



Preference heterogeneity and selection in private health insurance: The case of Australia



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ABSTRACT

A basic prediction of theoretical models of insurance is that if consumers have private information about their risk of suffering a loss there will be a positive correlation between risk and the level of insurance coverage. We test this prediction in the context of the market for private health insurance in Australia. Despite a universal public system that provides comprehensive coverage for inpatient and outpatient care, roughly half of the adult population also carries private health insurance, the main benefit of which is more timely access to elective hospital treatment. Like several studies on different types of insurance in other countries, we find no support for the positive correlation hypothesis. Because strict underwriting regulations create strong information asymmetries, this result suggests the importance of multi-dimensional private information. Additional analyses suggest that the advantageous selection observed in this market is driven by the effect of risk aversion, the ability to make complex financial decisions and income.

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1. Introduction

A basic prediction of theoretical models of insurance is that when consumers have private information about their risk of suffering a loss – or, equivalently, if insurers are prohibited from using observable information on risk in underwriting – insurance markets will be prone to adverse selection. Market equilibria with adverse selection are characterized by a positive correlation between risk and the level of insurance coverage (Chiappori et al., 2006; Einav et al., 2010).¹

A number of recent studies have tested this prediction using data from different types of insurance markets. While research on annuities finds evidence in support of the positive correlation hypothesis (Finkelstein and Poterba, 2002, 2004, 2006), several studies on other types of insurance find either no correlation between risk and insurance coverage, or a negative correlation. Examples include studies of health insurance markets in the

US² (Hurd and McGarry, 1997; Cardon and Hendel, 2001; Asinski, 2005; Fang et al., 2008), the UK (Propper, 1989), and Israel (Shmueli, 2001), long term care insurance (Finkelstein and McGarry, 2006), life insurance (Cawley and Philipson, 1999) and auto insurance (Chiappori and Salanie, 2000; Dionne et al., 2001; Saito, 2006).

Broadly, there are two possible explanations for this lack of evidence in supporting the positive correlation hypothesis. One is that the information asymmetries that are central to theoretical models of insurance markets are not empirically important. According to this argument, insurers are able to obtain enough information from consumers to adequately predict their losses and set premiums accordingly.³ The second possible explanation is that there is multidimensional private information. That is, in

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¹ More generally, asymmetric information can lead to both adverse selection and moral hazard, both of which will result in a positive correlation between the level of coverage and ex post losses.

² Related literatures examine risk selection in the context of systems where everyone has some insurance and there is choice among different types of insurance options. For example, some studies analyze the decisions of workers who are offered a choice of health plans. A common finding is that higher risk individuals tend to sort into plans that allow more flexibility, including greater choice of providers, while healthier employees are more likely to choose less costly, but more restrictive managed care plans (Cutler and Reber, 1998; Altman et al., 1998; Strombom et al., 2002). Similarly, in the US Medicare system there is considerable evidence that managed care plans attract relatively healthier enrollees (see, for example, Brown et al., 2011). To the extent that managed care plans can be viewed as providing a lower quantity of insurance, this sorting is consistent with the positive correlation hypothesis.

³ Chiappori and Salanie (2000, p. 73) suggest that this may be true in the case of auto insurance.

addition to private information about the risk of experiencing a loss, there are other factors that cannot be used in setting prices that increase the demand for insurance and are negatively correlated with the risk of suffering a loss. For example, if consumers who are more risk averse are also less likely to suffer a loss – perhaps because they are more inclined to undertake preventive efforts – the positive correlation between risk and insurance coverage due to adverse selection will be attenuated or perhaps even reversed. More generally, this situation can arise if consumers with low expected claims are more likely than high risks consumers to value certain features of an insurance product that are unrelated to the actuarial cost of coverage. An overall negative correlation between coverage and claims does not imply that there are no consumers purchasing insurance because they have a high expectation of claims. Rather, a negative correlation may be observed because such consumers are outnumbered by lower risk individuals whose purchase decisions are driven by other factors.

In this paper, we investigate the issue of risk selection in the Australian market for private health insurance. Several features of this market make it an important case to study. First, much of the prior research on risk selection in health insurance has used data from the US, which is an outlier among industrialized countries in both the importance of private insurance in financing health care and the link between insurance coverage and employment. In contrast, Australia is typical of other developed countries in the way that private health insurance complements a universal public health care system and is purchased directly by individuals. Private insurance is used mainly to gain access to private hospitals, thereby avoiding having to wait for care through the public system. The factors that influence the demand for insurance and the institutional arrangements that facilitate pooling may be quite different in these systems as compared to the US.

Another important feature of market for private health insurance in Australia is that the pricing of contracts is highly regulated. Premiums are required to be community rated, meaning that for a given contract the same price must be charged to all consumers regardless of age, gender, health status or any other individual characteristics. By prohibiting insurers from basing premiums on observable risk factors, community rating introduces a strong form of information asymmetry into the market, which simplifies the analysis. The most appropriate test for adverse selection is based on the correlation between risk and insurance coverage conditional on all variables that are used by insurers to set prices. The analysis of an unregulated market is complicated by a lack of such variables. Under community rating, we know that all consumers face the same prices.

In addition to being a good case study for general issues related to risk selection in insurance markets, our analysis is directly relevant to health policy in Australia. From the mid-1980s to the 1990s, private insurance coverage was declining in Australia. Many observers attributed this trend to adverse selection caused by the community rating rules (Australian Industry Commission, 1997; Barrett and Conlon, 2003). However, empirical research on this topic has produced mixed results. A better understanding of the factors that affect risk selection in this market is important for designing and evaluating future public policies related to private health insurance in Australia.

Our analysis is based on two nationally representative surveys of Australian households. First, we use data from the Australian National Health Survey (NHS) to investigate the relationship among health care utilization, insurance coverage and various factors that are likely to affect the demand for insurance. In contrast to the textbook model of insurance markets, but like other recent studies, we find that the unadjusted relationship between health risk and insurance coverage is negative. Specifically, adults with private

insurance for hospital care are in better self-reported health and have lower hospital utilization than adults without private coverage. The correlation between insurance and the number of nights spent in hospital reverses when we control for proxies for other types of private information. We consider proxies for preferences regarding risk and prevention, the ability to make complex financial decisions, as well as income and employment status.

In the second part of the analysis, we use data from the NHS as well as from another nationally representative survey, the Australian Household Expenditure Survey (HES) to further investigate preference-based explanations for this advantageous selection. The analysis using the NHS exploits direct questions about the reasons for purchasing private health insurance. This analysis reveals heterogeneity in consumers' motivations. A minority of people with private insurance gives reasons that are suggestive of adverse selection – i.e., they purchased insurance because they are in poor health or expect to need inpatient care. However, a much more common reason given for purchasing private insurance is more suggestive of risk aversion: nearly half of all people with private insurance say this coverage provides a sense of security or peace of mind. Individuals giving this response are in slightly better health than people without private insurance. Another common set of reasons given for purchasing private insurance relate to the benefits of being treated as a private patient – shorter waits for care and a greater ability to choose one's own doctor. Individuals citing these factors are also less likely than people without private insurance to report their health as fair or poor than those without private insurance and have lower hospital utilization, though the difference in utilization is not statistically significant. Respondents saying that their purchase decision was driven by financial considerations appear to be lower risk according to multiple measures.

Using the HES, we further investigate the importance of risk aversion by estimating multivariate probit models to analyze the demand for several different types of insurance as well as smoking and gambling. The correlations among the error terms indicate that people who have private health insurance are significantly more likely to insure against other risks that are not likely to be correlated with health risks. These correlations, which remain large and statistically significant after controlling for income, wealth and consumer demographics, provide additional evidence for the importance of risk aversion as a determinant of the demand for private hospital insurance.

2. Background and previous literature

A natural starting point for considering the issue of risk selection in insurance markets is the seminal paper by Rothschild and Stiglitz (1976). In their model, high and low risk consumers are differentiated by a single parameter, the probability of suffering a loss. When insurers can directly observe a consumer's risk type both types will be offered actuarially fair premiums and will choose to fully insure. When a consumer's risk type is private information, the model predicts adverse selection. In the presence of such asymmetric information, the only feasible equilibrium is a separating equilibrium in which high risks purchase a greater quantity of insurance than low risks. This prediction of a positive correlation between risk and insurance coverage is the focus of much of the empirical literature on risk selection.

The Rothschild–Stiglitz model applies most directly to cases where there is only private insurance and not purchasing coverage is equivalent to self-insuring. In the case of health insurance, this feature fits the US market, where for most non-elderly adults private insurance is the only option available. However, in most industrialized countries, health care is financed primarily by the

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