower physical damage premiums in no-fault states are explained by lower physical damage losses in these states.

For liability coverage, both premiums and losses are significantly higher in no-fault states than in tort states: Average premiums are higher by $28.65 and average losses are higher by $33.13. This is the opposite relationship than the one observed for physical damage coverage. While a large part of the difference in liability premiums appears to be due to higher average losses in no-fault states, the difference in average losses is greater than the difference in premiums. As a result, the ratio of premiums to losses is significantly lower in no-fault liability states. This result is consistent with the argument that no-fault laws reduce the fraction of the liability premium dollar going to litigation expenses and increase the fraction of the premium dollar going to cover losses.

Table 2.5: Comparison of Costs in No-Fault and Tort Liability States (1975-1983)

	No-fault States (149 Observations)	Tort States (247 Observations)	Differenc
Physical damage:			
Average premiums	$132.14	$143.74	$−11.61
Average losses	88.21	96.30	−8.1(
Premiums/losses	1.52	1.50	0.01
Liability:			
Average premiums	213.49	184.84	28.6[a]
Average losses	154.97	121.84	33.1[a]
Premiums/losses	1.41	1.53	−0.1[a]

[a]Indicates significance at the 0.95 level of confidence.

We also examined the effect of different rating systems controlling for the presence or absence of no-fault laws. The data, contained in table 2.6, show that, among no-fault states, those with noncompetitive rating have significantly higher premiums and losses for both physical damage and liability coverage. For physical damage coverage, the higher losses in noncompetitive states more than offset the higher premiums, resulting in a significantly lower premium-to-loss ratio. For liability coverage, cost of insurance per dollar of losses is also lower in noncompetitive no-fault states than in competitive, no-fault states. The difference is not statistically significant, however.

Among tort liability states, there are no significant differences in premiums or losses for either physical damage or liability coverage. The cost of liability insurance per dollar of losses, however, is significantly lower in noncompetitive, tort states than in competitive, tort states.

Table 2.6: Effect of No-Fault Liability Laws on Costs by Rating System (1975-1983)

	No-Fault Liability States		
	Competitive (87 Observations)	Noncompetitive (62 Observations)	Difference
Physical damage:			
Average premiums	$125.56	$141.36	$−15.80[a]
Average losses	82.06	96.84	−14.78[a]
Premiums/losses	1.55	1.47	0.07[a]
Liability:			
Average premiums	202.57	228.81	−26.24[a]
Average losses	144.57	169.57	−25.00[a]
Premiums/losses	1.42	1.39	0.03

	Tort Liability States		
	Competitive (93 Observations)	Noncompetitive (154 Observations)	Difference
Physical damage:			
Average premiums	143.42	143.94	−0.52
Average losses	95.36	96.88	−1.52
Premiums/losses	1.52	1.49	0.03
Liability:			
Average premiums	192.37	180.29	12.07
Average losses	123.67	120.74	2.93
Premiums/losses	1.56	1.51	0.05[a]

[a]Indicates significance at the 0.95 level of confidence.

ompulsory Insurance Laws

Table 2.7 compares cost data for the 1975 to 1983 period between states with compulsory insurance laws and those states without such laws. For physical damage coverage, there are no significant differences in premiums, losses or the ratio of premiums to losses between these two groups of states. This is not surprising since these laws require the purchase of liability coverage, but not physical damage coverage. For liability coverage, both premiums and losses are significantly higher in states with compulsory insurance laws. The difference in losses more than offsets the difference in premiums, resulting in a significantly lower ratio of premiums to losses in compulsory insurance states.

Table 2.7: Comparison of Costs in States With Compulsory Insurance Laws and States Without Compulsory Insurance Laws (1975-1983)

	Compulsory States (220 Observations)	Noncompulsory States (176 Observations)	Difference
Physical damage:			
Average premiums	$137.74	$141.42	$ −3.68
Average losses	91.61	95.31	−3.70
Premiums/losses	1.52	1.50	0.02
Liability:			
Average premiums	206.90	181.51	25.39
Average losses	146.89	118.59	28.30
Premiums/losses	1.43	1.55	−0.11

[a]Indicates significance at the 0.95 level of confidence.

We also examined the effect of different rating systems controlling for the presence or absence of compulsory insurance laws. The data, contained in table 2.8, show that, although average premiums are usually higher in noncompetitive states, the cost of insurance per dollar of losses is always lower in noncompetive rating states than in competitive rating states regardless of whether or not there exists a compulsory insurance law. These cost differences are significant for physical damage coverage in compulsory states and for liability coverage in noncompulsory states.

Table 2.8: Effect of Compulsory ...ce Laws on Costs by Rating ...tion (1975-1983)

	Compulsory States		
	Competitive (114 Observations)	Noncompetitive (106 Observations)	Difference
Physical damage:			
Average premiums	$135.96	$139.65	$−3.69
Average losses	88.30	95.18	−6.88[a]
Premiums/losses	1.55	1.48	0.07[a]
Liability:			
Average premiums	205.43	208.49	−3.06
Average losses	143.75	150.26	−6.51
Premiums/losses	1.44	1.42	0.02

	Noncompulsory States		
	Competitive (66 Observations)	Noncompetitive (110 Observations)	Difference
Physical damage:			
Average premiums	132.76	146.62	−13.86[a]
Average losses	90.02	98.49	−8.47[a]
Premiums/losses	1.50	1.49	0.01
Liability:			
Average premiums	183.25	180.47	2.78
Average losses	116.54	119.81	−3.28
Premiums/losses	1.57	1.53	0.05[a]

[a]Indicates significance at the 0 95 level of confidence.

...tent of Urbanization

Table 2.9 compares cost differences between more urbanized states and less urbanized states for the 1975 to 1982 period.[5] Not surprisingly, premiums and losses for both types of auto coverage are significantly higher in more urbanized states. In addition, the ratio of premiums to losses for liability coverage is significantly lower in more urbanized states.

[5]We measure urbanization as the percentage of total state vehicle-miles traveled in urban areas.

Table 2.9: Comparison of Costs in More and Less Urbanized States[a] (1975-1982)

	More Urbanized States (178 Observations)	Less Urbanized States (174 Observations)	Differenc
Physical damage:			
Average premiums	$143.29	$134.73	$ 8.5
Average losses	97.70	90.04	7.6
Premiums/losses	1.48	1.51	−0.0
Liability:			
Average premiums	221.48	171.49	49.9
Average losses	153.19	113.65	39.5
Premiums/losses	1.47	1.52	−0.0

[a]Above and below the median level, respectively. Data on the extent of urbanization were not availabl for 1983.

[b]Indicates significance at the 0.95 level of confidence.

Cost differences between competitive and noncompetitive rating states controlling for the extent of urbanization are shown in table 2.10. Average premiums and average losses are higher in noncompetitive states, regardless of the extent of urbanization, for both physical damage and liability coverage. Among the more urbanized states, the differences in losses more than offset the differences in premiums, resulting in significantly lower insurance costs per dollar of losses in noncompetitive, more urbanized states than in competitive, more urbanized states. The result holds for both physical damage and liability coverage.

Among less urbanized states, the ratio of premiums to losses for physical damage coverage is also lower (but not by a significant amount) in noncompetitive states. The ratio for liability coverage is the same between noncompetitive and competitive, less urbanized states. These results indicate that the impact of rate regulation on insurance costs differs substantially between more urbanized and less urbanized states.

2.10: Effect of Urbanization on Costs by Rating System (1975-1982)

More Urbanized States			
	Competitive (93 Observations)	Noncompetitive (85 Observations)	Difference
Physical damage:			
Average premiums	$140.35	$146.50	$−6.15
Average losses	93.67	102.10	−8.43[a]
Premiums/losses	1.51	1.45	0.06[a]
Liability:			
Average premiums	220.74	222.29	−1.55
Average losses	148.40	158.44	−10.04
Premiums/losses	1.50	1.44	0.06[a]

Less Urbanized States			
	Competitive (67 Observations)	Noncompetitive (107 Observations)	Difference
Physical damage:			
Average premiums	127.18	139.46	−12.28[a]
Average losses	83.78	93.95	−10.17[a]
Premiums/losses	1.54	1.49	0.06
Liability:			
Average premiums	169.21	172.91	−3.70
Average losses	112.40	114.43	−2.03
Premiums/losses	1.52	1.52	0.00

[a]Indicates significance at the 0.95 level of confidence.

Extent of ISO Affiliation

We used two measures of the extent of insurer affiliation with ISO. The first measure is the market share of firms that authorized ISO to file rates on their behalf in 1980. The second measure of ISO affiliation we used is the percentage of firms that gave ISO authorization to file rates on their behalf in that year. For each measure, we divided the 44 states in our sample into groups: states having less than the median value of each measure and states having greater than the median value of each measure. We used 1980 information because it was the earliest year for which it was available.

For both measures, we found no statistically significant differences in average insurance costs in 1980 between states with a greater extent of ISO affiliation and states with a lesser extent of ISO affiliation. Table 2.11 compares cost differences in 1980 between competitive and noncompetitive rating states, controlling for the extent of ISO market share. Again, none of the differences in premiums, losses, or premium-to-loss ratios

are significant. The results were the same when we used the second measure of ISO affiliation.

Table 2.11: Effect of ISO Market Share on Costs by Rating System (1980)

	States With Higher ISO Market Share		
	Competitive (7 Observations)	Noncompetitive (15 Observations)	Differenc
Physical damage:			
Average premiums	$128.95	$151.40	$−22.4
Average losses	81.65	97.82	−16.
Premiums/losses	1.59	1.55	0.(
Liability:			
Average premiums	202.68	214.43	−11..
Average losses	138.11	145.81	−7..
Premiums/losses	1.47	1.51	−0.(

	States With Lower ISO Market Share		
	Competitive (13 Observations)	Noncompetitive (9 Observations)	[illegible]
Physical damage:			
Average premiums	148.44	142.16	6.:
Average losses	92.73	98.19	−5.
Premiums/losses	1.62	1.46	0.
Liability:			
Average premiums	196.70	161.43	35.
Average losses	126.89	106.70	20.
Premiums/losses	1.57	1.55	0.

Note: No differences are significant at the 0.95 level of confidence.

We also compared cost differences over the entire 1975 to 1983 period by the extent of ISO affiliation in 1980. The results are the same for bo[illegible] ISO measures. For physical damage coverage, there are no significant c ferences in average costs. For liability coverage, both premiums and losses are significantly higher in those states with greater degrees of IS affiliation. The difference in losses offsets the difference in premiums, since the ratio of liability premiums to losses is significantly lower in these states.

Table 2.12 compares cost differences over the entire 1975 to 1983 peri by type of rating system and the extent of ISO market share in 1980. Among higher ISO market-share states, both average premiums and losses for physical damage coverage are significantly higher in noncc petitive states. However, the ratio of premiums to losses for physical damage coverage, is significantly lower in noncompetitive rating stat..

This result suggests that prior approval rate authority may offset any market power among insurers stemming from a greater degree of ISO affiliation. For liability coverage, no significant differences in premiums, losses or the premium-to-loss ratio exist between competitive and non-competitive states with high ISO market shares.

Among states with lower ISO market shares, there are no significant differences in costs for physical damage coverage between competitive and noncompetitive rating states. For liability coverage, noncompetitive states have significantly lower premiums and losses than competitive states, but there is no difference in the ratio of premiums to losses.

We also compared the effect of the percentage of ISO firms in 1980 on insurance costs over the entire 1975 to 1983 period. The results are similar to those reported in table 2.12, when the comparisons are based on the market share of ISO firms.

2.12: Effect of ISO Market Share Costs by Rating System[a] (1975-1983)

	States With Higher ISO Market Share		
	Competitive (63 Observations)	Noncompetitive (135 Observations)	Difference
Physical damage:			
Average premiums	$123.39	$148.15	$−24.76[b]
Average losses	80.19	99.79	−19.60[b]
Premiums/losses	1.56	1.49	0.06[b]
Liability:			
Average premiums	201.46	213.35	−11.89
Average losses	142.14	150.86	−8.73
Premiums/losses	1.43	1.45	−0.01

	States With Lower ISO Market Share		
	Competitive (117 Observations)	Noncompetitive (81 Observations)	Difference
Physical damage:			
Average premiums	140.92	134.95	5.97
Average losses	93.64	91.98	1.65
Premiums/losses	1.52	1.48	0.04
Liability:			
Average premiums	195.05	162.33	32.72[b]
Average losses	129.27	107.91	21.36[b]
Premiums/losses	1.52	1.52	0.00

[a]Based on ISO member market share in 1980.

[b]Indicates significance at the 0.95 level of confidence

Extent of Seller Concentration

We measured the extent of seller concentration in 1983 by using the Herfindahl index.[6] We found no significant differences in insurance costs in 1983 between states that are more concentrated and states that are less concentrated. When we compared cost differences over the entire 1975 to 1983 period, we found that both average premiums and average losses for physical damage coverage are significantly higher in more concentrated states. However, for liability coverage, both premiums and losses are significantly lower in more concentrated states. There are no significant differences in the ratios of premiums to losses for either type of coverage between more and less concentrated states.

Table 2.13 compares the effect of concentration on insurance costs in 1983, by type of rating system. None of the differences are significant. The results were the same when we extended the comparison over the entire 1975 to 1983 period.

Table 2.13: Effect of Concentration on Costs by Rating System(1983)

	States With Higher Concentration		
	Competitive (12 Observations)	Noncompetitive (8 Observations)	Differenc
Physical damage:			
Average premiums	$133.56	$158.76	$−25.2
Average losses	83.91	99.13	−15.2
Premiums/losses	1.61	1.61	0.0
Liability:			
Average premiums	170.97	171.64	−0.6
Average losses	127.70	127.10	0.6
Premiums/losses	1.35	1.36	−0.0

	States With Lower Concentration		
	Competitive (8 Observations)	Noncompetitive (16 Observations)	Differenc
Physical damage:			
Average premiums	135.63	142.92	−7.2
Average losses	84.43	87.37	−2.9
Premiums/losses	1.63	1.64	−0.0
Liability:			
Average premiums	199.58	198.90	0.6
Average losses	151.89	148.72	3.
Premiums/losses	1.33	1.36	−0.0

Note: No differences are statistically significant at the 0.95 level of confidence

[6]We obtained the Herfindahl measures from Eisenach, Jeffrey A., Auto Insurance Ratemaking Unde Antitrust Immunity, Ph.D. dissertation, Department of Economics, University of Virginia, 1984, pp. 26-27.

Summary

To summarize, our cost comparisons showed that:

- Although average premiums for physical damage coverage are lower, the cost of this coverage per dollar of losses is significantly higher in states with competitive rating laws. For liability coverage, no significant differences were found between competitive and noncompetitive states using either cost measure.
- State restrictions on joint pricing and group underwriting appear to have no significiant effects on insurance costs, regardless of the regulatory approach used to establish rates.
- States with no-fault liability laws have significantly higher liability premiums and losses, but a significantly lower premium-to-loss ratio for liability coverage.
- As with no-fault states, states with compulsory insurance laws have significantly higher premiums and losses for liability coverage, but a significantly lower premium-to-loss ratio.
- More urbanized states have significantly higher premiums and losses than less urbanized states for both physical damage and liability coverage. Among more urbanized states, the cost of both liability and physical damage coverage per dollar of losses is significantly higher in the states with competitive rating laws. Among less urbanized states, however, there are no significant differences in the ratio of premiums to losses for either type of coverage.
- The extent of insurer affiliation with ISO and seller concentration appear to have little, if any, impact on insurance costs, regardless of the approach used to establish rates.

Regression Analysis Isolates Impact of Rate Regulation

The comparisons discussed above consider only the effect of one or two factors at a time on insurance costs. In fact, tremendous diversity exists in the combinations of factors prevailing in the various states. Thus, we augmented these comparisons with a regression analysis. This type of analysis provides a method for examining the relationship between state regulatory approaches and insurance costs while controlling, simultaneously, for the effects of various other factors. We estimated four different regressions, exploring separately the effects on premiums and premium-to-loss ratios for both physical damage and liability coverage. Our results are based on comparisons of average premium levels (and ratios) during the period from 1975 to 1982 for each state that maintained the same rating system throughout that period.

The results of our regression analysis, which are discussed in detail in appendix II, showed that:

- After controlling for differences in loss experience and other factors, there were no significant differences in the cost of physical damage coverage between competitive and prior approval states except in one case. Specifically, average premiums for physical damage coverage were estimated to be about 8 percent higher in competitive rating states with compulsory insurance laws than in noncompetitive states with such laws. No significant differences were found among states not having compulsory insurance laws. In addition, no significant differences were found between competitive and noncompetitive rating states in the cost of physical damage coverage per dollar of losses.
- After controlling for other factors, the cost of liability coverage was generally higher in states that used competitive approaches to establish rates. The size of the cost differences depended on the degree of urbanization of a state. At the average level of urbanization, liability premiums were estimated to be about 5 percent higher in competitive rating states. In more urbanized states, average liability premiums were estimated to be about 13 percent higher under a competitive rating system. In contrast, in less urbanized states, average liability premiums were estimated to be about 4 percent lower in those states using competitive approaches to establish rates.
- When expressed as a ratio of premiums-to-losses, the cost of liability coverage was always estimated to be higher in competitive rating states It was about 4 percent higher in less urbanized states, while in more urbanized states it was estimated to be about 14 percent higher. At the average level of urbanization, the cost of liability coverage per dollar of losses was about 9 percent higher in competitive rating states.
- The extent of urbanization, and the existence of state compulsory insurance and no-fault laws also affected insurance costs, regardless of the method used to establish rates.

Several Approaches Are Used to Make Insurance Available to All Drivers

To assess the impact of different state regulatory practices on the availability of auto insurance, we first reviewed the approaches that states use to ensure availability and examined how these approaches differ among states. We then examined whether these differences are associated with the way that states regulate insurance rates. To explore further the interrelationship between the regulatory approaches used to establish rates and to ensure availability, we also conducted a case study of recent developments in the state of New Jersey.

Our review showed that states use several different approaches to ensure that at least a minimum amount of liability coverage is available to all drivers. The predominant method is by the establishment of state automobile insurance plans that provide coverage to drivers whom insurance companies are unwilling to insure voluntarily. We found that the size, cost and extent of insurance coverage available in these plans vary greatly among states. In most states such plans account for only a small percentage of the total insurance market, and the cost of insurance plan coverage is generally higher than comparable coverage available to those drivers voluntarily underwritten by insurers.

We found that the relative size of state auto plans is larger in states with noncompetitive rating laws than in states using a more competitive approach to establish rates. The cost of plan coverage, however, is generally less in noncompetitive rating states. We also found that the extent of overall insurance coverage is greater in states with compulsory insurance laws than in states without such laws. However, among states with compulsory insurance laws, the extent of overall insurance coverage is unaffected by whether states use a prior approval or a more competitive approach to establish rates. Among states without such laws, the extent of overall insurance coverage is greater, on average, in competitive rating states.

Several Approaches Are Used to Ensure Availability

All states require that drivers demonstrate a degree of financial responsibility to ensure that the states' citizens will be compensated for losses resulting from automobile accidents caused by other drivers. In 1984, according to an insurance industry survey, 33 states and the District of Columbia required that all drivers purchase liability insurance to achieve this objective. The other 17 states had laws requiring drivers to demonstrate some form of financial responsibility, although not necessarily by purchasing insurance. Even in these states, however, purchasing liability insurance is the most practical way for drivers to meet the state requirements. Furthermore, lenders usually require drivers who obtain

loans to purchase automobiles to carry sufficient physical damage insurance to guarantee that the loan can be repaid even if the automobile becomes worthless as a result of an accident.

Because of the necessity of having insurance coverage, all states have ways to ensure that insurance is available to all drivers. One way of ensuring the availability of insurance is to rely on the private market. If some insurance companies decide to concentrate their business on better-risk drivers by using strict underwriting standards (e.g., by insuring only drivers with accident-free driving records), opportunities are created for other insurers to adopt looser underwriting standards and insure—at higher premiums—those drivers rejected by insurers using more conservative underwriting standards. (The term "substandard risks" is often used to characterize drivers not meeting "standard" underwriting requirements, and the term "substandard market" is used to describe those insurers specializing in insuring these risks. Taken together, the standard and substandard markets compose the "voluntary" market for insurance.)

Reliance on the substandard market to provide insurance for drivers rejected in the standard market can cause fairly significant price differences for drivers nominally in the same risk classification. Table 3.1, which compares premium quotations from three companies offering insurance in two areas of California and Ohio, shows how premiums can vary greatly depending on companies' underwriting standards.

Table 3.1: How Premiums on Identical 300,000 Policies Vary With Insurer Underwriting Standards (Mid-1984)

	Company A	Company B	Company C
California (Fresno area)	$1,451	$884	$806
Ohio (Toledo area)	808	620	556

Note: All quotations provide the same coverage for two cars with no youthful drivers and a maximum payment of $300,000 to third parties for each individual accident. Companies A, B, and C are subsidiaries of the same corporation that use different underwriting standards

Source: Insurance Services Office, Inc.

Relying on the substandard market is not the only way states have of ensuring that drivers judged to be substandard risks can obtain insurance coverage. In addition, all states have ways to ensure that drivers whom insurance companies will not insure voluntarily, either in the standard or the substandard market, have the opportunity to purchase at least the minimum amount and type of legally required coverage. Drivers obtaining coverage this way are said to be covered in the "involuntary market."

Forty-seven states provide an involuntary market through statutorily-prescribed, state-regulated institutions called "automobile insurance plans." The other four states— Massachusetts, New Hampshire, North Carolina, and South Carolina—ensure that insurance is available to all drivers through what are known as "take-all-comers" laws. These laws require insurers to issue policies at standard rates to almost all drivers applying for coverage.[1] Insurers operating in these states may, however, transfer the risk of loss on policies they issue to drivers that they consider unacceptable risks to state-established institutions called "reinsurance facilities."

In addition to state auto plans and take-all-comers laws, many states have laws that severely restrict the cancellation or nonrenewal of existing voluntary-market insurance policies. Such laws seek to ensure the continued availability of insurance to drivers who have already been voluntarily underwritten by insurers. State automobile insurance plans, however, are the predominant method that states use to ensure that automobile insurance coverage is available to all drivers.

Automobile Insurance Plans Use One of Two Approaches

State automobile insurance plans allocate, among the insurance companies operating in a state, the costs of insuring those risks that standard and substandard insurers are unwilling to underwrite voluntarily. These plans operate in one of two ways. The most common approach, used in 42 states, is through an "assigned-risk plan." Under an assigned-risk plan, insurers operating in a state are assigned drivers who are unable to obtain insurance in the voluntary market, usually in proportion to the insurers' share of the voluntary market. The insurer assigned a particular risk receives the premiums paid for the policy, is liable for the losses incurred under the policy, and must service the associated claims. The less common approach is through a "joint underwriting association." Under this approach, the state selects several large companies to service the claims of all drivers insured by the automobile insurance plan. The servicing carriers are compensated for the costs of servicing claims, but are not solely responsible for the operating losses of the plan. Rather, such losses are covered through assessments on all insurers operating in the state according to their individual market shares.

[1]The laws of each of these four states do specify certain specific exceptions to their take-all-comers requirements.

The Substandard Market and State Plans Represent Competing Approaches to Availability

The relative importance of the voluntary, substandard and involuntary (state plan) markets in providing coverage to drivers unable to obtain coverage in the standard market differs among states. Some states follow policies that minimize the number of drivers served by their automobile insurance plans. These states rely primarily on private-sector firms that specialize in serving the substandard portion of the market to insure those risks rejected by standard insurers. Other states follow policies that make the automobile insurance plan a relatively attractive alternative to the substandard portion of the voluntary market and leave relatively little room for substandard carriers. In still other states, the substandard market and the involuntary market coexist more equally.

States with take-all-comers laws leave almost no opportunity for insurers specializing in providing insurance to substandard risks to operate. Almost all risks are insured in the standard market, either directly or through reinsurance facilities. In states without such laws, substandard insurers can only operate to the extent that the prices and coverage they offer are more attractive than what is available through the state automobile insurance plan.

Table 3.2 shows the size of both the involuntary market and the voluntary, substandard market for each state in 1982 and 1983. The size of involuntary markets varies greatly among the states. Massachusetts and New Jersey had the largest involuntary markets in 1982 and 1983, making up 40 percent and 39 percent, respectively, of all car-years of insurance in those states. At the other extreme, Utah and Arizona had the smallest involuntary markets, accounting for only 0.003 percent and 0.014 percent, respectively, of all car-years of insurance in those states. For all states and the District of Columbia as a group, involuntary markets, on average, made up 4.18 percent of total car-years insured during 1982 and 1983.

Table 3.2: Size of Involuntary and Substandard Markets (1982 and 1983)

State	Percent of Insurance Through Involuntary Market[a]	Percent of Insurance Through Substandard Market
Alabama	0.3567	11.04
Alaska	0.9218	19.52
Arizona	0.0139	11.75
Arkansas	0.2512	9.02
California	1.2287	9.98
Colorado	0.0335	14.23
Connecticut	8.9137	2.30
Delaware	4.7616	6.17
District of Columbia	1.7520	20.02
Florida	2.4550	15.59
Georgia	1.0320	16.07
Hawaii	0.4844	9.14
Idaho	0.0555	9.7(
Illinois	0.1060	6.01
Indiana	0.0443	5.3(
Iowa	0.0471	8.9(
Kansas	1.9115	8.9
Kentucky	1.0350	8.0
Louisiana	3.0259	10.9
Maine	1.0902	8.7
Maryland	2.4133	9.3
Massachusetts	40.3844	0.3
Michigan	2.0843	1.8
Minnesota	0.2356	8.1
Mississippi	0.9368	10.1
Missouri	0.1672	8.6
Montana	0.0553	10.1
Nebraska	0.0592	9.2
Nevada	0.0671	16.2
New Hampshire	24.1598	2.0
New Jersey	39.3943	2.5
New Mexico	0.1156	13.(
New York	11.8445	2.7
North Carolina	22.7526	8.3
North Dakota	0.1570	12.2
Ohio	0.0205	6.9
Oklahoma	0.1574	16.(
Oregon	0.0211	13.(

State	Percent of Insurance Through Involuntary Market[a]	Percent of Insurance Through Substandard Market[b]
Pennsylvania	2.4799	4.77
Rhode Island	7.4632	1.30
South Carolina	17.2862	1.33
South Dakota	0.0907	10.28
Tennessee	0.9948	7.84
Texas	2.8309	16.60
Utah	0.0035	10.04
Vermont	2.5677	7.54
Virginia	3.5523	9.82
Washington	0.3919	11.39
West Virginia	0.7748	10.27
Wisconsin	0.0755	8.87
Wyoming	0.1800	18.67
Average for All States	4.1811 (8.9267)	9.47 (4.77)
Average for Competitive Rating States	1.10 (1.92)	10.50 (4.30)
Average for Noncompetitive Rating States	7.67 (12.24)	9.37 (4.61)

[a]Percentage of car-years of insurance in involuntary market.

[b]Percentage of losses incurred by insurers categorized as high-risk automobile insurance specialists by A. M. Best and Company.

Note: Standard deviations are in parentheses.

We also found that, for all states as a group, the size of the involuntary market varies cyclically over time. In 1975, only 2.98 percent of all car-years of insurance were obtained through the involuntary market. By 1978, this figure had increased to 5.76 percent of all car-years. And, from 1978 to 1983, the percentage of all car-years of insurance obtained in the involuntary market fell to 4.00 percent. Thus, the involuntary market behaves as a residual market whose size varies over time in most states as conditions change in the voluntary market.

We could not find comparable state-specific data on the number of drivers purchasing coverage from (and paying higher rates to) substandard insurers. However, we were able to obtain state-specific data on total claims losses incurred by companies classified by the A. M. Best and Company as "high-risk auto insurance specialists." From these data, we computed the percentage of total claims losses incurred on all private passenger automobile insurance provided by firms specializing in

insuring high-risk drivers. These percentages are shown in column 2 of table 3.2. Because drivers identified as substandard risks may have more accidents than other drivers, the percentage of losses incurred by high-risk specialists can overstate the percentage of drivers insured by high-risk specialists. Thus, in a state in which 15 percent of the losses are on claims of drivers insured by high-risk insurers, these drivers may in total represent a smaller percentage of all insured drivers. In addition, insurers exist who write policies for substandard risks but who are not classified by A. M. Best as specialists in high-risk coverage.

While these statistics do not directly indicate the percentage of drivers insured by high-risk specialists, they can indicate the relative size of the substandard market among states. If average losses incurred for substandard drivers bear roughly the same proportion to average losses for all drivers, then differences among states in these statistics will reflect interstate differences in the percentage of drivers insured by high-risk specialists.

We found that the relative size of the substandard market also varies greatly among states. In 1982 and 1983, the District of Columbia, Alaska and Wyoming had the largest substandard markets, making up 20 percent, 19.5 percent, and 18.7 percent, respectively, of total losses incurred in those states. At the other extreme, three of the four states with take-all-comers laws had, as would be expected, extremely small substandard markets. High-risk specialists made up for between 0.37 and 2.04 percent of all losses in these states.[2]

In general, the data indicate a negative relationship between the size of the involuntary market and the size of the voluntary, substandard market. On average, states with larger involuntary markets had smaller substandard markets, while states with smaller involuntary markets had larger substandard markets. The simple correlation coefficient between our measures of the size of these two markets is a significant −0.404. This result, which suggests that these two markets are essentially substitutes for each other in providing insurance coverage for higher-risk drivers, holds for both those states with competitive rating

[2]North Carolina had a larger substandard market than other states with take-all-comers laws, probably because North Carolina's take-all-comers requirement applies only to liability insurance. Insure operating in North Carolina are not required to underwrite physical damage coverage.

laws and those states with noncompetitive rating laws. The simple correlation coefficient between the two market size measures is a significant -0.377 for the states with competitive rating laws and a significant -0.485 for states with noncompetitive rating laws.

Extent of Automobile Insurance Plan Coverage Varies

Some of the state-to-state variation in the size of the involuntary market appears to be related to differences in individual state limits on the amount of coverage available in the automobile insurance plans. The types of insurance and maximum amounts of liability coverage available through each of these plans in 1983 are shown in table 3.3. No plan offered unlimited coverage; however, maximum coverage is more extensive in some plans than in others.

Thirty states make available the amounts of coverage recommended by the Automobile Insurance Plans Services Office, a nonprofit association organized by a consortium of industry groups to operate assigned-risk plans. This coverage includes at least some physical damage coverage and liability coverage of $300,000 per accident. Several states, however, limit liability coverage to amounts substantially lower than AIPSO recommends, and four states provide only the minimum amount of liability coverage required by their state financial responsibility or compulsory insurance laws. Seven states do not offer any physical damage coverage through their automobile insurance plans.[3]

[3]No state requires drivers to purchase physical damage insurance, as this insurance indemnifies losses to the insured vehicle rather than to injured third parties.

Table 3.3: Types of Insurance and Maximum Amounts of Liability Coverage Available Through Each State Automobile Insurance Plan as of 1983

1. States with automobile insurance plans offering AIPSO-recommended liability coverage: (100/300/50)			
Alaska[a]		Massachusetts[a]	
Arizona		Minnesota	
Colorado		Montana	
Connecticut		Nebraska	
Delaware		Nevada	
Florida		New Hampshire[a]	
Idaho		New Mexico	
Illinois		North Dakota[a]	
Iowa[a]		Ohio	
Louisiana[a]		Oregon	
Pennsylvania[a]			
Rhode Island[a]			
South Carolina[a]			
South Dakota			
Utah			
Virginia			
Washington[a]			
West Virginia[a]			
Wisconsin			
Wyoming			
2. States with optional maximum liability limits greater than AIPSO-recommended levels:			
Maine	(100/300/100)		
Maryland[a]	(100/300/100)		
Massachusetts[a]	(500/500/250)		
Michigan	(250/500/100)		
New Jersey[a]	(100/300/100)		
New York[a]	(250/500/100)		
Vermont[a]	(100/300/100)		
3. States with optional maximum liability limits less than AIPSO-recommended levels:			
Alabama[a]	(50/100/25)	Kentucky	(25/50/10)
District of Columbia	(50/100/10)	Mississippi[a]	(50/100/25)
Georgia	(100/300/25)	Missouri	(50/100/50)
Hawaii	(100 per accident)	Oklahoma[a]	(100/300/25)
Kansas[a]	(50/100/10)	Tennesee	(100/300/25)
4. States with liability coverage limited to minimums specified by state law:			
Arkansas	(25/50/10)	Indiana[a]	(15/30/10)
California	(15/30/5)	Texas[a]	(not available)
5. States where physical damage coverage is not available:			
Alabama[a]		Nebraska[a]	
California		North Carolina[a]	
Kentucky		Oklahoma[a]	
		Texas[a]	

[a]State had prior approval or state-made rates in 1983.

Note: Liability limits (figures in parentheses) are maximum dollar payments in thousands, to third parties for individuals injured, individual accidents, and property damage, respectively.

Source: AIPSO

We did not investigate systematically the reasons for these differences in allowable coverage among state insurance plans. However, we did

review the records of interviews with state insurance department officials conducted for our earlier report on state insurance regulation.[4] In those interviews, insurance department officials in some of the states providing less than AIPSO-recommended coverage expressed the opinion that encouraging a large substandard market is preferable to encouraging a large, state auto plan. In addition, insurance department officials in some states not offering physical damage coverage in their state plans told us that drivers obtaining minimum liability coverage through the state plan could still obtain physical damage coverage through substandard insurers operating in the voluntary market.

Although no state operates an automobile insurance plan with coverage so generous that the plan completely substitutes for insurance available from standard companies in the voluntary market, some states come much closer than others. As would be expected, those states with the more generous coverage limits tend to serve more of the state's drivers through the automobile insurance plan, leaving a smaller market for the substandard insurers in the voluntary market. In contrast, those states with less generous coverage limits tend to serve relatively few of the state's drivers through the state plan, leaving a relatively large market for the substandard insurers. To illustrate, during 1982 and 1983, an average of 5.41 percent of all insured drivers obtained their insurance through state plans in those states whose plan coverage limits equalled or exceeded the AIPSO recommendations. In these states, only 8.79 percent of the total amount of automobile insurance claims losses were incurred on policies written by firms specializing in high-risk insurance. In contrast, in the 14 states in which available plan coverage for liability is less than that recommended by AIPSO, an average of 0.94 percent of all insured drivers obtained their insurance through state plans, and 11.25 percent of the claims losses were incurred on policies written by companies specializing in high-risk insurance.

Our data suggest no clear tendency for either competitive or noncompetitive states to offer more generous coverage limits in their state plans. Of the seven states that do not provide physical damage coverage, five use noncompetitive rate-setting systems and two use a competitive approach. Of the 14 states with liability limits set below those suggested by AIPSO, six use a noncompetitive approach and eight use a competitive approach. Finally, of the seven states with liability limits above those

[4]Issues and Needed Improvements in State Regulation of the Insurance Business, Oct. 9, 1979, PAD-79-72.

recommended by AIPSO, five use a noncompetitive approach and two use a competitive approach.

Some Plans Are Subsidized to Make Coverage More Affordable

Differences in the size of the involuntary markets among states could also occur because some states subsidize insurance obtained through state plans, while other states do not. In most states, the cost of insurance coverage in automobile insurance plans is substantially higher than the cost of insurance in the standard market, just as the cost of insurance in the substandard market exceeds the cost in the standard market. The higher premiums in the state plans result from the fact that premiums in most state plans depend, at least in part, on the aggregate losses experienced by the plan. And losses per insured vehicle are considerably greater in state plans than in the voluntary market.

To illustrate how much higher plan insurance costs may be, table 3.4 compares premium quotations we obtained from major insurers operating in the standard, voluntary market with the cost of equivalent coverage from selected automobile insurance plans. The comparisons apply to specific locations in Florida, New York, New Jersey, and Virginia and reflect rates in effect in mid-1984. As can be seen, New Jersey is an exception to the rule of higher plan premiums.

Table 3.4: Comparison of Premiums for Selected State Automobile Plans and Voluntary Insurers (Mid-1984)

State/State Auto Plan	State Automobile Plan Quotes	Average of Quotes From Major Voluntary Insurers[a]
Florida/Florida Joint Underwriting Association (ISO state territory 35)	$3,890	$1,106
New York/New York Automobile Insurance Plan (ISO state territory 65)	2,533	1,109
New Jersey/New Jersey Auto Full Underwriting Association (ISO state territory 06)	1,269	1,287
Virginia/Virginia Automobile Insurance Plan (ISO state territory 24)	1,401	625

[a]Companies quoted use different driver classification systems and underwriting standards. Thus, a particular individual may not qualify for coverage at the quoted rates by all companies. Also, the averages shown are simple averages and are not weighted by the share of business of each company.

Note: All quotations are for coverage of two cars with no youthful drivers. Quotations could be for either a $300,000 single limit liability or for 100/300/25 split limits. All states listed except Virginia require coverage for personal injury, as mandated by state no-fault laws. Quotations refer to specific ISO territories in the state, identified in parentheses. Premiums are in the mid-range of quotations among territories within states.

Source: ISO.

If plan premiums were based entirely on aggregate loss experience, the result could be rates high enough to threaten the regulatory goal of affordability for those drivers denied coverage in the voluntary market. To avoid this possibility, many states subsidize the premiums paid by drivers insured through their state insurance plans.

The state of New York provides one example of how such a subsidy works. In New York, rates for automobile insurance plan coverage are set midway between the rate indicated by the loss experience of participants in the automobile insurance plan and the rate charged by standard carriers in the voluntary market. When they file their rates for the voluntary market, companies are allowed to include a surcharge sufficient to cover their share of the cost of the subsidy to the involuntary market.

A substantial amount of the variation among states in the cost of state plan coverage is caused by variations in the degree of subsidization of plan premiums. Thus, as shown in table 3.4, premiums in the standard segment of the voluntary market are virtually identical for the selected territories in Florida and New York. The cost of coverage through the automobile insurance plan in Florida, however, is over $1,000 higher

than comparable coverage through New York's automobile insurance plan. The data in table 3.5 show the ratios of premiums earned to claims losses incurred by each state's automobile insurance plan during the years 1979 to 1983 and suggest a greater degree of subsidization in New York's plan than in Florida's. During these years, policyholders in New York's automobile insurance plan paid about $0.97 in premiums for each dollar of claims losses incurred, while policyholders in Florida's joint underwriting association paid about $1.28 in premiums for each dollar of claims losses incurred.

Table 3.5: Ratio of Premiums to Losses for State Plan Liability Coverage (1979 to 1983)

State	Premium-to-Loss Ratio
Alabama	$1.613
Alaska	1.587
Arizona	1.408
Arkansas	1.369
California	1.041
Colorado	1.851
Connecticut	0.925
Delaware	1.020
District of Columbia	1.282
Florida	1.282
Georgia	1.190
Idaho	2.381
Illinois	1.111
Indiana	1.408
Iowa	1.408
Kansas	1.136
Kentucky	1.265
Louisiana	1.149
Maine	1.492
Michigan	0.917
Minnesota	1.123
Mississippi	1.470
Missouri	1.428
Montana	1.785
Nebraska	1.250
Nevada	1.250
New Jersey	0.769
New Mexico	1.612
New York	0.970
North Dakota	1.250
Ohio	1.492
Oklahoma	1.219
Oregon	2.225
Pennsylvania	0.699
Rhode Island	0.892
South Dakota	1.639
Tennessee	1.449
Utah	1.785
Vermont	1.315
Virginia	1.250

State	Premium-to-Loss
Washington	1.1
West Virginia	1.33
Wisconsin	1.23
Wyoming	0.75
Average for all states	1.32 (0.3
Average for competitive rating states	1.39 (0.37
Average for noncompetitive rating states	1.25 (0.24

[a]Standard deviations are in parentheses.

Note: Hawaii, Maryland, and Texas are not listed because the data were not available. Massachusetts, New Hampshire, North Carolina, and South Carolina are not listed because these states have reinsurance facilities, not state auto insurance plans.

If a state automobile insurance plan provides subsidies to plan policyholders, insurers operating in the state are responsible for the shortfall in revenue associated with the operating losses of the plan. In joint underwriting associations, total operating losses are allocated to companies in proportion to their market share. In assigned-risk plans, each company directly bears the potential revenue shortfalls on those policies assigned to it. AIPSO manages 42 state plans that operate on the assigned risk principle and collects data on the operating results for those assigned-risk plans. For the 1977 to 1981 period, AIPSO estimated that total operating losses for all 42 state plans were about $2.3 billion for liability and physical damage combined. According to AIPSO data, over the 1977 to 1981 period, insurers lost money on assigned-risk business in 21 of the 42 states. The operating losses are concentrated in relatively few states, however. Over 97 percent of all operating losses were incurred through assigned-risk plans in the ten states with the largest numbers of drivers obtaining insurance through the plans.

As noted previously, table 3.5 shows, by state, the ratio of total automobile insurance plan premiums to total plan claims losses during the period from 1979 to 1983. These data reveal substantial variation in the premiums charged per dollar of claims loss among states. Idaho and Oregon have the highest ratios, with premiums paid equaling 238 percent and 222 percent of losses incurred, respectively. In contrast, Pennsylvania and Wyoming have the lowest ratios, with premiums paid equaling only 70 percent and 77 percent of losses incurred, respectively.

In general, the lower the cost of plan insurance per dollar of losses (i.e., the lower the ratio of premiums paid to losses incurred), the larger the

number of drivers insured through the state automobile insurance plan. The simple correlation coefficient between our measure of plan cost and plan size is a significant -0.410. This negative relationship between plan cost and plan size holds for both those states with competitive rating laws and those states with noncompetitive rating laws. The correlation coefficient for the former group of states is a significant -0.425 and for the latter group of states a significant -0.631.

In addition, a positive relationship exists between the relative size of voluntary, substandard markets among states and the relative cost of insurance obtained through state automobile insurance plans. States with higher insurance plan costs generally had larger substandard markets. The correlation coefficient between our measure of insurance plan costs and the size of the substandard market is a significant 0.320. Again, this positive relationship between plan costs and the size of the substandard market holds for both states with competitive ratings laws and states with noncompetitive rating laws. The simple correlation coefficients for the two groups of states are 0.122 and 0.631, respectively.

Differences in Size and Cost of State Plans Are Associated With Differences in Rate Regulation

In addition to examining how differences in the cost and coverage available in state auto plans affect the size of both the involuntary and the voluntary, substandard markets, we also examined whether the size of state auto plans is affected by state regulation of the voluntary market. Insurance industry representatives and independent academic researchers have noted that increases in the size of state automobile plans can be a direct, though possibly unintended, consequence of state efforts to make insurance more affordable to good drivers. Insurers operating in states that stringently control rates through a prior-approval process may find that they are unable to obtain the rates they believe are necessary to cover their expected losses in the voluntary market. If so, they may attempt to maintain their profitability by using stricter underwriting standards for issuing new policies and by not renewing policies of drivers who do not meet the stricter standards.

One result of stricter underwriting standards may be an increase in the number of drivers who have to obtain insurance coverage through state automobile plans. If this is so, states seeking to make insurance more affordable to good drivers by aggressively restraining rate increases may make insurance more difficult for poorer risks to obtain in the voluntary market, leading to increases in the size of the state auto plan.

We looked for evidence of this phenomenon by examining whether the average size of state automobile plans varies with the type of state rate regulation.[5] For the period from 1975 to 1983, 3.96 percent of all car-years of insurance written were provided by the state automobile plans in states having either prior approval rating systems or state-made rates. Among states having more competitive rating laws, only 2.06 percent of all car-years of insurance were provided by state plans. Thus, on average, the competitive approach to establishing rates is associated with a significantly smaller involuntary market.

That the relative size of state auto plans is larger in noncompetitive rating states does not necessarily mean, however, that less desirable risks have been forced into the involuntary market as a result of stricter underwriting standards. An additional consideration is the affordability of the insurance offered in the involuntary market. More drivers who are unable to obtain coverage in the voluntary market may choose to obtain coverage through a state insurance plan if plan premiums are lower, thus lowering the number of uninsured drivers.

We examined affordability by focusing on the relationship between the approach that states use to establish rates in the voluntary market and the level of average, inflation-adjusted premiums charged in state auto plans during the years from 1975 to 1983. As shown in table 3.6, the average inflation-adjusted premiums for liability coverage in automobile insurance plans are substantially higher in states with competitive rating laws than in states with noncompetitive laws. Average inflation-adjusted premiums for physical damage coverage are somewhat lower in competitive rating states, but the difference is not statistically significant.

Table 3.6: Comparison of State Auto Plan Premiums Between Competitive and Noncompetitive Rating States[a](1975-1983)

	Competitive Rating States	Noncompetitive Rating States	Differenc
Average liability premiums	$338.77	$275.43	$63.3
Average physical damage premiums	129.53	139.25	−9.7

[a]We calculated average premiums by adjusting average premium expenditure per car-year to 1984 purchasing power levels using the implicit price deflator for the gross national product.

[b]Difference is statistically significant at the 0.95 level of confidence.

[5]We excluded states with take-all-comers laws from this analysis because the cost of voluntary and involuntary coverage is the same to consumers.

In summary, we found evidence that, on average, state automobile insurance plans serve a higher percentage of drivers in states using noncompetitive rate-setting approaches, but the cost of liability insurance for these drivers is lower. Thus, we cannot know for sure the extent to which the larger state plans in noncompetitive rating states are the result of stricter underwriting standards in the voluntary market and the extent to which they are the result of more attractive prices for liability insurance in the involuntary market.

Extent of Overall Insurance Coverage Not Associated With Type of Rate Regulation

We also examined whether state regulatory practices affect the number of drivers who are not insured at all. Some analysts have argued that the existence of a relatively large automobile insurance plan—especially in a state with relatively low plan rates—may be evidence of greater availability of insurance. They argue that drivers insured in the involuntary market under these conditions might remain uninsured in states that have smaller and less heavily subsidized automobile insurance plans. We found no data with which to measure directly the number of uninsured drivers in a state. Therefore, in order to examine this issue, we constructed an indirect measure of the overall extent of insurance coverage by calculating, for each state, the ratio of insured vehicles to the number of licensed drivers.[6] Although this is undoubtedly an imperfect measure for any given state in any given year, we believe that it provides a useful indicator of average differences in overall insurance coverage among groups of states. Using this measure we found that the extent of overall insurance coverage is greater in states with compulsory insurance laws. Among states with compulsory insurance laws, however, the extent of overall insurance coverage does not differ substantially between states with competitive rating laws and states with noncompetitive rating laws.

One would expect that the number of uninsured drivers would be lower in states with compulsory insurance laws than in states relying only on financial responsibility laws, and that states with more stringent compulsory insurance laws would have still fewer uninsured motorists. To check the validity of our indirect measure of the extent of insurance coverage, we calculated the average values of these ratios for three

[6]These ratios are indirect indications of the extent of insurance coverage and may vary independently of changes in the number of uninsured motorists. The measures are indirect because automobile insurance policies are written on vehicles rather than drivers. Thus, the ratio of vehicles insured to licensed drivers can increase if the number of vehicles in a household with a given number of licensed drivers increases. We also collected statistics on motor vehicle registrations and made the same comparisons. The results are similar. The registration data include commercially owned autos, such as taxis or fleet vehicles, and excludes light trucks and pickups driven for personal use.

groups of states: (1) states with financial responsibility laws but without insurance requirements, (2) states with compulsory insurance laws, and (3) states with compulsory insurance laws that require suspension or revocation of driver licenses and/or vehicle registration as penalties for noncompliance. The results, shown in table 3.7, are consistent with these expectations.

Table 3.7: Ratios of Insured Private Passenger Vehicles to Licensed Drivers by State (1974-1983 Averages)

Groups of States	Group Mean
Compulsory insurance laws with stringent penalties for noncompliance (10 states)[a]	0.7950
Compulsory insurance laws only (34 states)	0.7516
Financial responsibility laws only (17 states)	0.7034

[a]Penalties of either suspension or revocation of license and/or registration.
Sources: Data on number of private passenger vehicles insured: AIPSO, Inc.
Data on licensed drivers by state: Highway Statistics, Federal Highway Administration, U.S. Department of Transportation, various issues.

Table 3.8 compares the extent of overall insurance coverage by the approach states use to establish rates. We divided states with the same rating laws throughout the 1974 to 1983 period into four groups. We first grouped states according to whether they had either noncompetitive or competitive rating laws. We then divided these two groups according to whether the states had compulsory insurance laws or financial responsibility laws.[7] For each group of states, we then calculated the average ratio of insured vehicles to licensed drivers for the entire 1974 to 1983 period.

We found that the ratio of insured vehicles to licensed drivers is higher in states with compulsory insurance laws regardless of the approach used to establish rates. However, the data show that, among states with compulsory insurance laws, virtually no difference exists in the extent of overall insurance coverage between competitive rating states and noncompetitive rating states. Among states with financial responsibility laws, competitive rating states had, on average, somewhat greater insurance coverage than other states. Thus, our analysis suggests that states with more competitive rating laws have relatively fewer drivers covered by their automobile insurance plans not because they have relatively

[7]We excluded the four states with take-all-comers laws from this analysis. We also excluded one prior approval state, New Jersey, because its automobile insurance plan is about ten times the size of plans in other states. Including it could have unduly affected the results of the analysis.

more uninsured drivers but because relatively more of their drivers are obtaining coverage in the voluntary market.[8]

Table 3.8: Comparison of Overall Insurance Coverage Between Competitive and Noncompetitive Rating States (1974-1983)

Ratio of Insured Vehicles to Licensed Drivers	Competitive Rating States	Noncompetitive Rating States
States with compulsory insurance laws	(0.7484) (14 states) (0.1221)[a]	(0.7421) (9 states) (0.1238)
States with financial responsibility laws	0.7241 (6 states) (0.0579)	(0.6963) (10 states) (0.0957)

[a]Standard deviations are in parentheses

New Jersey Developments Highlight Interrelationship Between Affordability and Availability

Our analyses of differences in the cost of automobile insurance and the size of the involuntary and voluntary, substandard markets among states indicated that the goals of affordability and availability are almost inextricably interrelated. Regulatory policies designed to make insurance more affordable by constraining rate increases or by subsidizing the cost of insurance in the involuntary market could threaten the profitability of insurers and create availability problems. The interrelationship between affordability and availability creates serious challenges for state regulators. To explore this interrelationship further, we conducted a review of recent regulatory developments in the state of New Jersey. We selected New Jersey because it has undertaken many regulatory initiatives addressing the availability and affordability of automobile insurance.

In 1973, New Jersey enacted a compulsory automobile insurance law that required not only extensive no-fault personal injury protection (including provision for unlimited medical and rehabilitation expense) but also insurance against tort recovery claims. (Until 1984, New Jersey law allowed suits for damages if medical expenses exceeded $200.) Following enactment of this law, both claims losses and premiums in New Jersey increased substantially relative to trends in other states. In 1985 the U.S. Department of Transportation reported that New Jersey's average premiums had increased by 210 percent from 1976 to 1983; in

[8]We also analyzed the extent of overall insurance coverage in seven states that introduced competitive rating laws during the period from 1974 to 1983. The results of this analysis were consistent in that the extent of overall insurance coverage increased after these laws were introduced.

1983 New Jersey had the highest average automobile insurance premiums in the nation.[9]

Although premiums rose rapidly in New Jersey during this period, claims losses incurred by insurers rose even more quickly. As a result, the ratio of premiums received to losses incurred on private-passenger automobile insurance was lower in New Jersey than in any other state during the 1974 to 1983 period. Representatives of various industry organizations told us that they considered the rate increases allowed by New Jersey insurance commissioners (New Jersey has a prior approval rating system) during this period inadequate to expand their voluntary underwriting business in that state.

The amount of insurance obtained through New Jersey's assigned-risk plan substantially increased during this period, from less than 10 percent of all automobile insurance in 1974 to over 39 percent for the 1982-1983 period, which is about nine times the average size of the involuntary market for all states.

Possibly concerned about the affordability of insurance for the increasing numbers of drivers having to obtain coverage through the assigned-risk plan, state regulators began to follow an informal policy of keeping the assigned-risk plan rates similar to rates allowed in the voluntary market, rather than basing rates on the loss experience of those insured through the plan.[10] This policy virtually eliminated the operation of substandard insurers in New Jersey, as indicated by the fact that only 2.59 percent of all losses incurred by private-passenger automobile insurers in New Jersey in the 1982 to 1983 period were incurred by high-risk insurers.

Because of both the large population of the assigned-risk plan and the subsidized pricing policies for assigned-risk coverage, insurers incurred substantially higher operating losses on their assigned-risk business in New Jersey than in other states. AIPSO estimated that the total operating losses on assigned-risk business nationwide during the 1977 to 1981 period totalled about $2.3 billion, an operating loss of about $105 per

[9]Compensating Auto Accident Victims: A Follow-Up Report on No-Fault Auto Insurance Experiences, U.S. Department of Transportation, Report DOT-P-30-84-20, May 1985.

[10]"The Effects of the Pricing of Private Passenger Automobile Insurance Sold Through Residual Market Mechanisms on Competition and Market Structure," by Judith K. Mintel, in Journal of Insurance Regulation, vol. 1, March 1983. Mintel argues that because a different risk classification system was employed in deriving rate relativities for the assigned-risk plan, rates for young drivers av[illegible] through the plan were actually lower than could be obtained through the voluntary market.

car-year of insurance underwritten through assigned-risk plans. AIPSO estimated operating losses for New Jersey's assigned-risk plan at $1.265 billion for the same period, or about 54 percent of the total losses nationwide; AIPSO estimated the New Jersey operating loss per insured vehicle at $201.53.[11]

In 1983, the New Jersey legislature passed several laws designed to address growing problems with the availability and affordability of automobile insurance. One of these laws, the New Jersey Automobile Full Insurance Availability Act, instituted a new involuntary market mechanism which was designed to absolve insurers of any liability for state plan operating losses. This legislation also intended to allow all drivers the opportunity to purchase automobile insurance at "standard market" rates.

The new involuntary market mechanism, which was established in 1984, is an unincorporated, nonprofit association of insurers called the New Jersey Automobile Full Insurance Underwriting Association (FIUA). Although FIUA membership is required of all companies writing automobile insurance in the state, no member company is liable for the operating losses of FIUA, nor can FIUA impose any liability on companies through fees or assessments. Thus, FIUA differs from the joint underwriting associations established in several other states in that its operating losses are not assessable to members in proportion to their market shares.

FIUA, like a joint underwriting association, however, can contract with companies that act as service carriers and issue policies, collect premiums, and settle claims on its behalf. Insurance agents can do business directly with FIUA; in fact, officials representing FIUA stated that, as of late 1985, about half the state's 15,000 insurance agents specialized in writing policies with FIUA. Drivers insured through the former state automobile insurance plan had their policies transferred to FIUA at its inception in 1984. Since 1984, the market share of the FIUA has grown considerably; FIUA officials indicated that, by late 1985, its market share had grown to about 50 percent.

Although the FIUA cannot assess the member companies for its operating losses, it has two sources of income not available to ordinary private

[11]AIPSO calculates operating loss by assuming an expected loss ratio, which is then applied to premiums collected from the plans to derive expected claims losses. The estimated operating loss is the difference between actual claims losses incurred and the estimate of expected claims losses.

insurers. The first source of income is 80 percent of revenues obtained from assessments by the New Jersey Department of Motor Vehicles on certain motor vehicle violations and convictions. These assessments are considered "insurance surcharges." The state insurance department maintains that revenues from these assessments constitute a major and permanent source of income for the FIUA, as the insurance commissioner can change the amounts of these surcharges as well as the categories of violations and convictions on which the surcharges are applied.

The second source of FIUA income is income from assessment of a "residual market equalization charge," a flat dollar surcharge on all insurance policies (whether insured through the voluntary or involuntary market) of drivers under the age of 65. The enabling legislation specifies that this assessment, when added to other FIUA revenue sources, will "cause the association to operate on a no-profit, no-loss basis."

At the time of our fieldwork in December 1985, there was disagreement between the FIUA and the state insurance department on how the residual market equalization charge should be determined. FIUA officials maintain that FIUA must operate with the same accounting system as an insurance company. For the association to operate on a no-profit/no-loss basis, FIUA officials maintained that the charge should be set to generate sufficient revenue to avoid a negative net worth for the association. On this basis, FIUA filed for a charge exceeding $150 per policy. The state insurance department, however, interpreted the criteria for setting the appropriate charge differently and promulgated filing procedures for FIUA that would base the charge on the amount of revenue necessary (when added to other sources of association income) to generate a positive cash flow to FIUA on an annual basis. FIUA has filed suit in the state courts to challenge this requirement, contending that the insurance department violated the intent of the legislation.

Conclusions

There is no standard definition of what constitutes an acceptable level of insurance availability. Acceptable insurance availability may mean that insurance is widely available at the standard rates charged by insurance companies. Alternatively, it may mean that insurance is widely available to drivers somewhere in the voluntary market, which is composed of both those insurers that charge standard rates and those insurers that specialize in serving substandard risks at rates that are higher than standard rates. Yet another meaning may be that insurance is available to drivers from some source, whether the source is the voluntary market or a state-sponsored automobile insurance plan. Also

affecting the definition of availability is the issue of affordability. Some analysts believe that, as a practical matter, insurance is not available to a given driver if the price that that driver must pay for it is significantly higher than the price other comparable drivers pay.

Variations in the regulatory approaches taken by states correspond, in part, to the various definitions of an acceptable level of availability. At one extreme, some states have created institutions that guarantee all drivers access to virtually unlimited insurance at the same rates charged to all other drivers in their rate class, whether that insurance is obtained in the voluntary or the involuntary market. At the other extreme, some states have adopted policies that greatly reduce the number of drivers unable to obtain insurance in the voluntary market and have placed strict limits on the amount of coverage that can be obtained though the involuntary market.

In combination with serious limitations on the quantity and quality of the existing data, the absence of an agreed-upon definition of what constitutes adequate availability of insurance makes drawing firm conclusions about the relative merits of the various strategies adopted by the states extremely difficult. We can, however, conclude the following:

- The number of drivers served by state auto plans varies greatly from state to state and tends to vary inversely with the number of drivers who obtain insurance from companies specializing in insuring substandard risks. Also, state auto plans appear to be larger in those states that subsidize plan insurance more heavily. It appears, therefore, that regulatory policies that make state auto plans more attractive reduce the size of the voluntary, substandard market and that policies that restrict the size of the substandard market increase the size of the involuntary market. Whether one views these policies as enhancing or inhibiting availability depends on one's definition of the term, however.
- State auto plans are somewhat larger in states using noncompetitive approaches for establishing rates in the voluntary market than in states relying on a more competitive approach. At the same time, the cost of liability insurance obtained in state plans is somewhat lower in states using noncompetitive approaches to establishing rates in the voluntary market. To the extent that a large involuntary market is evidence of an availability problem, noncompetitive rating laws seem to inhibit availability. However, to the extent that the relative price charged in the involuntary market is an important element in evaluating availability, noncompetitive rate-making may enhance availability.

- Our measure of the extent of overall insurance coverage indicates that more drivers are insured in states with compulsory insurance laws than in states without such laws. Among states with compulsory insurance laws, the extent of overall insurance coverage did not depend on whether a state used a competitive or a noncompetitive approach to establishing rates in the voluntary market. Among states with financial responsibility laws, more drivers were insured in those states using competitive approaches to rate-setting. To the extent that availability is defined as being able to buy insurance from any source, including the involuntary market, the approach used to establish rates in the standar market does not appear, therefore, to affect availability in states with compulsory insurance laws. In states with financial responsibility laws, however, competitive rating seems to enhance the overall availability of insurance.
- New Jersey's stringent prior approval system for establishing rates in the voluntary market, together with its regulatory policy to subsidize the cost of insurance in the involuntary market, led to the almost complete elimination of high cost, substandard insurers and a substantial increase in the size of the involuntary market. Once again, however, whether one views these developments as enhancing or diminishing availability depends on one's definition of what "wide availability of insurance" actually means.

Impact of State Restrictions on Risk Classification

States that impose restrictions on the factors that insurance companies use to classify risks could create availability problems for some drivers. If state laws prohibit insurers from charging higher rates to drivers with characteristics associated with above average losses or claim costs, insurers might consider these drivers "underpriced risks." Anticipating that, on average, they would lose money on these drivers, insurers might be less likely to underwrite policies for them unless required to do so. Consequently, these drivers could find that insurance was no longer available to them in the voluntary market. Even if states required insurers to underwrite such policies through take-all-comers laws, in the absence of other institutional changes the number of companies willing to underwrite automobile insurance could decline, leading to a decrease in the availability of automobile insurance.

In 1974, the Federal Insurance Administration (FIA), developed a proposal for states to use in reconciling restrictions on risk classification factors with the regulatory goal of ensuring the wide availability of insurance. We reviewed the experiences of three states—Massachusetts, Michigan, and North Carolina—that implemented parts of this proposal. Although we reviewed the regulatory developments in each of these states, we did not attempt to evaluate them. Because Massachusetts and North Carolina instituted similar regulatory frameworks at about the same time (the mid-1970's), we compared some common aspects of the regulatory developments in these states, and noted recent particular developments in each state. We treated Michigan's regulatory system separately because it differs considerably from those of Massachusetts and North Carolina and was implemented more recently.

We found some evidence that state prohibitions on the use of age and sex in establishing premiums can result in insurance companies no longer insuring certain types of drivers voluntarily. Two states that substituted the use of individual driving records for these two factors also encountered some unexpected problems, which appear to be solvable. However, one state, which attempted to restrict geographical differences in automobile insurance premiums, encountered such problems that it later rescinded these restrictions. We also found no convincing evidence that state restrictions on risk classification factors are either more or less compatible with the use of a competitive approach for establishing rates.

State Restrictions on Risk Classifications Could Create Availability Problems

Average losses and claims vary substantially among groups of drivers according to certain characteristics, such as age, sex, marital status, and place of residence. Thus, an insurance company can better project the expected costs associated with a particular group of policies by categorizing or classifying customers according to these characteristics. Most states do not restrict insurers' methods of risk classification or their underwriting decisions: Insurers are allowed to charge different premiums to different individuals as long as the differences in premiums have an actuarial basis. What this means is that premium differences that can be shown to correspond to differences in average losses or expense factors among the groups are acceptable. For example, on average, insurers incur higher claims losses and other expenses in insuring men under age 20 than in insuring women over 30. In most states, this cost differential is reflected in the rates charged these two groups, so that a man under the age of 20 pays more for a given amount of automobile insurance than does a woman over the age of 30.

Some people have argued that states should prohibit the use of some of the factors now commonly used to establish risk classifications for automobile insurance premiums, particularly age and sex. They argue, primarily as a matter of equity, that price variations should not be based on characteristics over which an individual has no control and which, at least on an individual basis, may not be directly related to risk. Proponents of these changes argue that state prohibitions on using certain rating factors would not require the elimination of all premium differentials. Rather, the effect might be that insurers would place greater emphasis on characteristics under the control of the driver and more directly related to the risk of loss, such as individual driving records or the mileage of the vehicles insured.[1]

[1]We discuss some of these issues in greater detail in our earlier report on the proposed "unisex" pricing of insurance, Economic Implications of the Fair Insurance Practices Act GAO/OCE-84-1, April 1984.

Federal Insurance Administration Proposal to Reconcile Use of Restrictions With Wide Availability

In 1974, FIA developed a proposal designed to reconcile the possibly conflicting objectives of (1) eliminating objectionable differences in insurance premiums, by restricting the use of certain risk classification factors, (2) enhancing the availability of auto insurance to all drivers, and (3) preserving the ability of insurance companies to earn adequate profits.[2]

The central elements of the FIA proposal were (1) creating a new type of institution, a reinsurance facility, to serve each state's involuntary market, (2) prohibiting the use of objectionable rating factors (3) requiring that insurance companies accept all applicants, and (4) using a competitive rating system to determine average rate levels.

The reinsurance facility would provide a mechanism for pooling unwanted risks, whereby an insurer could transfer or cede to the reinsurance facility the liability for losses on any specific policy that the insurer considered underpriced. This practice would limit an individual insurer's exposure to risk and help to eliminate any conflict between availability and solvency. Moreover, consumers would not know whether their policies were ceded to the reinsurance facility. As with the joint underwriting association, all insurers in the state would be liable for the net financial results of the reinsurance facility.

FIA's proposal argued that having a reinsurance facility would allow each state to introduce a take-all-comers requirement. Requiring insurers to issue policies to all applicants would guarantee availability to all drivers and, at least from the perspective of the consumer, eliminate the need for a distinct involuntary market. The existence of a reinsurance facility would also eliminate categorizing policyholders as "substandard risks." Relying on competition to establish overall rate levels, FIA argued, would ensure the adequacy of average rate levels and, thus, would prevent the operation of the reinsurance facility from becoming an excessive financial burden to the insurance industry in the state.

With guaranteed availability for consumers and ensured revenue adequacy for insurers, FIA argued that its proposed regulatory framework would allow states to introduce restrictions or prohibitions on the use of currently allowable, but objectionable, risk classification factors.

[2]Full Insurance Availability, FIA, U.S. Department of Housing and Urban Development, Sept. 1974. FIA was established in 1968 to administer federal flood, riot, and crime insurance programs. Its functions were transferred to the Federal Emergency Management Agency in 1979.

Insurers might cede the policies of those drivers they considered to be underpriced risks to the reinsurance facility, but the adequacy of overall rates would not be threatened by prior approval rate regulation. The FIA proposal suggested that only insurers' risk classification plans (and not rates) be subject to prior approval to monitor compliance with state restrictions. Only a few states have introduced some elements of FIA's proposal for automobile insurance regulation, and no one state has adopted all the elements of the plan. By 1980, the reinsurance facility concept had been instituted in four states: Massachusetts, New Hampshire, North Carolina, and South Carolina. None of these states had competitive rating statutes, however. After reinsurance facilities were introduced in Massachusetts and North Carolina, these states prohibited the use of age and sex in risk classification. In 1981, Michigan introduced significant restrictions on insurer risk classification, prior approval of classification plans, and a competitive approach (file-and-use statute) for establishing rates, but retained a separate automobile insurance plan. We reviewed the experiences of three of these states—Massachusetts, Michigan, and North Carolina—that implemented parts of the FIA proposal.

Regulatory Initiatives in Massachusetts and North Carolina Are Similar

Although automobile insurance markets in Massachusetts and North Carolina differ in several important respects, several parallels existed in the development of state automobile insurance regulation in the two states. In 1927, Massachusetts was the first state to introduce a compulsory automobile insurance law, while in 1957, North Carolina was the third state to do so. During the period we reviewed, each state had one of the few remaining officially-sanctioned state rating bureaus, which represented insurers operating in the states and filed rate proposals with the state insurance commissioners. In 1973 and 1974, both states introduced reinsurance facilities for automobile insurance. Both states subsequently prohibited the use of age and sex in establishing insurance premiums and required premiums to be based, at least in part, on years of driving experience and individual driving records.

Prohibitions on Use of Age and Sex

In North Carolina, a ban on the use of age and sex in establishing premiums was instituted by state law in 1977. A similar ban was instituted in Massachusetts through a ruling by the state insurance commissioner in 1978. However, despite these prohibitions, young drivers generally pay more for automobile insurance in both states, as rate differences are established partly on the basis of years of driving experience. Other risk classification factors being equal, drivers in North Carolina with fewer

than 2 years of driving experience pay double the rate of those drivers with more driving experience.

In Massachusetts, the classification of driving experience is more complex. Drivers with fewer than 6 years of experience pay higher rates, with separate rate differentials for drivers with fewer than 3 years of driving experience. For example, a driver classified as an "occasional operator" who had not completed driver training and who had fewer than 3 years of driving experience paid 330 percent of the standard rate in 1985. A driver classified as a "principal operator" with between 3 and 6 years of driving experience paid 160 percent of the standard rate in 1985. Despite the fact that young drivers in both states still pay higher rates, the rate differentials applicable to these drivers are generally lower than under the risk classification systems used previously in each state. Moreover, prohibiting the use of sex as a rating factor further reduced the rate differential applicable to young men.

Evidence from both states indicates that, without the existence of reinsurance facilities, these prohibitions on the use of age and sex in establishing premiums would have created serious availability problems, especially for young men. In 1977, the year just before Massachusetts prohibited use of these risk classification factors, 55 percent of the young, male principal operators in the state obtained their insurance in the involuntary market. In 1978, when age and sex could no longer be used as rating factors, 82 percent of Massachusetts' young, male principal operators obtained their insurance in the involuntary market. In North Carolina, officials told us that the number of young males served by the reinsurance facility also increased substantially after using age and sex was prohibited.

Use of Individual Driving Records

At the time they prohibited the use of age and sex as risk classification factors, both Massachusetts and North Carolina instituted systems to levy surcharges on standard rates on the basis of individual driving records. We present the details of these systems, called Safe Driver Insurance Plans, in appendix III. Under these systems, individuals are assigned points based on their official driving records of accidents and convictions for traffic violations. The cumulative number of points determines the size of the surcharge. The surcharges are absolute dollar amounts in Massachusetts and percentages of standard rates in North Carolina. In North Carolina, all drivers with points pay an additional percentage surcharge that is earmarked to offset the operating losses of

the state reinsurance facility. In 1986, this surcharge is 38.9 percent of the standard rate for liability coverage.

Neither state allows the rate differentials based on driving records to be established individually by insurers. In North Carolina, the North Carolina Rating Bureau files proposed rate differentials with the state insurance commissioner on behalf of all insurers operating in the state. In Massachusetts, these rate differentials are promulgated annually by the state insurance commissioner.

Competitive Rating Not Introduced

FIA's proposal for full insurance availability assumed that a competitive rating approach would be used to ensure that overall rate levels were adequate. Even if the policies of drivers considered to be underpriced risks by insurers were ceded to the reinsurance facility, the FIA plan presumed that rates on policies retained in the voluntary market would be sufficient to offset the assessment of the reinsurance facility's operating losses.[3] However, at the time that these initiatives were introduced in Massachusetts and North Carolina, neither state allowed individual insurance companies to set rates without prior approval by the state insurance commissioners.

Moreover, there is evidence that the existence of prior approval rate regulation in both of these states was acting to restrain overall rate increases after the prohibitions on risk classifications were introduced. In the late 1970's, for example, the Massachusetts insurance commissioner denied industry requests for rate increases. In 1977, the North Carolina legislature imposed a 6-percent cap on the annual rate of increase in insurance premiums. In 1981, the cap on rate increases was set equal to the increase in the consumer price index.

Table 4.1 illustrates the changes that occurred in the cost of liability insurance and the size of the involuntary markets in both of these states for three time periods. The first period, from 1975 to 1977, represents the period just after the introduction of reinsurance facilities in these states, but before the implementation of the age and sex prohibitions;

[3]A critical assumption was that, with competitive rating, voluntary market rates in the state would fully reflect any subsidy to the involuntary market. This assumption implies that policyholders in the voluntary market would bear the entire cost of any subsidy. For an empirical study of the actual extent of such cross-subsidization, see "Cross-Subsidization in Auto Insurance: The Relationship Between Voluntary and Residual Market Rates and Rate Regulation," Scott E. Harrington, Wharton School, University of Pennsylvania, Aug. 1985.

the second period, from 1978 to 1980, is the period immediately following the introduction of the risk classification restrictions; and the third period, from 1981 to 1983, is several years after both of the new initiatives took effect. For each period, the table shows the average, inflation-adjusted liability premium and the average premium-to-loss ratio for liability coverage in each state. Both of these cost measures are expressed in absolute terms and as a percentage of the national average for the corresponding time periods.

As the table shows, the cost of liability coverage per dollar of losses (i.e. the premium-to-loss ratio) was higher than the national average in both states for the 1975 to 1977 period. Both states also had larger than average involuntary markets at this time. During the 1978 to 1980 period, the cost of liability insurance in both North Carolina and Massachusetts—measured as either inflation-adjusted premiums or the ratio of premiums-to-losses—fell substantially in both absolute terms and relative to the national average, indicating the stringency of the prior approval rating systems in both states.[4]

During the 1981 to 1983 period, the cost of insurance per dollar of losses rose somewhat in both states compared to the national average. (In absolute terms, they remained virtually the same as in the 1978 to 1980 period.) However, insurance costs were still substantially below their levels in the 1975 to 1977 period in both states.

State restrictions on risk classification, without a competitive approach to establishing rates, could lead to availability problems in the voluntary market and consequent inceases in the size of the involuntary market. The data in table 4.1 show that, at least for Massachusetts, there has been a dramatic and steady increase in the size of the involuntary market. In the 1975 to 1977 period, 19 percent of all car-years of insurance were ceded to the Massachusetts reinsurance facility. By the 1981 to 1983 period, this percentage had increased to 42.43. In contrast, the size of the involuntary market in North Carolina did not change dramatically over time, although it did increase somewhat during the 1978 to 1980 period.

[4]The data show that liability coverage rates have been much more stringently regulated in the two states than rates for physical damage coverage. When adjusted for losses, physical damage premiums in these states have been very close to national averages.

Table 4.1: Cost of Liability Insurance and Size of Involuntary Markets in Massachusetts and North Carolina (1975-1983)

Inflation-Adjusted Liability Premiums[a]	1975-77	1978-80	1981-83
National average	$194.40	$201.37	$182.41
Massachusetts average (percent of national average)	$232.11 (119.3%)	$211.83 (105.2%)	$223.58 (122.5%)
North Carolina average (percent of national average)	$158.73 (81.8%)	$141.60 (70.3%)	$138.20 (75.7%)
Liability premium- to-loss ratios			
National average	$1.516	$1.537	$1.391
Massachusetts average (percent of national average)	$1.742 (114.9%)	$1.316 (85.6%)	$1.305 (93.8%)
North Carolina average (percent of national average)	$1.618 (106.7%)	$1.410 (91.7%)	$1.406 (101.1%)
Size of involuntary market[b]			
National average	4.01%	5.49%	4.42%
Massachusetts average (percent of national average)	19.08% (474.1%)	37.23% (678.1%)	42.43% (959.7%)
North Carolina average (percent of national average)	22.84% (569.6%)	24.96% (454.6%)	23.55% (532.8%)

[a]Expressed in 1984 purchasing power levels

[b]In Massachusetts and North Carolina, the percentage of car-years ceded by insurers to the state reinsurance facility.

Massachusetts Has Made Recent Modifications to Its Regulatory Approach

In 1984, Massachusetts passed legislation that replaced the state reinsurance facility with a joint underwriting association (Commonwealth Automobile Reinsurers), introduced some exceptions to the take-all-comers requirement, and modified substantially the method of assessing surcharges based on driving records. Twenty-six of the approximately 85 insurers in Massachusetts act as servicing carriers for the Commonwealth Automobile Reinsurers. Only those companies operating as servicing carriers can cede policies to the joint underwriting association, but all insurance agents in the state can underwrite policies for at least one of the servicing carriers. Representatives of industry groups we spoke to favored this change in organization because it reduced the number of companies involved in claims accounting and processing for ceded policies. Another advantage cited for the designated servicing carrier approach was that it reduced the number of companies that must be audited to control claims costs. (Under both the reinsurance facility and the joint underwriting association, companies may have less incentive to control claims costs on policies they are not responsible for losses incurred.)

The 1984 legislation also specified that insurers can refuse to underwrite physical damage coverage for drivers who (1) have been convicted of vehicular homicide, automobile insurance fraud, or theft, (2) have misrepresented information on insurance claims within 5 years of application of insurance, or (3) have had four or more at-fault accidents within 5 years of applying for insurance.

The Safe Driver Insurance Plan was implemented in 1984 to replace another accident surcharge system, the Merit Rating System, which had been instituted in 1976. The Merit Rating System assessed surcharges on drivers with violations on their records. The funds collected in this way went to a state fund and were distributed to drivers with good driving records. This arrangement proved ineffective because many drivers simply ignored the surcharge bills. One local industry representative told us that, at the time the Merit Rating System was discontinued, only 20 percent of the billed surcharges were being paid. Apparently, with a take-all-comers requirement, drivers whose policies were cancelled for nonpayment of these surcharges could simply apply to another company for new coverage. Under the revised plan, driving record surcharges are added directly to the policyholder's premium. Because the agent receives a commission on the entire premium and the insurer retains the revenue from the surcharges, both insurance companies and agents have an incentive to ensure compliance under the new approach.

States Use Different Methods to Finance Reinsurance Facility Deficits

The reinsurance facilities of both Massachusetts and North Carolina have incurred substantial operating losses. For the period from 1974 to 1982, operating deficits were 58.5 percent and 24.7 percent of earned premiums on ceded business in Massachusetts and North Carolina, respectively. FIA's regulatory proposal offered no suggestions for financing the operating deficits of the reinsurance facility, other than to recommend that no prior approval restrictions be placed on average rate levels. Implicit in this recommendation was the assumption that insurers would recoup the losses resulting from underpriced business with higher rates on all policies. Since neither Massachusetts nor North Carolina relied on competition to set overall rate levels, each had to develop policies for recouping reinsurance facility losses.

In Massachusetts, insurance department officials told us that the average rate permitted by the state insurance commissioner included an amount designed to offset reinsurance facility losses (which in 1984, was approximately $100 per vehicle). In contrast, North Carolina state law during the period we reviewed required that operating losses be

explicitly recouped through a separate surcharge on North Carolina policyholders.

When the North Carolina recoupment charge was first levied in 1979, it applied to all policies and represented an additional surcharge of about 5 percent of normal premium costs. Legislation enacted in 1981, however, reduced the scope of assessment to drivers who had been assessed "points" under the Safe Driver Insurance Plan.

In actual practice, the surcharges were not levied on all drivers with points, but only on those drivers whose insurers knew of their points. One study by a North Carolina journalist showed that, in 1982, fewer than half the total points on record with the Department of Motor Vehicles were considered in assessing premium surcharges on automobile insurance policies.[5] The study also found that about 90 percent of the unreported points were for violations that policyholders were not legally required to report. Most of these unreported points were held by drivers in the voluntary market, since insurers ceding policies to the reinsurance facility were required to obtain the complete driving records of the affected drivers at least once a year.

In a 1983 report to the state legislature, the North Carolina Legislative Research Commission recommended that the facility recoupment surcharges be spread among all policyholders, since all drivers benefited from enhanced availability.[6] The Commission was also concerned that the surcharge adversely affected the affordability of insurance for drivers with assessed points and might force them to drive uninsured. In 1982, surcharge assessments applied to only 18.5 percent of all policies issued.

Michigan Also Implemented Parts of Proposal

Like Massachusetts and North Carolina, Michigan has also introduced elements of FIA's proposal for regulating automobile insurance, but much more recently. In 1977 the state insurance department, the Michigan Insurance Bureau, first proposed a comprehensive revamping of the regulatory framework for both personal auto and home insurance.[7] This proposal contained most of the elements of the FIA proposal: a take-all-

[5]Steve Adams, "Underassessment of SDIP Points Widespread," North Carolina Insight, February 1985, pp. 44-45.

[6]North Carolina Legislative Research Commission, Report to the 1983 General Assembly of North Carolina-Insurance, pp. 15-17.

[7]Essential Insurance In Michigan: An Avoidable Crisis, Michigan Insurance Bureau, March 1977.

comers requirement; a reinsurance facility; and elimination of prior approval of rates, but retention of prior approval of rate classification plans. No action was taken on the proposal until, prompted by a state supreme court decision that existing legislation on rate-making mechanisms was constitutionally inadequate for fair and equitable pricing, Michigan implemented a comprehensive revision of automobile insurance regulation termed the Essential Insurance Act (EIA) in 1981. The EIA contained many elements of the original Michigan Insurance Bureau proposal. The former prior approval filing requirements were replaced by a competitive, file-and-use statute; all rate classification plans became subject to prior approval; and the use of sex and marital status (but not age) in determining rates was specifically prohibited.

But the original Michigan Insurance Bureau proposal and the legislation implemented in 1981 also differed significantly in two principal ways. First, instead of being required to issue insurance policies to all applicants, under the EIA insurers only have to underwrite those drivers who meet the company's underwriting standards (although the EIA did require that underwriting guidelines be explicit and approved by the Insurance Bureau before use). Second, instead of creating a reinsurance facility, a separate automobile insurance plan was retained. This plan, the Michigan Automobile Insurance Placement Facility, was converted from an assigned-risk plan to a joint underwriting association. Drivers could apply for coverage through any agent in the state, without having been formally refused coverage by an insurer. Applicants were also allowed to choose one of the five servicing carriers for claim service. In the new plan, the cost of plan insurance in each geographic area during the period we reviewed was between 100 percent and 125 percent of a weighted average of the premiums charged in that territory by the ten largest insurers in the state. Rates were set at 100 percent of the average in the highest premium territories and at 125 percent of the average in the lowest premium territories.

The EIA also limited differences in rates charged in different geographical areas (territories) of the state in three ways. First, although the size and number of territories were left to the discretion of insurers, only 20 different territorial rates could be used. Second, rates between adjacent territories could not vary by more than 10 percent. Third, the highest territory rate could not exceed 222 percent of the lowest territory rate in the state. Companies could apply individually to the state insurance commissioner for exemption from these requirements on the grounds of financial hardship. Local industry representatives told us that a major motivation for introducing these restrictions was to curb prices in the

Detroit area, which has the highest loss experience per vehicle of any area in the state.[8]

Table 4.2 compares the cost of insurance and the size of the involuntary market in Michigan during the 2-year period before the EIA was introduced, 1979 to 1980, with the same measures for the 2-year period following the year this legislation was implemented, 1982 to 1983. To eliminate the influence of nationwide trends, all comparisons are also made in terms of percentages of corresponding national averages. Even with this adjustment, the comparisons might not isolate the effect of the revised regulatory framework. For example, in our field interviews in the state, several respondents suggested that the significant impact on Michigan of recessionary economic conditions in the early 1980's could have had a depressing effect on Michigan's insurance markets.

Table 4.2:Cost of Insurance and Size of [illegible] Market in Michigan (1979 - 1983)

	Actual Values[a]		Percent of Corresponding National Average[b]	
Statewide Measure	**1979-80**	**1982-83**	**1979-80**	**1982-83**
Average inflation-adjusted premium for liability insurance	$181.31	$164.09	83.39	80 74
Average inflation-adjusted premium for physical damage	211.42	180 66	211.49	186.08
Premium-to-loss ratio for liability insurance	1.230	1.114	81.22	82.44
Premium-to-loss ratio for physical damage	1.562	1.243	104.09	81.80
Proportion of drivers in the involuntary market	0.0226	0.0208	34.26	38.73

[a]Dollar values are at 1984 purchasing power levels.

[b]"Corresponding national average" is an average of measures for all states, weighted by each state's share of national premium volume

Notwithstanding this limitation, the data in table 4.2 show that the cost of liability and physical damage coverage in Michigan declined both in absolute terms and relative to national averages (except for the liability premium-to-loss ratio) after the EIA was implemented, with the cost of physical damage coverage showing the larger decline. The data also indicate that, relative to national trends, a slight increase occurred in the size of the involuntary market after the EIA was implemented. However, unlike either North Carolina or Massachusetts, the size of the

[8]In 1986 legislation amending the Essential Insurance Act, a cap on annual increases of four percent plus the percentage increase in the consumer price index was placed on rates in Detroit and other large urban areas in the state.

involuntary market in Michigan remained much less than one-half the size of the average state involuntary market throughout the entire period, and actually declined slightly in terms of the percentage of drivers after the EIA was introduced.

Unisex Rating Lowered Premiums for Young Men and Raised Premiums for Young Women

A staff member of the Michigan Insurance Bureau estimated the changes in premium costs experienced by young men and women as a result of the EIA.[9] Using statistical data reported to the National Association of Independent Insurers, the statistical agent for 80 percent of premium volume in Michigan, the study compared average premiums paid by young men and women under 25 immediately prior to the ban on the use of sex in setting rates, with average premiums paid by young people as a group under the subsequent unisex rating required by the EIA.

For a package of mandatory and optional coverages, the study estimated that in 1981, with unisex pricing, premiums for young, single men as a group declined by as much as 15.1 percent, while premiums for young women increased by as much as 20.9 percent. The study contended, however, that the actual costs for many young, single men would not decline as much as these calculations indicated because, on average, young men have more moving violations on their driving records than young, single women. Thus, many men would have to pay accident surcharges, which are allowed as a separate rating factor under the new law.

Changes in premiums for only the state-mandated liability coverage were probably greater because, before 1981, premiums for the mandated minimum coverages had varied more by sex than had premiums for many optional coverages. Applying the same approach used in the study, we estimated that in 1981 costs to young, single men for only the mandatory coverages could have fallen by as much as 20.4 percent. For young single women, we calculated a cost increase of as much as 28.9 percent.

[9]Frances K. Wallace, "Unisex Automobile Rating: The Michigan Experience" Journal of Insurance Regulation, December 1984, Vol. 3, No. 2.

EIA Led to Greater Use of Age to Determine Premiums

In response to the EIA's prohibitions on the use of sex and marital status in risk classification, Michigan insurers introduced more detailed age categorizations. Before the act, insurers in Michigan had typically charged one rate for drivers aged 16 to 20. After the act, many insurers filed two or three separate rate classifications for people aged 16 to 20. For example, insurers might now have one rate for 16- and 17-year-old drivers and another rate for 18- and 19- year-old drivers. We examined mid-1984 premium quotations for nine major Michigan insurers and found that four of these companies had subdivided drivers aged 25 to 64 into different classes. For example, one company quoted different rates for the following four age groups: 30-34, 35-44, 45-54, and 55-69. Drivers aged 25 to 64 are commonly rated together in other states.

EIA Raised Controversy on Effects of Geographical Constraints on Premium Differences

From our discussions with state legislators and local insurers, it appears that the only major controversy arising from implementation of the EIA involved its attempt to limit rate differences among different geographical territories. Industry groups charged that this provision of the law had caused market dislocations in certain areas and had placed undue hardship on certain insurers. Responding to these complaints, Michigan amended the EIA in 1986 repealing the territorial rate restrictions stipulated in the 1981 legislation.

Particular controversy had arisen about the impact of the EIA on the city of Detroit. Before the implementation of the act, five of the top ten insurance companies in Michigan had stopped marketing insurance in the Detroit central city. In 1981 these five companies combined had less than 6 percent of the central city market. The companies retaining their marketing efforts within the central city were generally known in the state as "urban writers."

When the EIA was implemented, the rates that had been filed under the old prior approval system by every major insurer satisfied the required 222-percent spread between the highest-and lowest-priced territories. But, because companies without any marketing outlets in the Detroit central city filed rates that were generally lower in all territories within the state, the difference between the actual rates at which insurance could be purchased in the highest- and lowest-priced territories was greater than 222 percent.

Under the EIA, price reductions in surburban and rural areas could entail reductions in rates filed for the Detroit central city territories as a way to meet the 222-percent high/low filing requirement. Insurers without

any marketing outlets in Detroit would not be negatively affected by such price reductions for Detroit drivers, because these companies had very few policies covering Detroit drivers. In contrast, if the urban writers had to lower their Detroit rates to match price reductions of writers in suburban and rural areas and meet the 222-percent high/low filing requirement, they would suffer losses on their existing business in Detroit. As a result, urban writers claimed that the 222-percent high/low territorial rate constraint had placed them at a particular disadvantage. Data compiled by the Michigan Insurance Bureau to document the initial impacts of the changes in regulatory framework support this allegation: Major insurers operating outside the Detroit central city filed smaller percentage increases (or larger percentage decreases) than did the urban writers in both the lowest- and highest-rated territories.

The urban writers also claimed that, under the original 1981 legislation, the rates which they could file were effectively capped by the formula used for pricing policies underwritten in the Detroit area by the Michigan Automobile Insurance Placement Facility. When that plan was established, prices for policies insured through the facility in the Detroit area were set equal to 100 percent of the weighted average of rates filed by the ten largest insurers statewide. The urban writers argued that using this formula would push the price of insurance available through the facility below the average price of the insurers who actually wrote insurance in Detroit because the formula included rates filed by insurers without marketing outlets in the Detroit central city. These rates were substantially lower than the rates charged by the leading urban writers.

Conclusions

All three states we reviewed imposed certain restrictions on the risk classification factors used to establish rates. North Carolina and Massachusetts prohibited the use of age and sex in establishing rates and substituted the use of driving experience and driving records. Michigan prohibited the use of sex and marital status, but not age, and attempted to limit, but not entirely eliminate, geographic differences in premiums.

Each state combined these restrictions on risk classification with changes designed to ensure that insurance would be widely available. North Carolina and Massachusetts instituted take-all-comers requirements for insurance companies (or, at least, insurance agents) operating in their states and organized reinsurance facilities (later changed to a joint underwriting association in Massachusetts). These facilities were t ensure that the new restrictions on the use of risk classification factors and on insurers' underwriting freedom did not seriously compromise

company profitability by forcing insurers to insure large numbers of underpriced risks. Although it did not restrict insurers' underwriting freedom as significantly as the other two states, Michigan did subject insurer underwriting standards to prior approval by the state insurance department. Michigan also created a joint underwriting association.

None of the states we reviewed adopted all of the elements of the regulatory proposal developed in 1974 by the FIA. Neither North Carolina nor Massachusetts established a competitive rating system, and Michigan instituted neither a take-all-comers requirement nor a reinsurance facility. Nonetheless, reviewing the regulatory experiences in these three states, did allow us to draw the following general conclusions about the feasibility of implementing state restrictions on risk classifications.

First, we found few problems associated with prohibiting the use of sex as a rating factor. In both North Carolina and Massachusetts, the number of young males obtaining coverage in the involuntary market increased after these prohibitions were put into effect. In Michigan, we found evidence that unisex rating lowered premiums for young male drivers and raised premiums for young female drivers.

Second, the effect of prohibiting the use of age as a rating factor is less clear. In both of the states—North Carolina and Massachusetts—adopting this prohibition, years of driving experience was substituted for age, partially offsetting the effect of the prohibition on the use of age. On balance, young drivers did pay relatively lower premiums under the new classification scheme than they had paid under the old system. In Michigan, where the use of age was still allowed, but the use of sex and marital status was prohibited, insurance companies took advantage of their freedom to rate on the basis of age and made greater use of age distinctions.

Third, in all three states, driving records became important rating factors after other factors were prohibited. We did not learn of any particular problems encountered in Michigan in using this rating factor, but we did find problems in implementing this change in both Massachusetts and North Carolina. The method initially used in Massachusetts had to be changed in 1984 because the state's take-all-comers rule made threatening to cancel insurance policies an ineffective device for collecting poor-driver surcharges. In North Carolina, we found some concern about the accuracy of accident reporting when driving records became important determinants of rates. We also found some controversy about the

policy of levying the surcharges necessary to finance losses in the reinsurance facility only on those drivers with accidents or violations. Some people believed this practice caused affordability problems for the drivers being assessed. The evidence suggests that placing greater reliance on driving records requires careful attention to how accident and violation surcharges are to be structured and administered, but the evidence does not suggest that placing greater reliance on these surcharges is not a viable option.

Fourth, judging from the Michigan experience, it is less clear whether geographical differences in automobile insurance premiums can be reduced effectively through regulation. We found that Michigan insurers could influence the territorial mix of their business through their decisions about where to locate sales offices. Those companies wishing to abandon the higher cost territories could do so relatively easily, placing the companies that continued to serve these areas at a competitive disadvantage. The result could be serious availability problems—at least in the voluntary market—for residents of high-cost areas. The unanticipated problems caused by the geographical rate restrictions in Michigan led to their repeal in 1986.

Fifth, states that follow the FIA proposal and institute a reinsurance facility together with restrictions on risk classifications may encounter the same administrative problems that caused Massachusetts to replace its reinsurance facility with a joint underwriting association. The problems stemmed from the need to monitor closely the way every insurance company in the state managed the business of drivers ceded to the reinsurance facility. Under the reinsurance facility arrangement, individual companies had little incentive to control claims costs because they did not bear the liability directly. Instituting the joint underwriting association substantially reduced the number of companies that had to be monitored. The Massachusetts experience raises questions about the desirability of a reinsurance facility as opposed to a joint underwriting association. The former may be preferable to ceded drivers because these drivers need never know whether they are being covered in the voluntary or the involuntary market; but the latter may be more easily managed and therefore may allow more effective cost control by the state insurance regulatory authorities.

Sixth, we found no convincing evidence that using a competitive approach to set average rate levels implies anything in particular about the effectiveness of policies designed to eliminate the use of certain rating factors. Although the involuntary markets were substantially

larger (and increased substantially more) in the two states—Massachusetts and North Carolina—that maintained their noncompetitive rating systems to set average rate levels, we found that other states using noncompetitive procedures to set average rates also tended to have somewhat larger involuntary markets. Thus, there is no clear evidence that restricting the use of certain risk factors is either more or less compatible with the use of competition to set average rate levels.

State Classifications

This appendix explains the state classifications we used in our statistical comparisons of affordability (chapter 2) and availability (chapter 3). We developed the following types of classifications: "competitive" versus "noncompetitive" rating laws, restrictions on joint pricing activities, restrictions on group underwriting, and compulsory insurance and no-fault laws, and classifications of states based on other attributes, including the extent of urbanization, insurer affiliation with ISO, and seller concentration.

Competitive and Noncompetitive Rating Laws

The National Association of Insurance Commissioners (NAIC) has developed a widely used classification of state rating laws. A 1974 NAIC staff study cited eight distinct types of rating laws:

- State-made rates—The state insurance department, in consultation with insurance industry representatives, promulgates the rates to which all insurers must adhere.
- Mandatory bureau rates—All insurers operating in the state must obtain membership in a rating bureau, which seeks prior approval of a common bureau rate.
- Prior approval laws—All insurers must file their proposed rates with the state insurance department and provide data with these filings to support the contention that the rates are not "excessive, inadequate, or unfairly discriminatory."
- Modified prior approval laws—Insurers can revise rates without prior approval if based solely upon a change in loss experience. However, rate revisions based upon changes in expense relationships or rate classifications are still subject to prior approval.
- File-and-use laws (bureau rates advisory only)—Rates become effective immediately upon filing, with no affirmative action of the insurance commissioner required. However, under file-and-use laws in states that require adherence to bureau rates, filings made by a rating organization on behalf of insurers must be adhered to by the insurer unless the insurer files for a deviation.
- File-and-use laws (adherence to bureau rates required).
- Use-and-file laws—Rates must be filed within some specified period of time after being used in the state.
- No filing laws—Insurers are not subject to any filing requirements.

These eight types of rating laws are listed according to the degree of insurer autonomy in rate-setting allowed in the state: States with mandatory bureau rates or rates promulgated by the insurance commissioner allow no opportunity for price competition, while "no-file" states

Table I.1: States With Noncompetitive Rating Laws From 1975 to 1983

State-made or Mandatory Bureau Rates		
Massachusetts		
North Carolina[a]		
Texas		
Prior Approval Laws		
Alabama[b]	Mississippi	Pennsylvania
Alaska	Nebraska	Rhode Island
Indiana	New Hampshire	South Carolina
Iowa	New Jersey	Tennessee
Kansas	New York	Vermont
Louisiana[b]	North Dakota	Washington
Maryland	Oklahoma	West Virginia

[a]Since 1977, downward deviations from bureau rates have been allowed.

[b]Modified prior approval laws.

Table I.2: States With Competitive Rating Laws From 1975 to 1983

File-and-Use Laws	
Connecticut	Montana
Delaware	Nevada
District of Columbia	Ohio
Florida	Oregon
Georgia	Virginia
Maine	Wyoming
Minnesota	
Use-and-File Laws	
Colorado	Utah
Missouri	Wisconsin
No-File Laws	
California	
Idaho	
Illinois	

Table I.3: States Changing From Noncompetitive to Competitive Rating Laws, 1975-1983

Arizona	Michigan
Arkansas	New Mexico
Hawaii	South Dakota
Kentucky	

Restrictions on Joint Pricing Activities

Our statistical comparisons of restrictions on insurers' joint pricing activities are based on a classification of state laws developed for a 1985 Federal Trade Commission staff report and presented in table I.4.[4] In 1983, only ten states placed specific restrictions on joint activities of insurers; in most cases the laws restricted permissible activities of rating organizations.

[4]The Role of Collective Pricing in Auto Insurance, Jeffrey Eisenach, Federal Trade Commission, Bureau of Economics, Aug. 1985.

rely to the greatest extent on price competition to achieve regulatory goals.

Past studies of differences in insurance cost according to rating law generally have combined the NAIC rating law classifications into broader groups, categorizing each of the NAIC rating law types as either competitive or noncompetitive. While such groupings are arbitrary, they allow comparison of the average experience of many states. Only two states, Massachusetts and Texas, were commonly characterized as having "state-made" rates, and North Carolina has the only remaining state rating bureau for filing automobile insurance rates.

For this report, we also used two categories for classifying state rating laws. Rather than developing our own classification, we used one developed by academic researchers.[1] In this scheme, states having either state-made rates, mandatory bureau rates, prior approval laws, or modified prior approval laws are categorized as having "noncompetitive" rating laws. A "competitive" rating law is considered to be either a file-and-use law, a use-and-file law, or a law without a filing requirement.[2]

For our statistical comparisons, we determined that 44 states, including the District of Columbia, had maintained either a competitive or a noncompetitive rating law throughout our period of study (1975 to 1983).[3] The resulting classification of states is presented in tables I.1 and I.2. States changing from noncompetitive to competitive rating laws during this period are listed in table I.3. To make this classification of states, we consulted with the American Insurance Association, the National Association of Independent Insurers, the Alliance of American Insurers, and the chief legal counsel of a major property-casualty insurance company that writes a substantial proportion of automobile insurance in all states.

[1]See: Henry Grabowski, W. Kip Viscusi, and William Evans, "The Effects of Regulation on the Price and Availability of Automobile Insurance," mimeographed, Duke University, June 1985.

[2]Other categorizations of competitive and noncompetitive rating laws have been made. For example, in a 1974 NAIC staff study, file-and-use laws with bureau filing adherence requirements were grouped with the noncompetitive states.

[3]We included in this group two states, Colorado and Wyoming, that changed the form of their rating laws during the 1975 to 1983 period, but merely from one type of competitive rating law to another.

Table I.4: States With and Without Joint Pricing Restrictions

States Without Joint Pricing Restrictions		States With Joint Pricing Restrictions
Alabama	Nebraska	Arkansas[a]
Alaska	Nevada	Connecticut
Arizona[a]	New Hampshire	Colorado
California	New Jersey	Florida
Delaware	New Mexico[a]	Hawaii[a]
District of	North Carolina	Illinois
Columbia	North Dakota	Kentucky[a]
Georgia	Ohio	New York
Idaho	Oklahoma	Virginia
Indiana	Oregon	Wyoming
Iowa	Pennsylvania	
Kansas	Rhode Island	
Louisiana	South Carolina	
Maine	South Dakota[a]	
Maryland	Tennessee	
Massachusetts	Texas	
Michigan[a]	Utah	
Minnesota	Vermont	
Mississippi	Washington	
Missouri	West Virginia	
Montana	Wisconsin	

[a]This state was not in our statistical comparisons because it changed from noncompetitive to competitive rating laws during the 1975 to 1983 period.

Restrictions on Group Underwriting

Table I.5 shows the classification of states according to whether the states restricted group underwriting activities. We obtained this classification of states from an industry trade association, the Alliance of American Insurers. According to the Alliance of American Insurers, 39 states had imposed such restrictions in 1984.

Table I.5: States Restricting Group Underwriting by Either Statute or Regulation (1984)

Alabama	Idaho	Nevada	South Carolina
Alaska	Illinois	New Jersey	South Dakota[a]
Arkansas[a]	Iowa	New York	Tennessee
California	Kansas	North Carolina	Utah
Colorado	Maine	North Dakota	Vermont
Connecticut	Massachusetts	Ohio	Washington
Delaware	Mississippi	Oklahoma	West Virginia
Florida	Missouri	Oregon	Wisconsin
Georgia	Montana	Pennsylvania	Wyoming
Hawaii[a]	Nebraska	Rhode Island	

[a]This state was not included in our comparisons.

Source: Staff study, Alliance of American Insurers.

Compulsory and No-Fault Insurance Laws

Table I.6 identifies the states with compulsory insurance or no-fault laws during the period we reviewed (1975 to 1983). Since 17 states introduced compulsory insurance laws during this period, we identified

the years the laws were in effect in each of these states to make our comparisons of insurance costs in chapter 2.

Table I.6: Compulsory and No-Fault Automobile Insurance Laws

State	Year Compulsory Insurance Law in Effect	No-Fault Coverage Requirement
Alabama	[a]	
Alaska	[a]	
Arizona[b]	1983	
Arkansas[b]	[a]	
California	1975	
Colorado	1974	[c]
Connecticut	1973	[c]
Delaware	1972	
District of Columbia	1982	[c]
Florida	1972	[c]
Georgia	1975	[c]
Hawaii[b]	1974	[c]
Idaho	1975	
Illinois	[a]	
Indiana	1983	
Iowa	[a]	
Kansas	1974	[c]
Kentucky[b]	1975	[c]
Louisiana	1978	
Maine	[a]	
Maryland	1973	
Massachusetts	1927	[c]
Michigan[b]	1973	[c]
Minnesota	1975	[c]
Mississippi	[a]	
Missouri	[a]	
Montana	1979	
Nebraska	[a]	
Nevada	1974	
New Hampshire	[a]	
New Jersey	1973	[c]
New Mexico[b]	1984	
New York	1957	[c]
North Carolina	1958	
North Dakota	1976	[c]
Ohio	1984	
Oklahoma	1976	
Oregon	1978	

State	Year Compulsory Insurance Law in Effect	No-Fault Coverage Requirement
Pennsylvania	1975	
Rhode Island	[a]	
South Carolina	1974	
South Dakota[b]	[a]	
Tennessee	[a]	
Texas	1982	
Utah	1974	
Vermont	[a]	
Virginia	[a]	
Washington	[a]	
West Virginia	1981	
Wisconsin	[a]	
Wyoming	1980	

[a]Indicates no compulsory insurance law in effect.

[b]This state was not included in our cost comparisons.

[c]Indicates no-fault automobile insurance in effect.

Source. Compendium of Insurance Charts, Alliance of American Insurers, 1984, and Compensating Auto Accident Victims, U S Department of Transportation, 1985.

Other Attributes

Tables I.7, I.8, I.9, and I.10 show, respectively, the classification of states according to whether the states are above or below the median value of (1) our urbanization measure, (2) the meausre of ISO market share, (3) the measure of ISO membership and (4) the measure of concentration.

Table I.7: State Urbanization Above and Below Median Value, by Number of Years (1975-1982)

State	Number of Years Below Median Value	Number of Years Above Median Value	Total
Alabama	5	3	8
Alaska	8	0	8
Arizona[a]	2	6	8
Arkansas[a]	8	0	8
California	0	8	8
Colorado	0	8	8
Connecticut	0	8	8
Delaware	0	8	8
District of Columbia	0	8	8
Florida	0	8	8
Georgia	8	0	8
Hawaii[a]	0	8	8
Idaho	8	0	8
Indiana	1	7	8
Illinois	0	8	8
Iowa	8	0	8
Kansas	8	0	8
Kentucky[a]	8	0	8
Louisiana	8	0	8
Maine	8	0	8
Maryland	0	8	8
Massachusetts	0	8	8
Michigan[a]	0	8	8
Minnesota	5	3	8
Mississippi	8	0	8
Missouri	0	8	8
Montana	8	0	8
Nebraska	8	0	8
Nevada	4	4	8
New Hampshire	8	0	8
New Jersey	0	8	8
New Mexico[a]	8	0	8
New York	0	8	8
North Carolina	8	0	8
North Dakota	8	0	8
Ohio	0	8	8
Oklahoma	4	4	8
Oregon	8	0	8

State	Number of Years Below Median Value	Number of Years Above Median Value	Total
Pennsylvania	0	8	8
Rhode Island	0	8	8
South Carolina	7	1	8
South Dakota[a]	8	0	8
Tennessee	2	6	8
Texas	0	8	8
Utah	0	8	8
Vermont	8	0	8
Virginia	2	6	8
Washington	0	8	8
West Virginia	8	0	8
Wisconsin	8	0	8
Wyoming	8	0	8
Total	**208**	**200**	**408**

[a]This state was not included in our cost comparison.

Table I.8: States Above or Below Median Value of Market Share of ISO Firms (1980)

State	Above or Below Median Value
Alabama	Above
Alaska	Above
Arizona[a]	Above
Arkansas[a]	Below
California	Below
Colorado	Above
Connecticut	Above
Delaware	Above
District of Columbia	Below
Florida	Above
Georgia	Above
Hawaii[a]	Below
Idaho	Below
Illinois	Below
Indiana	Below
Iowa	Below
Kansas	Above
Kentucky[a]	Above
Louisiana	Above
Maine	Above
Maryland	Above
Massachusetts	Below
Michigan[a]	Below
Minnesota	Below
Mississippi	Above
Missouri	Below
Montana	Below
Nebraska	Below
Nevada	Below
New Hampshire	Above
New Jersey	Above
New Mexico[a]	Above
New York	Above
North Carolina	Below
North Dakota	Below
Ohio	Below
Oklahoma	Above
Oregon	Below
Pennsylvania	Above
Rhode Island	Above
South Carolina	Above

State	Above or Below Median Value
South Dakota[a]	Below
Tennessee	Above
Texas	Below
Utah	Below
Vermont	Above
Virginia	Above
Washington	Below
West Virginia	Below
Wisconsin	Below
Wyoming	Below

[a]This state was not included in our cost comparison.

I.9: States Above or Below Value of Percentage of Firms scribing to ISO Services (1980)

State	Above or Below Median Value
Alabama	Above
Alaska	Above
Arizona[a]	Below
Arkansas[a]	Above
California	Below
Colorado	Below
Connecticut	Above
Delaware	Above
District of Columbia	Above
Florida	Below
Georgia	Above
Hawaii[a]	Below
Idaho	Below
Illinois	Below
Indiana	Below
Iowa	Below
Kansas	Above
Kentucky[a]	Above
Louisiana	Below
Maine	Above
Maryland	Above
Massachusetts	Below
Michigan[a]	Above
Minnesota	Below
Mississippi	Above
Missouri	Below
Montana	Below
Nebraska	Below
Nevada	Below
New Hampshire	Above
New Jersey	Above
New Mexico[a]	Above
New York	Above
North Carolina	Below
North Dakota	Below
Ohio	Below
Oklahoma	Above
Oregon	Below
Pennsylvania	Above
Rhode Island	Above
South Carolina	Above

State	Above or Below Median Value
South Dakota[a]	Above
Tennessee	Above
Texas	Below
Utah	Below
Vermont	Above
Virginia	Above
Washington	Below
West Virginia	Above
Wisconsin	Below
Wyoming	Below

[a]This state was not included in our cost comparison.

I.10: States Above or Below Value of Herfindahl Index of Concentration (1980)

State	Above or Below Median Value
Alabama	Above
Alaska	Above
Arizona[a]	Above
Arkansas[a]	Above
California	Below
Colorado	Above
Connecticut	Below
Delaware	Above
District of Columbia	Above
Florida	Below
Georgia	Below
Hawaii[a]	Above
Idaho	Above
Illinois	Above
Indiana	Below
Iowa	Below
Kansas	Above
Kentucky[a]	Below
Louisiana	Above
Maine	Below
Maryland	Below
Massachusetts	Below
Michigan[a]	Above
Minnesota	Above
Mississippi	Above
Missouri	Above
Montana	Above
Nebraska	Below
Nevada	Above
New Hampshire	Below
New Jersey	Below
New Mexico[a]	Above
New York	Below
North Carolina	Below
North Dakota	Below
Ohio	Below
Oklahoma	Above
Oregon	Below
Pennsylvania	Below
Rhode Island	Below
South Carolina	Above

State	Above or Below Median Value
South Dakota[a]	Below
Tennessee	Below
Texas	Below
Utah	Above
Vermont	Below
Virginia	Below
Washington	Below
West Virginia	Above
Wisconsin	Above
Wyoming	Above

[a]This state was not included in our cost comparison

Regression Analysis

This appendix describes the regression analysis discussed in chapter 2. We estimated two equations for both liability and physical damage insurance coverage, one explaining differences in average premiums and the other explaining differences in the ratio of premiums to losses.

For the average premium equations, we included as explanatory variables: average losses for the corresponding type of coverage, a binary variable equal to one if the state fell into the noncompetitive rating classification (and equal to zero if the state was competitive), the percentage of miles driven in urban areas, a binary variable equal to one if the state had no-fault insurance (and zero if the state had a tort liability law), and a binary variable equal to one if the state has a compulsory liability law (and zero if the state had no such law). In addition, to examine whether the effect these factors had on premiums depended on the rating system used by the states, we included individual interaction terms for each of the regulatory factors (no-fault and compulsory liability laws) and urbanization equal to the product of the prior approval binary variable and the respective factor. For the premium-to-loss ratio regressions, we included as explanatory variables all of those included in the average premium equations with the exception of average losses.

The sample for these regressions consisted of information for each of the 44 states that maintained its rating system law from 1975 through 1982. We had 44 observations (one for each state in the sample) for each of the eight years in the sample, resulting in a total of 352 observations for the regression analysis. Average premiums and average losses were expressed in 1984 dollars. Each equation was estimated using the ordinary least squares technique. Tables II.1 through II.4 contain the results of these regressions.

Table II.1: Regression Analysis Results for Average Premiums—Liability Insurance

Independent Variable	Coefficient	t-Statistic
Constant	23.160	4.035
Average losses	1.102	29.263
Prior approval	21.139	2.886[a]
Urbanization	77.720	6.766[a]
No-fault liability	−11.314	−2.661[a]
Compulsory liability law	−8.364	−1.852
Prior approval x urbanization	−63.018	−4.396[a]
Prior approval x no-fault	5.358	0.821
Prior approval x compulsory liability	3.337	0.536
Number of Observations	352	
F Statistic	236.25	
Adjusted R^2	0.84	

[a]Significant at the 0.95 level of confidence.

Table II.2: Regression Analysis Results for Average Premiums—Physical Damage Insurance

Independent Variable	Coefficient	t-Statistic
Constant	23.403	3.815[a]
Average losses	1.142	21.540[a]
Prior approval	10.056	1.590
Urbanization	15.705	1.746
No-fault liability law	−7.373	−1.961[a]
Compulsory liability law	7.509	1.923
Prior approval x urbanization	−17.011	−1.371
Prior approval x no-fault	7.728	1.361
Prior approval x compulsory liability	−11.240	−2.078[a]
Number of Observations	352	
F Statistic	81.19	
Adjusted R^2	0.65	

Table II.3: Regression Analysis Results for Ratio of Premiums to Losses—Liability Insurance

Independent Variable	Coefficient	t-Statistic
Constant	1.551	40.601[a]
Prior approval	0.064	1.251
Urbanization	0.112	1.570
No-fault liability law	−0.100	−3.377[a]
Compulsory liability law	−0.082	−2.573[a]
Prior approval x urbanization	−0.274	−2.711[a]
Prior approval x no-fault	0.315	0.688
Prior approval x compulsory liability	0.019	0.442
Number of Observations	352	
F Statistic	11.45	
Adjusted R^2	0.17	

[a]Significant at the 0 95 level of confidence.

Table II.4: Regression Analysis Results for Ratio of Premiums to Losses—Physical Damage Insurance

Independent Variable	Coefficient	t-Statistic
Constant	1.523	32.589[a]
Prior approval	0.013	0.209
Urbanization	−0.068	−0.781
No-fault liability law	−0.008	−0.210
Compulsory liability law	0.062	1.598
Prior approval x urbanization	−0.070	−0.565
Prior approval x no-fault	0.017	0.298
Prior approval x compulsory liability	−0.072	−1.341
Number of Observations	352	
F Statistic	1.89	
Adjusted R^2	0.02	

[a]Significant at the 0.95 level of confidence.

The results of our regression analysis of average liability premiums show that, holding other influences constant:

1. A one percent increase in average losses is associated with a 0.75 percent increase in average premiums.

2. The effect of prior approval rate regulation depends on the degree of urbanization of a state.

- In states where only 20 percent of the miles traveled are in urban areas, prior approval is associated with a 4.3 percent increase in premiums.
- In states where 75 percent of the miles traveled are in urban areas, prior approval is associated with a 13.3 percent reduction in premiums.

- At the average level of urbanization in our sample (49 percent), prior approval is associated with a premium reduction of about 5 percent.

3. Greater urbanization has the effect of increasing premiums under either regulatory approach to rate setting. By itself, a 10 percent increase in the number of miles traveled in urban areas is associated with an increase in average premiums of 0.4 percent in competitive states and 0.07 percent in noncompetitive states.

4. The existence of a no-fault liability law is associated with a 5.8 percent reduction in premiums.

Specifically, the coefficient on average losses for liability insurance premiums is 1.102, indicating that for every one dollar increase in average losses, average premiums increase by about $1.10. The mean value of average premiums in our sample was $196.77 while the mean value of average losses was $133.64. Thus, a one percent increase in average losses increases average premiums by about 0.75 percent (since 1 percent of the mean value of average losses is 1.3364 which, when multiplied by 1.102, is 0.75 percent of average premiums).

Examining the effect of the rating system on premiums involves looking at the combined effect of the coefficient of the rating system, 21.139, and the coefficient of the interaction between the rating system and urbanization. Thus, the total effect is estimated to be:

$$\frac{\text{Change in average premium}}{\text{Change in prior approval status}} = 21.139 - 63.018 \times \text{Urbanization}$$

At the average level of urbanization in our sample (0.49), the total effect is $21.139 - (63.018) \times (0.49) = -9.740$. When expressed as a percentage of the mean value of average premiums ($196.77), our relationship is $-9.740/196.77 = -4.95$. This indicates that for a state having the mean value of miles driven in urban areas, average premiums are lower by about 4.95 percent if the state had noncompetitive rating laws. In the following table, we compute this relationship for alternative values of urbanization.

Table II.5: Effect of Urbanization on Prior Approval Relationship—Average Premiums for Liability Insurance

Urbanization	Prior Approval Relationship	Percentage Effect
0.20	21.139 - (63 018) x (0.20) = 8 535	+4.34
0.49[a]	21.139 - (63.018) x (0.49) = -9 740	−4.95
0.75	21.139 - (63.018) x (0 75) = -26.125	−13.28

[a]This is the mean value of urbanization in our sample

The effect that urbanization has on average premiums is measured by the coefficient of urbanization, given by 77.720, and the coefficient of the interaction between urbanization and the rating system, as follows:

$$\frac{\text{Change in average premium}}{\text{Change in Urbanization}} = 77.720 - 63.018 \text{ x (Prior Approval)}$$

For a competitive rating state, the prior approval binary variable equals zero, and so the relationship between average premiums and urbanization is given by the coefficient on urbanization, 77.720. Accordingly, a one percent increase in urbanization results in an increase in average premiums by about 0.40 percent. For noncompetitive rating states, the effect of urbanization is the result of 77.720 - 63.018 = 14.702, which translate to a 0.07 percent increase in average premiums for every one percent increase in urbanization.

The coefficient on the no-fault status of the state is -11.314. This indicates that average premiums are lower in no-fault states by about 5.75 percent (-11.314/196.77), regardless of the rating system. The coefficient on the compulsory liability status of the state is insignificant, indicating that average premiums are not affected by whether a state has a compulsory insurance law, other factors equal.

Our regressions reveal fewer significant relationships between physical damage premiums and the other factors. We found significant relationships between premiums and losses and the combination of compulsory insurance and prior approval laws in the state. But we found no other statistically significant relationships. In particular, for physical damage insurance, our regressions indicate that, other factors equal:

- A one percent increase in losses is associated with an increase of 0.8 percent in average premiums.
- In combination with a compulsory insurance law, prior approval rate regulation reduces premiums by an average of 8.1 percent.

Specifically, the coefficient on average losses is 1.14, indicating that a one dollar increase in losses results in a $1.14 increase in premiums. The mean value of average physical damage premiums in our sample was 139.057 and the mean value of average losses was 93.91. Thus, a one percent increase in losses results in an increase in average premiums of about 0.77 percent (1 percent of average physical damage losses is 0.94 which, when multiplied by 1.142, is 0.77 percent of average premiums).

The statistically significant effect of prior approval rate regulation is through the interaction between the prior approval status of the state and the compulsory liability status,

$$\frac{\text{Change in premiums}}{\text{Change in prior approval status}} = -11.240 \text{ x (compulsory liability)}$$

suggesting that the rating system lowers average physical damage premiums only in states having a compulsory liability law. The coefficient is -11.240, suggesting that average premiums are lower by about 8.08 (equal to -11.240/139.057) percent in noncompetitive states that also have compulsory insurance laws. The coefficient of the no-fault status of the state on average physical damage premiums is -7.373, indicating that average premiums for this type of coverage are lower in no-fault states by about 5.3 (equal to -7.373/139.057) percent. Our analysis of physical damage premiums also indicates that the extent of urbanization in the state has no significant effect on average premiums.

The regression relating the liability premium-to-loss ratio to these various factors indicates a significant effect from: (1) the existence of a no-fault law, (2) the existence of a compulsory insurance law, and (3) the combination of urbanization and prior approval rate regulation. The influence of prior approval rate regulation is no different in states having compulsory insurance or no-fault laws than in states not having such laws.

For liability, the results indicate, other things equal, that:

1. The effect of prior approval rate regulation varies with the degree of urbanization:

- In states where 20 percent of the miles traveled are in urban areas, prior approval regulation reduces the premium-to-loss ratio by 3.7 percent.

- In states where 75 percent of the miles traveled are in urban areas, prior approval reduces the premium-to-loss ratio by about 13.7 percent.
- At the average level of urbanization, prior approval reduces the premium-to-loss ratio by about 9 percent.

2. A no-fault law reduces the premium-to-loss ratio by 6.7 percent.

3. A compulsory insurance law reduces the premium-to-loss ratio by about 5.5 percent.

Specifically, the average ratio of premiums to losses in our sample was 1.05 and the coefficient on the rating system was -0.274. This implies that prior approval rate regulation reduces the ratio of premiums to losses by about 8.96 percent in a state having the average extent of urbanization. In table II.6, we calculate this effect for different degrees of urbanization.

Table II.6: Effect of Urbanization on Prior Approval Relationship—Ratio of Premiums to Losses For Liability Insurance

Urbanization	Prior Approval Relationship	Percentage Effect
0.20	−0.274 x (0.20) = −0.055	−3.66
0.49[a]	−0.274 x (0.49) = −0.134	−8.96
0.75	−0.274 x (0.75) = −0.2055	−13.72

[a]This is the mean value of urbanization in the sample.

Viewed differently, the relationship between the rating system and the premium-to-loss ratio suggests that a one percent increase in the extent of urbanization (in the state) reduces the premium-to-loss ratio by about 0.14 percent in noncompetitive rating states, but has no effect on this ratio in competitive rating states.

The estimated coefficient on no-fault status is -0.100, indicating that the ratio of premiums to losses in no-fault states is lower by about 6.71 percent, regardless of the rating system.

The estimated coefficient on compulsory liability status is -0.082, indicating that compulsory liability laws lower the ratio of premiums to losses in compulsory liability states by about 5.47 percent.

The premium-to-loss ratio regression for physical damage insurance revealed no significant effects from any of the explanatory variables, or interactions, included in the regression.

To determine how sensitive the regression results are to different specifications, we estimated a number of variants. First, we estimated these regressions using binary variables for each of the years (1975 to 1982) of the sample to capture the possible effect the time period might have on the relationship between the explanatory variables and the dependent variable. Second, we estimated these equations with a time trend and this time trend squared. Both of these variants caused little change from the original regressions that we report here.

In addition, we estimated the model in a way that accounts for both state-by-state variations and variations between years in premiums, losses, and the other explanatory variables. Again, the results were essentially unchanged from the original regressions that we report here.

Finally, to account for the possibility that the relationship between premium and losses is simultaneous, we estimated the average premium equations using instrumental variables techniques, that treat both premiums and losses as dependent variables, determined jointly by those variables included in the above regressions and variables believed to affect losses directly. Again, the results of these regressions were essentially no different than those reported here.

Driving Record Surcharges in North Carolina and Massachusetts

North Carolina

The North Carolina Safe Driver Insurance Plan imposes surcharges based on the following point system:

12 points:

- prearranged racing
- lending a vehicle for prearranged racing
- hit-and-run accident causing injury or death
- manslaughter or negligent homicide

10 points:

- driving while under the influence of alcohol or drugs
- driving while impaired
- transporting illegal intoxicating liquors by motor vehicle for the purpose of sale
- highway racing
- lending a motor vehicle for a race

8 points:

- driving with an operator's license that is suspended or revoked

4 points:

- failing to report an accident
- hit-and-run driving causing property damage
- leaving the scene of an accident that caused property damage
- reckless driving
- passing a stopped school bus
- speeding over 75 miles per hour

2 points:

- causing an accident in which total damage exceeds $500 (Before Jan. 1, 1984, the figure was $200.)
- illegal passing
- following too closely
- driving on the wrong side of the road
- speeding between 55 and 75 miles per hour
- accident involving personal injury or death

1 point:

All other moving traffic violations, including

- speeding
- unsafe movements
- running red lights and stop signs
- improper turning
- causing an accident in which total damage is under $500. (Before Jan. 1 1984, the figure was $200.)

0 points:

- speeding less than 10 miles per hour, provided that the citation did not occur in a school zone and the driver had no moving traffic violations or at-fault accidents in the previous 3 years
- driving with an inadequate muffler
- failing to have an operator's license in possession if a valid one exists
- failing to display a current inspection sticker

In North Carolina the base rate on liability coverage is increased by a percentage surcharge for each conviction for a period of three years.

- A 12-point incident brings a 450% surcharge.
- A 10-point incident brings a 350% surcharge.
- An 8-point incident brings a 250% surcharge.
- A 4-point incident brings a 150% surcharge.
- A 2-point incident brings a 40% surcharge.
- A 1-point incident brings a 10% surcharge.

In addition to this surcharge, another surcharge is assessed all drivers with points. In 1986, this surcharge is 38.9%.

Massachusetts

The Massachusetts Safe Driver Insurance Plan combines safe driver credit and unsafe driver points.

A vehicle is eligible for a safe driver credit if

- the listed driver assigned to the vehicle has a valid Massachusetts license; and
- the listed driver assigned to the vehicle has not had an at-fault accident or motor vehicle law violation resulting in a surcharge in the 3-year policy period; and

- the vehicle is not rated as principally operated by a driver with fewer than 3 years of experience.

The unsafe driver point system ranges from zero to four points.

Four points are assigned for a major moving traffic violation such as

- vehicular homicide,
- driving under the influence,
- driving to endanger or reckless driving, or
- driving after license revocation.

Three points are assigned for a major at-fault accident (defined as an accident involving a claim payment of more than $1,500).

Two points are assigned for a minor at-fault accident (defined as an accident involving a claim payment of more than $200 but less than $1,500).

One point is assigned for all minor moving traffic violations after the first noncriminal minor moving traffic violation.

Zero points are assigned for the first, noncriminal minor moving traffic violation. (But this class of violation will result in denial of a safe driver credit.)

If the listed driver is convicted of a moving traffic violation or assigned to an alcohol education program, the Massachusetts court will notify the Merit Rating Board. Moving traffic violations outside Massachusetts are not considered when determining point totals.

One point for each incident (except major moving traffic violations) is subtracted from the point total for each 12-month period of violation-free driving between the surcharge date of the last incident and the policy's effective date. This process is known as aging. Points for incidents within the experience period can never fall below zero. Incidents may age to zero unsafe driver points, but the incidents remain on the driver's record for the duration of the experience period and result in denial of a safe driver credit.

The Massachusetts system assigns flat charges for unsafe driver point totals.[1]

- For a total of one point the premium increase is $ 50.
- For a total of two points the premium increase is $100.
- For a total of three points the premium increase is $150.
- For a total of four points the premium increase is $225.
- For a total of five points the premium increase is $300.
- For a total of six points the Premium increase if $375.
- For a total of seven points the premium increase is $450.
- For a total of eight points the premium increase is $525.
- For a total of more than eight points the premium increase is $675.

[1]A safe driver credit is calculated by multiplying the property damage liability coverage premium by 32 percent (a maximum of $50 per vehicle).

Request Letter From Chairman, James J. Florio Subcommittee on Commerce, Transportation, and Tourism House Committee on Energy and Commerce

Honorable Charles A. Bowsher
Comptroller General of the
United States
441 G Street, N. W.
Washington, D. C. 20548

Dear Mr. Bowsher:

I am writing to request that the General Accounting Office undertake a study of certain aspects of the insurance industry as more fully described below.

As Chairman of the House subcommittee with jurisdiction over insurance, I have come increasingly to believe in recent months that we are in need of better information and analysis if we are to meet our legislative responsibilities in this area. I have read the 1979 GAO insurance study and find it a good starting point; but further elaboration and new analysis appear warranted. Since the preparation of the 1979 study, we have had the report of the President's National Commission for the Review of Antitrust Laws and Procedures with its recommendation of repeal of the McCarran-Ferguson Act. There continue to be changes in state supervision of insurance, with increasing deregulation. Recently, our Subcommittee held hearings on discrimination in insurance, raising a host of questions about rating classifications.

From many of these sources, there are increasing indications that previous approaches to insurance regulation may have outlived their usefulness and may contain rigidities and inefficiencies that are not in the public interest. This evidence suggests that, as with other previously overregulated industries, increased competition may be highly desirable. At the same time, there are certain characteristics of the performance of insurance markets that suggest that competition may have to be structured in order to achieve certain other public policy goals. My request for further study is directed

at further elaborating the mix of competition and regulation that will best reconcile objectives of affordability, availability, non-discrimination, profitability, and efficiency. Accordingly, I request that the GAO study and report to the Congress on the following points:

1. Identify examples of inefficiencies resulting from restrictions on competition in the insurance industry and provide estimates in dollar terms, of the cost to consumers, for selected kinds of inefficiencies.

2. A major goal of public policy must be ensuring the wide availability of insurance of various kinds. Assess the compatibility of competition with wide availability. What methods have been used to ensure availability? How do they interact with goals of affordability, profitability, and use of non-discriminatory rate classifications?

3. Assess the compatibility of competition with non-discriminatory rate classifications. Can the needs of insurers be reconciled with fairness to consumers under a competitive approach? What different departures from competition in rate classifications have been attempted? How do they interact with goals of affordability, availability, and profitability? What is the predictive value of current rate classifications?

4. What is the impact of increased information regarding policy provisions, price, and service, on the operation of competition and on affordability, availability, profitability and use of non-discriminatory classifications?

It is recognized that exhaustive treatment of these questions might require an unrealistically large expenditure of time and resources. Accordingly, I assume that you will use case studies and analysis of selected states and markets to facilitate your analysis. I also understand that you may need to undertake preliminary feasibility studies first.

As you go forward with your inquiry, I would appreciate your continuing consultation. I have requested the staff of my Subcommittee to work with you as you proceed.

Sincerely yours,

James J. Florio, Chairman
Subcommittee on
Commerce, Transportation and Tourism

Request Letter From Chairman Peter W. Rodino, Jr. House Committee on the Judiciary

U.S. House of Representatives
Committee on the Judiciary
Washington, D.C. 20515
Telephone: 202-225-3951

March 5, 1984

Honorable Charles A. Bowsher
Comptroller General of the
United States
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Bowsher:

In the near future, the Subcommittee on Monopolies and Commercial Law will begin hearings on the antitrust exemption granted the insurance industry by the McCarran-Ferguson Act. The Subcommittee is reviewing this exemption to ascertain whether it has outlived its usefulness and whether the current restrictions on competition in the insurance industry have lead to artifically high prices.

Last April, Congressman Florio, Chairman of the Subcommittee on Commerce, Transportation and Tourism of the House Committee on Energy and Commerce, requested that G.A.O. examine competition and regulation in the insurance industry as they affect affordability, availability, non-discrimination, profitability, and efficiency. I believe the findings of this examination would be very useful to the Subcommittee on Monopolies in its review of the McCarran-Ferguson Act. Each topic of study requested by Congressman Florio is important. At this time, this Subcommittee is particularly interested in any inefficiencies that result from restrictions on competition and the cost to consumers of these inefficiencies.

Therefore, I urge you to complete the study requested by Congressman Florio as quickly as possible and ask that you provide the Subcommittee on Monopolies with a copy of your findings. I have asked by staff to work with you and with the staff of the Subcommittee on Commerce, Transportation and Tourism as you complete the study.

With best wishes,

Sincerely,

Peter W. Rodino

PETER W. RODINO, JR.
Chairman

PRW:mfw
cc: Honorable James J. Florio

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Glossary

Assigned-Risk Plan	A system, officially known as the "automobile insurance plan," that makes auto insurance available to customers to whom companies will not sell insurance voluntarily by assigning customers to companies in proportion to the amount of business written voluntarily by each company in the state. The company bears all the losses of its customers assigned in this way and keeps all the premiums. Unlike a joint underwriting association or reinsurance facility, the assigned-risk plan is not a pool: Premiums and losses of individual customers are not shared. While the company is required to sell insurance to the customer, the requirement is often limited to liability insurance (rather than property damage insurance), and the amount of coverage that must be offered is usually limited. See "joint underwriting association" and "reinsurance facility."
Automobile Insurance Plan	Formerly called and still sometimes referred to as an "assigned risk" plan, this program makes automobile insurance available to people who are unable to obtain such insurance in the voluntary market.
Automobile Liability Insurance	Protection for the insured against financial loss because of legal liability for car-related injuries to others or damage to their property.
Automobile Physical Damage Insurance	Coverage to pay for damage to or loss of policyholder's automobile resulting from collision, fire, theft, or other perils.
Car-Year	A measure of policy length used by insurance companies to account for policies that are in effect for only part of the year. A policy in force for only three months would count for one-fourth of a year.
Casualty Insurance	Insurance concerned primarily with the insured's legal liability for injuries to others or for damage to other peoples' property; casualty insurance also encompasses such forms of insurance as plate glass, burglary, robbery, and workers' compensation.
Car-Year of Insurance	A statistical adjustment to the number of policies issued to account for policies which insure more than one car.

Claim	A request to recover under an insurance policy for a loss covered by that policy.
Collision Insurance	Automobile insurance coverage against damage to the policyholder's vehicle caused by collision with another car or object or by upset.
Competitive Rating	A system of price regulation in which prices need not be approved by the insurance commissioner in advance but are subject to challenge after they have gone into effect. Pioneered by California in 1947, competitive rating is now used by about 25 states. See "prior approval."
Compulsory Insurance Law	A state law that requires that all owners of automobiles buy insurance for their cars. The laws apply only to liability coverage and specify the minimum coverage that must be purchased. Enforcement provisions vary widely. States that do not have compulsory insurance laws generally have "financial responsibility" laws that require that automobile owners either buy insurance or demonstrate that they have sufficient assets to pay a liability claim in the event of an accident. This requirement usually applies only to people who have already had an accident.
Concentration Ratio	The proportion of sales made in a market by a specified number of the market's largest firms. For example, the "three-firm concentration ratio" is the percentage of sales in the market made by the largest three firms.
Fictitious Group Law	A state law that restricts or prohibits sales of group insurance to "fictitious groups." A "fictitious group" is a group organized principally for the purpose of buying insurance.
Financial Responsibility Law	A state law under which a person who has been involved in an automobile accident may be required to furnish security up to certain minimum dollar limits.
Herfindahl Index	A measure of industry concentration defined as the sum of the squared market shares of each firm in a particular industry.

Insurance	A system under which individuals, businesses, and other organizations or entities, in exchange for payment of a sum of money (a premium), are guaranteed compensation for losses resulting from certain perils under specified conditions.
Insurance Company	An organization chartered to operate as an insurer.
Insured	A person or an organization covered by an insurance policy, including the "named insured" and any other parties for whom protection is provided under the policy terms.
Investment Income	The portion of a company's income that is derived from its investments, including interest and dividends on stock and bonds.
Involuntary Market	Insurance policies that are sold involuntarily by insurance companies in compliance with state law to customers who fail to meet the companies' underwriting standards. The customers buy the policies voluntarily, but the companies sell the policies involuntarily. In auto insurance, this market takes the form in most states of an assigned-risk plan, but in some states the involuntary market takes the form of a reinsurance facility or a joint underwriting association. Premiums in the involuntary market are typically not high enough to pay all the claims. Consequently, premiums in the voluntary market are raised sufficiently to cover the losses in the involuntary market. See "voluntary market."
Joint Underwriting Association	A type of involuntary market system in which customers rejected by the voluntary market are insured through a vehicle (a joint underwriting association) that operates, in effect, as a separate company. The joint underwriting association uses five or ten regular insurance companies as servicing agents to process applications and claims. The gains or, more usually, losses of the joint underwriting association are shared by all companies in proportion to the volume of their voluntary business. This system avoids the "Russian roulette" character of the assigned-risk plan, in which companies run the risk of having to bear all the losses of a particularly high-risk customer. However, like the assigned-risk plan, customers are assigned to the joint underwriting association and cannot

	choose the company with whom they will be insured. See "assigned-risk plan" and "reinsurance facility."
Liability	Any legally enforceable obligation.
Liability Insurance	Insurance covering the policyholder's legal liability resulting from injuries to other people or damage to their property.
Liability Limits	The stipulated sum or sums beyond which an insurance company is not liable to protect the insured.
Loss	The basis on which an insurance claim is submitted and/or paid.
Loss Ratio	The ratio of losses to premiums.
Net Underwriting Profit or Loss	Statutory underwriting profit less (or loss plus) dividends to policyholders.
No-Fault Insurance Law	A no-fault law limits the ability of an injured party to sue for recovery of damages and for pain and suffering. Instead of recovering from the liable party, the injured party recovers from his own insurance company through "personal injury protection" coverage. The law thus avoids the necessity of determining, through expensive litigation, who is at fault in the accident. Under this approach, suits for pain and suffering can only be instituted when medical losses exceed the amount of a "tort threshold," which generally varies from $200 to $5000. Some states have "verbal thresholds" that state that pain and suffering suits can only be filed if certain specified losses have been incurred, typically the loss of a limb, eyesight, or other physical disfigurement. Using this approach; litigation is only avoided in cases in which the medical losses are less than the threshold. Insurance companies are required to offer personal injury protection coverage up to at least a legally specified minimum; in some states, the insured is also required to buy it.

No-Fault Automobile Insurance	A form of insurance by which a person's financial losses resulting from an automobile accident, such as medical and hospital expenses and loss of income, are paid by his or her insurer regardless of who was at fault.
Personal Lines	Those types of insurance, such as auto or home insurance, for individuals or families rather than for businesses or organizations.
Policy	A contract of insurance.
Policyholder	A person who pays a premium to an insurance company in exchange for the protection provided by a policy of insurance.
Policyholder's Surplus	The amount an insurance company has left after liabilities are deducted from assets. Paid-in capital and special voluntary reserves are included under this term. This surplus is an additional financial protection to policyholders in the event that a company suffers unexpected or catastrophic losses. In effect, the policyholder's surplus is the financial base that permits a company to sell insurance.
Premium	The sum paid for an insurance policy. Net premiums written represent premium income retained by insurance companies, directly or through reinsurance, minus payments made for business reinsured. Direct written premiums are the amounts actually paid by policyholders.
Prior Approval	A system of price regulation in which prices must be approved by the insurance commissioner before going into effect. See "competitive rating."
Property Insurance	Insurance providing financial protection against loss of or damage to real and personal property caused by such perils as fire, theft, windstorm, hail, explosion, riot, aircraft, motor vehicles, vandalism, malicious mischief, riot and civil commotion, and smoke.

Rating Bureau (Organization)	An organization that serves participating insurers by gathering, storing and disseminating statistical information to regulators, and to insurers for their own use. These organizations develop and assist in implementing programs that help define and cover risk and promulgate advisory rates or advisory prospective loss costs for both personal and commercial lines of insurance. Three states, Texas, Massachusetts, and North Carolina have independent rating bureaus which operate only within those states. There are several ratemaking organizations that are licensed to operate within the other states, the largest of which is the Insurance Services Office for property-casualty insurance.
Reinsurance	Assumption by one insurance company of all or part of a risk undertaken by another insurance company.
Reinsurance Facility	A type of involuntary market plan in which the insurance company is required to accept every customer who applies, but is allowed to transfer the liability for losses incurred on particular policies to a type of joint underwriting association known as a reinsurance facility. If this liability is transferred, the company also relinquishes part of the premium associated with bearing this liability. The policy is serviced by the company to which the customer originally applied, so the customer may not even be aware of the fact that his or her insurance has been ceded. The company is required to sell the insurance at the same prices and with the same coverage as it would for its nonceded customers. The operating losses of this facility are shared by all companies operating in the state in proportion to the volume of their business. See "assigned risk plan" and "joint underwriting association."
Risk	The chance of loss. Also used to refer to the insured or to property covered by a policy.
Risk Classification System	A system that assigns customers to well-defined risk classes, each of which pays a distinct rate, based on statistical data about losses sustained in the past by people in that risk class. See "underwriting."
Standard Market	The market consisting of customers who are accepted voluntarily by insurance companies without having first been refused insurance by some other company. The boundaries of this market are imprecise, since

	companies operating within this market vary in their underwriting standards, and some customers might be rejected by some companies within this market but accepted by others. Some observers refer to a "preferred risk" market consisting of those with lower risk than the standard risk market, but this is more common in life insurance. Prices vary substantially even within the standard market. State laws against unfair discrimination generally prohibit a company from charging two customers different prices for the same coverage unless the customers fall into two separate risk classifications, in which case the rate differential between the two risk classifications must be justified statistically. As a result, companies that sell both standard and substandard insurance must do so through separate subsidiaries, since the underwriting decision about whether to insure someone at standard or substandard rates is not based on statistically validated criteria. In these cases, one subsidiary can clearly be assigned to the standard market and the other to the substandard market. See "substandard market."
Substandard Market	The market consisting of customers who have been adjudged, through the underwriting process, to be substandard (that is, high) risks. The term also refers to the insurance companies that specialize in selling insurance to such customers. The substandard market is considered part of the voluntary market, because the companies sell voluntarily to the customers. See "standard market."
Tort	A wrongful act, resulting in injury or damage, on which a civil action may be based. Does not apply to a breach of contract.
Underwriting	The process of selecting risks for insurance and determining in what amounts and on what terms the insurance company will accept the risks.
Voluntary Market	Customers who are sold insurance voluntarily by their insurance company. Includes both standard and substandard submarkets. See "involuntary market."

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