Risk segmentation: goal or problem?

Roger Feldman*, Bryan Dowd

Division of Health Services Research and Policy, University of Minnesota, 420 Delaware St., SE, Box 729, Minneapolis, MN 55455, USA

Abstract

This paper traces the evolution of economists’ views about risk segmentation in health insurance markets. Originally seen as a desirable goal, risk segmentation has come to be viewed as leading to abnormal profits, wasted resources, and inefficient limitations on coverage and services. We suggest that risk segmentation may be efficient if one takes an ex post view (i.e., after consumers’ risks are known). From this perspective, managed care may be a much better method for achieving risk segmentation than limitations on coverage. The most serious objection to risk segmentation is the ex ante concern that it undermines long-term insurance contracts that would protect consumers against changes in lifetime risk.

1. Introduction

Whenever consumers are offered multiple health plans, it is unlikely that an identical distribution of health risks will select every plan. The degree to which the distribution of risks varies among health plans, and the impact of risk variation on the efficiency and fairness of the health care system, are topics of considerable interest to health economists. There appears to be a growing consensus that risk segmentation is undesirable, that “risk-adjusted” payments to health plans are necessary either to forestall risk segmentation or to offset its effects, and even that competitive approaches to allocating health care resources may not be viable without such adjustments.

* Corresponding author. Tel.: +1-612-624-5669, fax: +1-612-624-2196.
E-mail address: feldm002@tc.umn.edu (R. Feldman).

0167-6296/00/$ - see front matter © 2000 Elsevier Science B.V. All rights reserved.
PII: S0167-6296(00)00051-5
Our goal is to discuss the optimal pricing of health insurance plans. A synthesis of the literature is needed because different authors have compared different contracts and have used different perspectives on the problem. We begin by reviewing how the analysis of risk segmentation has changed over the last 20 years. Specifically, in the 1970s health economists thought risk segmentation was efficient because their perspective was after people know their health-risk status (ex post). Current concerns over the efficiency of risk segmentation are based on a model in which people make choices before they know their health-risk status (ex ante).

The paper is organized as follows. In Section 2, we discuss the efficiency of ex post risk segmentation, and suggest that managed care may address some long-standing problems that impeded efficient ex post segmentation of risk. In Section 3, we discuss how the goal of efficient ex post risk segmentation became a problem when risk segmentation was viewed from an ex ante perspective. In Section 4, we suggest ways to improve efficiency from both an ex post and ex ante perspective. Finally, we compare concerns about efficiency vs. fairness in an ex ante, multi-period world where people do not know their future risk status.

2. The ex post efficiency of risk segmentation

The current interest in risk segmentation is preceded by a rich history in the health economics literature. Arrow (1963) noted that “hypotheically, insurance requires for its full social benefit, a maximum possible discrimination of risks”. However, Arrow believed that insurance markets display “a tendency to equalize, rather than to differentiate premiums,” thus redistributing income from low-risk to high-risk consumers. Arrow interpreted this tendency as evidence that the market was not “genuinely competitive,” because in a competitive market any plan that failed to charge lower premiums to low-risk consumers would lose those consumers to competing insurers who charged lower premiums.

Arrow’s crucial point was that competition leads to increased efficiency in health insurance markets by forcing the segmentation of risks. As explained in greater detail by Pauly (1970), Arrow’s reasoning was simple: when consumers in different risk classes face an average or “community-rated” premium, low risks pay too much for coverage and demand an inefficiently low level of coverage, while high risks pay too low a price and demand too much coverage.

Rothschild and Stiglitz (1976) (RS) provided a different rationale for the efficiency of risk segmentation. They compared markets in which insurers have perfect information about the risk of the insured population, to markets with imperfect information. RS show that experience-rated policies will be offered to each risk class of consumers. When insurers have perfect information, the resulting “separating” equilibrium is efficient for both groups. However, if insurers cannot distinguish between the two types of consumers, their only strategy

is to offer policies with characteristics that induce consumers to reveal their risk ex post (by choosing one plan vs. another). RS refer to these policy characteristics as “self-selection mechanisms.” The specific self-selection mechanism they discuss is the extent of coverage (e.g., the coinsurance rate). The policy intended for low risks must have such a low level of coverage that it is not chosen by high risks. Because low risks cannot buy the amount of coverage they would like at premiums that are actuarially fair for their group, RS conclude that the separating equilibrium under imperfect information is not efficient.

Thus, Arrow, Pauly, and RS reached the same conclusion for very different reasons. Arrow and Pauly argued that the decision to pool risks through community-rated premiums induced market failure by distorting prices. RS argued that failure to segment risks was the result of market failure in the form of poor insurer information.

Imperfect information led to inefficiency in the RS model because coverage is an imperfect self-selection mechanism. If a better self-selection mechanism could be discovered, then a Pareto-superior equilibrium could be attained. With better technology, insurers could create policies designed specifically to appeal to low and high risks. Thus, throughout the 1960s and 1970s, economists’ primary concern with risk segmentation was how to achieve it. The discovery of a self-selection mechanism more effective than coverage would have been hailed as the solution to inefficiency in the market for health insurance.

The market did not have to wait long. By the early 1980s, a new type of self-selection mechanism had arrived in the form of managed care. Because managed care — particularly the type of managed care that uses restricted provider networks — appears to be more attractive to low-risk consumers than high-risk consumers (Brown et al., 1993; Hellinger, 1995), managed care might allow low risks to purchase more generous coverage (i.e., reduced cost-sharing) without fear that “their” plan will attract high risks. Managed care is by no means a perfect or costless self-selection mechanism, either to consumers or insurers (Newhouse, 1996). Low risks might reject managed care if risks could be segmented some other way, but they may find managed care less onerous than subsiding premiums for high risks, if it lets them buy coverage at prices that are actuarially fair for their risk group. Thus, managed care may be an efficiency-improving self-selection mechanism.

3. The goal becomes a problem

No sooner had managed care demonstrated its ability to segment risks, than risk segmentation began to be viewed not as a goal, but as a problem. Jones (1989) referred to risk selection as “the fundamental and possibly fatal flaw in multiple choice’s potential to contain costs.” Robinson et al. (1991) stated that “biased selection is the Achilles heel of market-oriented proposals.” Two types of
selection were discussed in the literature: passive and active selection. Some characteristics of managed care plans, such as restricted provider networks, seemed to attract low risks "passively," while in other cases, managed care plans appeared actively to pursue low-risk consumers. Risk segmentation was linked to several different concerns in the ex post world: abnormal profits, wasted resources, and inefficient limitations on coverage and services. In the ex ante world, risk segmentation was thought to result from an absence of long-term health insurance contracts.

3.1. Ex post efficiency concerns

In the early 1980s, employers were warned that passive selection and "shadow pricing" could lead to abnormal HMO profits. Shadow pricing was the name given to the HMOs' alleged practice of pricing their products just below the competing fee-for-service (FFS) plan, despite the fact that their average costs were much lower, in part due to favorable selection. These admonitions were supported by empirical analyses of Jackson-Beeck and Kleinman (1983), Jensen et al. (1984), and Feldman et al. (1993).

Robinson et al. (1991) stated that "plans benefiting from favorable selection enjoy undeserved profits while plans suffering from adverse selection experience undeserved losses." This situation could be avoided if health plans' revenue matched the cost of caring for enrollees. They did not think that the match between revenue and costs could be achieved by competition, however. In fact, they noted that "a consensus is growing that biased selection is a large problem in health care markets and is becoming more serious as the degree of price competition increases."

Pauly (1985) noted that concerns about abnormal profits lacked a strong theoretical foundation. For example, if plans enrolling high-risk consumers lose money and are driven from the market, how can the remaining plans enjoy "undeserved" profits? Won't competition among the remaining plans that enroll the full distribution of risks remove any excess profits? In fact, why won't competition eliminate profits before any plans are driven from the market? These questions remained unanswered, and largely unaddressed.

The theory of wasted resources was advanced by Jones (1989), who was concerned that health plans will expend resources on pursuing low risks that could be devoted to improving patient care. Rogal and Gauthier (1998) state that "plans gain more by competing on the basis of risk selection than they do by competing on the basis of cost efficiency and quality." These assertions could be questioned on several grounds. First, health plans do not face a fixed constraint on the resources they can spend. If the benefits of pursuing low risks outweigh the costs of that activity, health plan will pursue low risks. If the benefits of improving efficiency and quality outweigh the cost of using resources to those ends, then health plans will improve efficiency and quality. Not only are the two goals not
mutually exclusive, the empirical evidence suggests that they may be complementary.

We know that HMOs reduce the utilization of services and spending by enrollees (Miller and Luft, 1994). Quality of care in HMOs generally is equal to quality in the FFS sector (Miller and Luft, 1997). Finally, managed care plans (particularly, those with restricted provider networks) enroll lower-risk beneficiaries than plans with broad provider networks. Thus, efficiency and quality appear to be pursued concurrently with selection of low risks and may be inseparable from risk selection. If consumers can choose among health plans, efficiency, quality and favorable risk selection may even be joint products.

Luft (1995) and Cutler and Zeckhauser (1998) discuss a particular cost that might be associated with attempts to segment risks. In their attempts to avoid high risks, health plans might reduce services or quality of care below levels that some consumers demand. Implicit in this criticism is the notion that managed care, in the form of restrictive provider networks, is not an effective self-selection mechanism. To achieve the desired level of risk segmentation, health plans also must cut quality.

This criticism does not involve poor consumer information about quality. In fact, if consumers did not know that health plans were cutting quality, then the cuts would have no value as a self-selection mechanism. Also, the cuts in quality need not affect all consumers, although that could occur. High-risk consumers might continue to purchase high quality, if they are willing to pay premiums that are actuarially fair for their risk class. However, to purchase full coverage at fair prices, the low risks must give up high quality.

Although it seems obvious that health plans that wish to avoid high risks should not contract with high-quality providers, there is surprisingly little empirical evidence of quality-cutting. As noted previously, Miller and Luft (1997) found that quality of care in the HMO and FFS sectors generally is equivalent. A case study found that four HMOs were willing to contract for tertiary care services with two prestigious teaching hospitals in their market (Rubenstein et al., 1995). All of the HMOs mentioned that they sought quality care. However, they also agreed that their primary purpose is to provide care, rather than to under-write medical education and research. They would not contract with a medical center that couldn’t meet the price of other hospitals.

Our own research (Feldman et al., 1990) indicates that the presence of an approved residency program or medical school affiliation increases the likelihood that a staff or network-model HMO will contract with a hospital. This finding also is inconsistent with the theory that HMOs will shun high-quality hospitals because they attract sicker enrollees.

IPA-model HMOs appeared to choose hospitals on the basis of physician affiliation rather than hospital characteristics.
If quality restrictions were used to encourage favorable risk selection, would those practices necessarily be inefficient? Although the answer appears to be "yes," we must not forget that low risks pay lower premiums because of risk segmentation. Given the choice between unrestricted access to high-quality care and low premiums, we cannot rule out the possibility that some low-risk consumers might prefer low premiums, even if quality of care is lower. If consumers have good information, market entry is free and prices are not distorted, then with respect to the arguments discussed thus far, their choice is efficient.

3.2. The ex ante efficiency concern

The ex ante concern about the efficiency of risk segmentation is that it might result from a failure of the market to provide long-term health insurance contracts (Arrow, 1963; Dowd and Feldman, 1992). The widespread purchase of insurance suggests that most consumers are risk averse. Therefore, they should want long-term insurance contracts that protect them against exogenous changes in health risk. Yet, unlike life insurance contracts, long-term health insurance contracts are rare. Are they rare because of technical problems, or as a result of consumer preferences?

Long-term contracts may be technically unenforceable on consumers in the individual insurance market because low-risk consumers can’t be induced to stay in the insurance pool after their lifetime risk is known. Long-term contracts exist in life insurance, however, even though consumers develop different risks of mortality over time. An important difference between life and health insurance is that moral hazard is less important in life insurance. Perhaps long-term health insurance contracts are inefficient, because consumers would not take care of their health if it were insured by a long-term contract.

Another possibility is that long-term health insurance contracts are difficult to enforce on insurers. A long-term contract with a single insurer could experience quality problems because of lack of competition over time (Dowd and Feldman, 1992). In that case, a long-term contract might be technically feasible, but the costs of such contracts (poor quality and high prices) could outweigh the benefits.

Circumstantial evidence from the group insurance market suggests that consumers may not want long-term health insurance contracts even when they are feasible. In the past, employers offered only one health plan which typically

---

2 Economists generally model health insurance as a multi-period problem. All consumers are identical and low-risk in the first period, but some consumers become high-risk in subsequent periods, while others remain low-risk. By "lifetime risk," we mean the consumer’s risk in subsequent periods. See Cochrane (1995) and Pauly et al. (1995) for proposed solutions to the problem of enforcing long-term health insurance contracts.
charged all employees in a firm one premium. Employees thus had a long-term health insurance contract, at least for the period that they remained employed (Dowd and Feldman, 1992). The introduction of multiple health plans — particularly, a choice between managed care and traditional FFS plans — provided a mechanism for low risks to separate themselves from high risks at any open enrollment period, which typically occurs once a year. Thus, many consumers in the group insurance market seem to have replaced a technically feasible long-term contract with short-term contracts.

In our view, most of the concerns about risk segmentation expressed in this section: abnormal profits, wasted resources, and inefficient restrictions on quality, have shaky theoretical foundations and ignore the positive benefits of risk segmentation. The most serious objection appears to be the ex ante concern about the absence of long-term health insurance contracts. We will return to discuss risk segmentation in a long-term setting after explaining how to achieve the efficient level of risk segmentation in a one-period (ex post) setting.

4. The efficient level of risk segmentation

4.1. The efficient ex post level of risk segmentation

In a one-period setting, managed care allows low risks to purchase full-coverage health insurance at a low price, without fear that “their” plan will attract high risks. The cost of using managed care to segment risks is the restriction on consumers’ freedom of choice. Because managed care has both benefits and costs as a risk-segmentation mechanism, our primary concern is not how to prevent segmentation, but how to achieve the efficient level of it.

Once risk types are known, the optimal level of risk segmentation could be achieved if the number of health plans exactly matched the number of risk types, and each plan had some characteristic that perfectly selected one risk type. We are concerned about a case that is closer to the real world: where there is a continuum of risk types, but only a discrete number of health plans. We first define the efficient level of risk segmentation, and then suggest three ways to achieve it.

To define the efficient level of risk selection, we use a model that was developed by Feldman and Dowd (1982) (FD) to predict the pricing behavior of health insurance plans. Relaxing the RS assumption of two risk classes, FD assumed a continuum of risks but only two types of health plans: one type that appeals to low risks, and another type that appeals to high risks. For simplicity, these are labeled as “HMO” (or managed care) and “FFS” plans. Based on their observations of how health plans set premiums for employment-based groups, FD added the restriction that each plan charges only one premium, based on the
group’s experience. They also assumed that HMOs produce health more efficiently than FFS plans.

The FD model is shown in Fig. 1, where the horizontal axis represents HMO market share, and the vertical axis represents dollars. $\psi$ measures consumers’ willingness to pay for the FFS plan vs. the HMO (measured in dollars). For the $i$th consumer, $\psi_i = \psi_{Fi} - \psi_{Hi}$, where the subscripts F and H refer to the FFS and HMO plans, respectively. The factors in $\psi$ include all characteristics of the health plan except premiums, e.g., coverage, waiting times, and access to providers. A consumer chooses the FFS plan if $\psi_i$ exceeds the difference in out-of-pocket premiums between the two plans. Some consumers may be willing to pay more for the HMO than the FFS plan (i.e., they have a negative value of $\psi$). Fig. 1 shows the distribution of consumers, ordered by $\psi$ from the lowest value $\psi_{\text{min}}$ to $\psi_{\text{max}}$.

FD assumed that consumers join the HMO in order of increasing risk (measured by expected medical spending), starting with the lowest risks. For this reason, the line in Fig. 1 labeled “difference in marginal costs” starts at zero because the first person to join the HMO has very low risk in either system. The difference in marginal costs increases as the HMO’s market share increases, due to the HMO’s efficiency advantage (e.g., a moderate risk might cost US$300 per month in the FFS plan and US$150 in the HMO). The difference in average costs between the two plans also increases as the HMO market share increases.

The assumption that $\psi$ is related to risk implies that managed care “works” as a self-selection mechanism — it separates high and low-risk consumers at some point along the continuum. The central question is whether separation occurs at the efficient point. Feldman and Dowd (1994) answered this question by examining a particular consumer (Ms. Jones), shown on the horizontal axis of Fig. 1. Ms. Jones’ willingness to pay for the FFS plan (denoted $\psi_{\text{JONES}}$) exceeds the difference in the marginal costs of her care between the two plans. However, the difference in group experience-rated premiums between the two plans is greater than her willingness to pay for the FFS plan. Thus, she will choose the HMO, even though the marginal benefit of this choice is less than the marginal cost. Consequently, group experience rating is inefficient in this ex post model.

Efficient risk segmentation could be achieved if every consumer paid her own marginal cost in each plan. Individual experience rating is the ultimate form of “risk adjustment.” Of course, individual experience rating results in higher-risk consumers facing higher out-of-pocket premium differentials. This situation may

---

3 Newhouse (1998) notes that “especially in the group and the Medicare markets, plans virtually always name one premium for everyone in a defined group.” Newhouse (1996) suggests transaction costs as an explanation for this restriction. Pauly (1986) notes that insurers often do not experience rate on variables that are easily observed, e.g., age. Many employers prohibit insurers from using this information.

4 Versions of this diagram have been used in at least three subsequent analyses by Ellis and McGuire (1987), Cutler and Zeckhauser (1998), and Cutler and Reber (1998).
be considered unfair but it is not inefficient once the consumer’s risk type is known.
Feldman and Dowd (1994) showed that a second way to achieve an efficient allocation is to reduce the out-of-pocket premium difference between the HMO and FFS plans until it equals the difference in marginal costs, rather than average costs. This is accomplished by a transfer from low risk to high-risk enrollees. The efficient premium difference is shown by $P_{\text{EFFICIENT}}$ in Fig. 1. Because each plan still charges one premium to the group, but one that adjusts the out-of-pocket premium difference to equal the marginal (increasingly expensive) person’s willingness to pay for FFS, we call this system “adjusted group rating.”

Both group experience rating and adjusted group rating rely on finding the right prices to induce consumers to make efficient health plan choices. An alternative way to allocate consumers efficiently to health plans relies on product differentiation rather than pricing adjustments. The trick is to discover a self-selection mechanism that can be much more finely tuned than just “presence or absence of managed care.” The hypothetical self-selection mechanism would allow consumers to self-select into more risk-homogeneous health plans. Thus far, we do not see strong evidence that such a mechanism exists, but it is interesting to speculate about the effectiveness of varying levels of managed care (e.g., preferred provider organizations and gatekeeper systems) in that regard.

How practical are these various methods of pricing health insurance products? Individual experience rating requires health plans to estimate the expected cost of consumers in different risk classes (exactly the information that is lacking in the RS model). Adjusted group rating requires information not only about costs for each risk class, but also about $\psi$. The information demands are lowest for group experience rating, but so is allocative efficiency. As usual, there is no free lunch.

4.2. The efficient ex ante level of risk segmentation

Cutler and Zeckhauser (1998) (CZ) take up the question of risk segmentation and long-term contracts in the employment-based health insurance setting. CZ’s concern is that the experience-rated premium difference between the plans for low and high risks may be inefficiently large. They suggest that risk-averse low-risk consumers may be willing to subsidize the premium of the high risks’ plan, because they know that they will prefer the high risks’ plan if they become high risk. By so doing, they can protect themselves from facing the full premium difference between the low and high risks’ plans if they become high risk. These inter-plan premium subsidies may solve the long-term contract problem, while maintaining the desirable features of competition among health plans on the basis of service quality.

---

5 One could reach the efficient equilibrium by iterating in successive periods, adjusting prices of various plans depending on knowledge of who is in them.

6 Note that this is the same concern that Feldman and Dowd (1994) have regarding the inefficient distribution of consumers across plans in the ex post model.
Another type of inter-plan subsidy is a common pool to pay for high-risk cases. High-risk pools, like direct premium subsidies, reduce the premium differential between plans that appeal to high-risk and low-risk consumers. Some methods of risk-adjusting payments to health plans could have the same effect.\(^7\)

A potential downside of inter-plan subsidies, whether justified on the basis of ex post or ex ante efficiency, is that they might reduce price competition among health plans. It may be inefficient for consumers to pay the difference between group experience rated premiums, but this system has the redeeming feature of maximizing competition among health plans. Both adjusted group rating and various other types of inter-plan subsidies will reduce the unadjusted premium differentials between managed and unmanaged health plans. As a result, the demand for health plans will be less elastic with respect to total premiums, and the plans may raise their bids to the firm. Dowd and Feldman (1998) found that multiple-plan employers who used group experience rating paid lower total premiums than employers who subsidized the cost of more expensive plans.

Thus, inter-plan subsidies may have three effects. First, they may move the market closer to a more efficient ex post distribution of consumers across health plans. Second, they may improve ex ante efficiency. Third, the health insurance market may become less competitive. Again, there is no free lunch.

5. Fairness vs. efficiency

One of the primary concerns about high-risk consumers paying higher premiums than low-risk consumers is that it is unfair. Robinson et al. (1991), for example, believe it is unfair for high- and low-risk consumers to face different out-of-pocket premiums for the same coverage. Pauly (1985, 1986) questioned whether fairness should be judged solely on the basis of health risk. Is it fair, he asked, for poor low-risk consumers to subsidize the premiums of wealthy high-risk consumers? It probably would be hard to convince healthy enrollees in managed care plans that it is unfair for them to be able to buy the level of coverage they want at an actuarially fair premium. In fact, they might think that having to subsidize the premiums of wealthy enrollees in unmanaged health plans was unfair.

Conclusions about fairness are likely to involve assumptions about the exogeneity of health risk. If all changes in health risk were exogenous, then what appears to be unfair to some people in a single period model, is inefficient in a multi-period model.\(^8\) In the first period of a multi-period model, homogeneous

---

\(^7\) See Dunn (1998) for a summary of some prominent risk-adjusted payment systems.

\(^8\) This conclusion assumes that any concerns about fairness that existed in the first period (e.g., income differentials) were addressed adequately in the first period, and not carried over into subsequent periods.
low-risk consumers set the terms of their insurance contracts for both periods. In the second (and subsequent) periods, some consumers remain low-risk while others become high-risk. The optimal premium differential in subsequent periods lies somewhere between individual experience rating and zero (Cutler and Zeckhauser, 1998). This involves a subsidy of the premium for the plan that is preferred by high risks.

If health risk is endogenous, however, then efficiency in a multi-period model may involve a smaller subsidy for the high-risks’ plan. Endogenous changes in health risk introduce moral hazard. Consumers may be willing to face premiums in subsequent periods that would be considered unfair in a one-period model, in order to reduce the effects of moral hazard.

Individual experience rating guarantees an efficient ex post distribution of consumers across health plans. Despite this advantage, individual experience rating is almost never used in employment-based health insurance. Most employers use group experience rating, and they adjust these rates by paying a variable contribution to premiums (Dowd and Feldman, 1998). Adjusted group rating increases the total cost of health insurance, but it may provide the type of inter-temporal insurance that CZ recommend.

Indeed, the employment-based health insurance market may have solved both the ex post and ex ante efficiency problems. The movement to risk-segmenting multiple health plans suggests accommodation of consumers’ ex post preferences for actuarially fair premiums. On the other hand, subsidies for higher-cost plans suggest accommodation of consumers’ ex ante preferences for protection against changes in lifetime risk.

6. Further questions

We conclude our review with two questions for further theoretical and empirical analysis. First, what does observation of the real world tell us about the success of managed care as a risk-segmentation mechanism? Is managed care a solution to the RS efficiency problem, or has it merely transferred the problem from “coverage” to “degree of managed care”? If low-risk consumers want to buy generous coverage at actuarially fair prices, and they are indifferent to the constraints of managed care, then managed care is a satisfactory self-selection mechanism. If low risks really want to buy generous coverage at actuarially fair prices in an unmanaged care plan, then the introduction of managed care obviously has not made that possible. The popularity of managed care in multiple choice settings suggests that if managed care is not a solution to the RS problem, it may at least represent a significant improvement. This question might be addressed by estimating models of health plan choice that include interactions between managed care indicators (such as restrictiveness of the provider network) and the consumer’s health status. These interactions would estimate the degree to which different types of consumers dislike different features of managed care.
Second, is the absence of long-term health insurance contracts a technical issue of enforceability, or do consumers really want to pay premiums based on their current risk? Risk-averse consumers should prefer the former alternative, but they seem willing to forego the opportunity for long-term contracts in employment-based programs. In the real world, a combination of managed health plans for low risks and unmanaged plans for high risks, with some degree of inter-plan premium transfers, may represent a second-best solution to the inter-temporal pricing problem. An even more optimistic interpretation is that adjusted group rating may provide just the combination of ex post efficiency and ex ante risk protection that consumers want.

References


