Propitious Selection

David Hemenway

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I. INTRODUCTION

Various forces exist for both favorable and unfavorable selection in insurance markets. An important generic factor for unfavorable selection has a specific name, adverse selection [Akerlof, 1970] or "anti-selection" [Dorfman, 1978, p. 88]. This cause of selection against the insurance company is well understood. As explained in a general insurance text: " . . . most insurance prices are based upon an average rate for an entire class or group. Some insureds within each class will be better than average and some worse than average. . . . (T)hose persons who know they are worse than average will be most likely to desire the insurance contract" [Bickelhaupt, 1974, p. 142].

The model of adverse selection seems to contain four general assumptions:

(1) insurance purchase is voluntary;
(2) risks are heterogeneous;
(3) heterogeneous risks are lumped together and charged the same price;
(4) prospective purchasers know (something about) their own risk.

The implication is that higher risk individuals will be more likely to purchase the insurance. These bad risks get a bargain by buying insurance at average rates. Conversely, the good- or low-risk individuals are less likely to buy coverage. Thus, the actual loss experience of the insurance company will probably be above the expected experience if that were based on predictions of insuring an average group.

This note discusses a possible generic force for favorable selection in insurance markets, one that has not received much attention in the literature. This factor might be called propitious selection, or "pro-selection," and may sometimes serve to ameliorate the danger of adverse selection in the real world. The model of propitious selection contains six general assumptions:

(1) insurance purchase is voluntary;
(2) risks are heterogeneous;
(3) heterogeneous risks are lumped together and charged the same price;

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(4) individuals can take actions that knowingly raise or lower their own risks;
(5) potential insurance purchasers have different tastes for risk;
(6) individuals are (somewhat) consistent in their taste for risk across physical and financial dimensions.

The implication is that individuals who are highly risk avoiding are more likely both to try to reduce the hazard and to purchase insurance; people who buy insurance tend to be more safety conscious and thus are more inclined to take physical precautions. It is likely that risk-avoiding car renters will both buy insurance coverage and also drive carefully. Risk-avoiding apartment dwellers will probably purchase both insurance protection and smoke detectors. Conversely, risk-seeking individuals are least likely to buy insurance voluntarily, and they are the ones most likely to deliberately place themselves in dangerous situations.

For any particular individual, insurance coverage and safety precautions are typically substitutes. If a person purchases insurance, ceteris paribus, she is less likely to take precautions. This is the ex ante moral hazard problem. Or if she takes precautions, and insurers do not lower her premiums, she is less likely to purchase insurance. This is part of the adverse selection problem. By contrast, the concept of propitious selection compares people with different levels of risk avoidance. Those with higher levels are more likely both to buy insurance and to exercise care. Those with low levels, or who are actually risk seeking, will tend to do neither.

II. Empirical Evidence

The importance, indeed even the existence, of propitious selection is an empirical issue. The psychology literature provides some evidence on this topic. Psychologists often seek to discover, and describe, a person's overall "risk propensity" [MacCrimmon and Wehrung, 1985] as if it were a single, coherent attribute [Jackson, Hourany, and Vidmar, 1972]. Some argue that there are risk-taking personalities [Keinan, Meir, and Gome-Nemirovsky, 1984], risk-avoiding personalities, and many people who fall between the extremes [Farley, 1986]. Other dimensions of personality are often correlated with measures of risk preference [Sahoo, 1985]. But the evidence is mixed [Slovic, 1972]. However, few studies try

to correlate physical risk taking with financial risk taking (as measured by insurance purchase) [Greene, 1963].

A psychologist might attempt to discover such a relationship through questionnaires [Kogan and Wallach, 1967] or experimental research [Jobe, Holgate, and Serapansky, 1983]. This note takes the traditional economic approach of examining actual real world behavior. Three examples of somewhat favorable selection are presented. The evidence is suggestive, but crude. In no case can it be demonstrated that the favorable selection (or lack of unfavorable selection) was caused by "propitious selection" rather than by some other factor.

II. A. Motorcyclists, Helmets, and Health Insurance

Motorcycling is one of the more dangerous forms of passenger transportation. For example, the mortality rate per passenger mile is 525 times that for scheduled aircraft, and 16 times that for automobiles [Baker, O'Neill, and Karpf, 1984]. The serious injury rate is also substantially higher for motorcyclists [Kraus, Black, Hessol, et al. 1984]. Motorcycle helmet use dramatically reduces fatalities, injuries, and injury severity [Weisbuch, 1987]. Health (and life) insurers in their premium structures do not distinguish between motorcyclists and noncyclists, or between helmeted and nonhelmet-wearing cyclists.

The theory of adverse selection would suggest that medical insurance is a "good deal" for cyclists, particularly unhelmeted ones, all other things equal. The theory of moral hazard ex ante would imply that, once insured, individuals might tend to motorcycle more often, and be less likely to wear helmets. Both factors would lead to a positive correlation between cycling, particularly unhelmeted cycling, and health insurance coverage.

Motorcyclists, particularly unhelmeted ones, tend to be risk takers. The theory of propitious selection suggests that they will tend to be risk seeking, not only in the physical arena, but also in terms of their financial security. They will be less likely to purchase health insurance coverage compared with others in the population. The theory predicts a negative correlation between cycling, unhelmeted cycling in particular, and insurance coverage.

The existing evidence is consistent with propitious selection. For example, researchers in Boston identified all motorcyclists admitted through the emergency room to Massachusetts General Hospital in a one-year period. "The discovery that 46 percent of these hospitalized motorcyclists were uninsured was surprising in

an urban area with low unemployment and a large number of college students who presumably had health coverage through their college or were still maintained on their parents' policies. Only 7 percent of admitted patients at the Massachusetts General Hospital were medically uninsured" [Bach and Wyman, 1986, p. 346]. Of 51 serial admissions to the orthopedic services at the University of California, Davis, Medical Center for motorcycle accident trauma with open fractures, 75 percent carried no insurance [Brady, Szabo, Timmerman, et al., 1985]. And at Brackenridge Hospital in Austin, Texas, 27 percent of injured helmeted motorcyclists had no insurance, while 41 percent of injured unhelmeted motorcyclists lacked insurance coverage [Lloyd, Lauderdale, and Betz, 1987].

II. B. The American Automobile Association

The AAA has flat fees and open enrollment. They thus face the problems of adverse selection and moral hazard. People with automotive "clunkers" should view the towing insurance as a good bargain. Upon joining the AAA, they may become even less careful about maintaining their starters, batteries, or tires, and, when a problem occurs, be more likely to demand professional help.

Adverse selection would suggest that AAA members are young people (who drive more often and less safely than older adults) with below-average income (driving lower quality and less well-maintained automobiles). Instead, AAA members tend to be older and more well-to-do than the general population [American Automobile Association, 1986]. There are many possible reasons for this (e.g., the rich drive more miles per year than the poor). One explanation is propitious selection. Richer and older people tend to be risk avoiders [Friend and Blume, 1975]. They are typically more willing to pay to ensure that they receive prompt and courteous towing if their car breaks down, especially when out of town.

II. C. Rental Care Insurance

Rental car insurance is, for the most part, a voluntary purchase. The theory of adverse selection implies that poor drivers should find the insurance a good deal. The theory of moral hazard implies that once insurance is purchased, the operator will tend to drive less carefully. The theory of propitious selection provides a counterforce to these two factors; it suggests that people who are risk avoiders will tend both to drive safely and to purchase insurance.

We spent two days in the summer of 1987 at the Hertz security checkout at Boston's Logan airport, collecting some empirical data

relating to this issue. The optional insurance offered was a $9 per day collision damage waiver. If the rental car should be damaged, Hertz waives its claim against the insured driver. While we could tell who purchased the waiver, we could not determine objectively who were good or bad drivers. We used a proxy for safe driving—whether the rental car driver voluntarily wore a seat belt. (There were virtually no passive restraint systems in the rented cars. Massachusetts' short-lived and poorly enforced seat belt law had been repealed in the beginning of the year.)

Safe drivers seem to wear their seat belts more often than do unsafe drivers. For example, it is known that the most risk-seeking motorists—teen-agers, intoxicated drivers, and those who follow other cars too closely and who ignore red lights—are among the least likely to buckle up [Baker, O'Neil, and Karpf, 1984].

We checked 110 automobile renters. Of these, 45 worked for large corporations that had already purchased the damage waiver for all their employees. That left 65 individuals for whom we observed both the insurance purchase decision and whether or not their seat belt was fastened voluntarily. Of these people 39 percent purchased the insurance; 77 percent wore their seat belt (Table I). The evidence was a bit more consistent with propitious selection than with adverse selection. While the difference is not statistically significant, 40 percent (20 out of 50) of those who wore their seat belt bought insurance compared with 33 percent (5 out of 15) of those not wearing the belt who purchased the coverage.

III. Conclusions

Economic theory assumes that individuals have stable, well-defined preferences and behave consistently in terms of their degree of risk aversion with respect to income or wealth. "Risk aversion" has a precise meaning for economists; in simplest terms, it implies

TABLE I
SEAT BELT USE AND RENTAL CAR INSURANCE PURCHASE

	Purchased waiver	Declined waiver	
Wearing seat belt	20	30	50 (77%)
Not wearing seat belt	5	10	15 (23%)
	25 (39%)	40 (61%)	65 (100%)

an unwillingness to take actuarily fair bets. This note uses the broader and more amorphous terminology of "risk avoidance." The theory of propitious selection suggests that risk-averse individuals will tend to be more generalized risk avoiders—not only will they buy insurance, but they will also take physical precautions to protect their assets.

The idea that individuals can be categorized as more or less risk seeking, and are somewhat consistent in their risk-avoiding behavior, has applicability outside the insurance area in the fields of health promotion and injury prevention. Who do we expect will voluntarily purchase smoke detectors to protect their homes? A notion akin to adverse selections would predict that those most prone to fire would find the $10 purchase a good deal. Risk compensation, an idea similar to moral hazard ex ante, would predict that once a detector was installed, residents would tend to act less carefully. These theories suggest a positive relationship between detector purchase and the likelihood of fire. By contrast, propitious selection contends that the smoke detectors will be purchased by those who are most risk avoiding—who already do a great deal to enhance their own safety.

The empirical evidence on smoke detector purchase is consistent with propitious selection [Elick and Lavidge, 1980]. Thus, the overall increase in the level of safety is not as great as if the detectors were bought by those in greatest danger, or even distributed randomly across the population. (Similarly, as noted above, seat belts are typically worn by the safest drivers.) Propitious selection would also suggest that many of those who receive the free, voluntary preventive checkups offered by Health Maintenance Organizations are probably risk avoiders, who already act in ways that maintain their health. The checkups provide less objective medical benefit than if they were given to those in the HMO population at highest risk.

This note argues that propitious selection may be a generic, albeit largely unrecognized, force promoting favorable selection in various lines of insurance. Discussions with colleagues and students in the public health field (primarily risk avoiders) have helped solidify our belief in the general reasonableness of the theory. But even we doubt that propitious selection provides a complete counterweight to the pervasive significance of adverse selection in most insurance markets.

HARVARD SCHOOL OF PUBLIC HEALTH

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