

CHAPTER 1

INTRODUCTION

1.1 Overview

Automobiles basically refer to vehicles powered by internal combustion engines and equipped with three or more wheels, used primarily for transporting passengers or cargo of various kind (Odaka, Ono and Adachi, 1988).

While the term insurance may be defined more formally as a system under which the insurer,¹ for a consideration usually agreed upon in advance, promises to reimburse the insured² or to render services to the insured, in the event that certain accidental occurrences result in losing during a given period.³

In Malaysia, automobile insurance and life insurance are the two main areas of the Malaysian insurance industry. We are concerned about the growth of automobile insurance industry because of its compulsory nature, at least in part of

¹ Refer to Willman, George. (1973) "The Penguin Guide To Insurance", Penguin Books, p.233, insurer is the insurance company who agrees to provide the insurance required and accepts the risk

² Refer to Willman, George. (1973) "The Penguin Guide To Insurance", Penguin Books, p.233, insured is the person covered or protected by a policy of insurance.

³ The New Encyclopedia Britannica. (1998), Volume 21, USA: Encyclopedia Britannica Inc. p.741, cited in Kamaruzaman, (2001), p.9

every motorist's insurance policy.⁴ In addition, the Malaysian automobile insurance industry vividly illustrates the remarkable socioeconomic transformation that accompanied the high-speed growth since 1990s.

We are interested in analyzing the performance of automobile insurance under competitive markets with asymmetric information or imperfect information, rather than in an environment of perfect information. Recently, the effects of asymmetric information for economic incentives become central to microeconomic theory. Many researches had been proven that the presence of information asymmetric caused the competitive market cannot perform well and efficient, for instance, "lemon" principle, which elucidated by Akerlof (1970), in used car markets. When the seller has more information about the quality of the car than buyer, the low quality used car (lemon) will drop out the high quality used car from the market.

When "knowledge is asymmetrically distributed" (Puelz and Snow, 1994) between two parties in the same marketplace, it generates the problems of adverse selection, moral hazard and signaling. Theoretically, the problem of adverse selection exists in the insurance market. In a Nash equilibrium,⁵ high-risk customers purchase

⁴ Refer to Willman, George. (1973) "The Penguin Guide To Insurance", Penguin Books, p.233, insurance policy is the document providing evidence and stating the terms of an insurance contract

⁵ Refer to Black, John. (1997) "Dictionary of Economics", it is a situation in which two or more agents are taking decisions on their strategies, where no agent can gain by any change in their strategy given the strategies currently being pursued by the others. Such a non-cooperative equilibrium is usually not Pareto-optimal, and could be improved on by some form of co-operation.

full insurance coverage, whereas low-risk customers purchase partial insurance coverage.

When signaling occurs, low-risk customers are prone to signal their quality by choosing an insurance policy with higher deductibles.⁶ By contrast, high-risk customers prefer lower deductibles. As predicted by market signaling theories, a higher price per unit for insurance as the amount of coverage increases will be charged to the high-risk customers by the insurers. In other words, for those who choose high deductibles, will be compensated by paying lower average prices for insurance coverage and vice versa.

In this paper, we investigate the market's characteristics in order to determine whether the problems of adverse selection and market signaling occur in the Malaysian automobile insurance market. In attempting to analyze these two problems, we are using individual data from a representative insurer in Malaysia to estimate the premium-deductible schedule and the demand function for a deductible. We present an evidence on the adverse selection from the automobile insurance market with separating equilibrium and market signaling with cross-subsidization of high-risk customers by low-risk customers. These results are consistent with the market signaling theories developed by Rothschild and Stiglitz (1976), Riley (1979,1985),

⁶ Refer to Black, John. (1997) "Dictionary of Economics", it is the part of any insured loss which has to be borne by the insured party. The U.K term for this is an excess. The point of making the insured bear the first part of any loss is partly to reduce moral hazard by making them more careful, and partly to avoid the administrative cost of processing numerous small claims.

and Cho and Kreps (1987). They proposed that equilibrium in markets with adverse selection entails separating and occurrence of signaling is possible through the choice of deductible (Puelz and Snow, 1994). Our results also support the alternative theory of adverse selection which was suggested by Puelz and Snow (1994) that the automobile insurance market entails separating, adverse selection equilibrium and market signaling by examining the premium-deductible schedule and the demand function for a deductible, and theory of signaling with cross-subsidization as proposed by Miyazaki (1977). However, our findings are inconsistent with theories of a pooling equilibrium that predicted by Wilson (1977), Grossman (1979), and Hellwig (1987).

Although the Malaysian insurance market entails the equilibrium with adverse selection and market signaling, it does not satisfy the monotonic signaling property, that is, contracts with a higher deductible which are preferred by low-risk customers, are not associated with lower average prices for insurance coverage. In other words, the premium paid by low-risk customers are higher than the expected premium, whereas the premium paid by high-risk customers are lower than the expected premium. Therefore, we conclude that the low-risk customers subsidize the high-risk customers in the Malaysian insurance market.

1.2 Insurance Industry In Malaysia

Insurance plays a very important role in today's modern life style. In order for efficiency, effectiveness and low-risk are being emphasized. Insurance is the sharing of risks between a large number of people and it is often used as a general term to cover all contracts (Willman, 1973).

We would like to examine the development of insurance industry in Malaysia⁷ over four stages that is from the eighteenth century to 1960s, a rapid growth of insurers in second half of 1960 to 1962 (through "mushroom" mechanism), the period of 1963-1996, and today's situation.

In the late eighteenth century, the insurers started their businesses in Malaysia under the Laissez-faire mechanism. The demand for general insurance increased as a result of the drastic growth of foreign trade. There was a simple life for the insurers due to the absence of consumers in fighting for the rights of consumers of insurance products. Moreover, the close connection between the agencies houses which represented insurers with London making sure that these insurers were well-known names.

⁷ Refer to Lee, H.L. (1996), "Insurance Regulation In Malaysia: An Examination of Developments and Philosophy", University of Malaya.

However, in the early twentieth century, the government made token legislation in order to overcome the uneasy situation of Laissez-faire within the insurance industry. As a result, after the establishment of the Federation of Malaya in 1948, Life Assurance Companies Ordinance 1948 and Fire Insurance Companies Ordinance 1948 were legislating for life companies and fire companies respectively.

The government felt that it was necessary to interfere in the Laissez-faire insurance market after 1960. The main reason was to ensure that the insurance industry would function well since their well-being was important to the well-being of the nation. Therefore, the Insurance Act 1963, which was a piece of comprehensive regulation emerged, to empower the government to control and supervise all insurance activities.

As the Insurance Act 1963 was being prepared, there were about 56 life insurance companies (through the “mushroom” mechanism) in the Federation of Malaya by January 1962. These companies sprang up within a very short period and in large number without much experience in the insurance business. Besides that, these companies only had small capital resources. They issued the life policies at the inappropriate premium rates.

The government envisaged that the future of insurance industry would be affected if these “mushroom” companies were allowed to do the business in such

inappropriate manner. Thus, the Parliament passed three pieces of ad hoc legislations in order to avoid the troubles, which may be caused by these companies. As a result, there were some barriers to enter freely into the insurance industry.

In mid April of 1996, the government presented the Insurance Act 1996, which was a piece of legislation with 225 sections that governs the insurance industry in Malaysia until today. This Act is the extension of the Insurance Act 1963 after all amendments have been made and it provides a complete regulatory framework for the insurance industry. It also covers all aspect of insurance operations.

The complete regulatory system helped to improve the performance of insurance industry today. The industry registered higher growth despite the moderate growth of Malaysian economy from 1997 to 1999.⁸

In 2000, the insurance industry's performance improved in line with the growth of the Malaysian economy. The combined premium income of the insurance industry recorded a significant growth of 28.6% (1999:8.5%) to reach RM15216million (1999: RM11833.3million).⁹ Thus, the contribution of the insurance

⁸ Source : *Insurance Annual Report 2001*

The life insurance sector indicated the increment by RM1185.3 million from 1997 to 1999 (p.42) whereas the general insurance sector showed the decrement about RM484.4 million (p.46).

However, the insurance industry shows an overall increment.

⁹ Source : *Insurance Annual Report 2001*, p.31

The life sector accounted for RM10151.3 million (1999: RM7156.1 million or 60.5%) of the combined income, whereas general sector accounted for RM5064.7 million.

industry to nominal Gross National Product (GNP) increased by 0.7% in 2000 compared with 1999.¹⁰ Nevertheless, the growth rate for combined premium income was decreased by 16.2% in 2001 due to the slowdown in the economy.¹¹

The Insurance Commissioner and Director General of Insurance are the principal authorities of the insurance industry at different time period since 1963. Whereas the Central Bank of Malaysia has become the regulator of the insurance industry from 1988 onwards. There are four mandatory associations under its supervision, namely Association of Malaysian Loss Adjusters (AMLA), Insurance Brokers Association of Malaysia, Life Insurance Association of Malaysia (LIAM) and General Insurance Association of Malaysia (PIAM). These associations assist the Central Bank to administrate the insurance industry.

Basically, the Malaysian insurance industry comprises two main areas, namely life insurance and general insurance. General insurance industry comprising with a few main sectors, for instance, motor, marine, aviation and transit, contractors' all risks and engineering, fire, medical expenses and personal accident, liability, workmen's compensation and employers' liability, and miscellaneous. However, only the motor insurance is treated seriously because it is compulsory to every motorist.

¹⁰ Source : *Insurance Annual Report 2001*, p.31

The premium income of the insurance industry as a proportion of nominal Gross National Product (GNP) increased to 4.9% in 2000 compared with 4.2% in 1999.

¹¹ Source : *Insurance Annual Report 2001*, p.31

The preliminary data for 2001 showed that the growth rate for combined premium income slowdown to 12.4%, compared with 28.6% in 2000.

Since the insurance industry in Malaysia has shown significant progress, therefore the industry has a very bright future and people can benefit from insurance. Moreover, the Central Bank of Malaysia also have planned and implemented various strategies in order to accelerate development in the insurance industry.

1.3 Malaysian Automobile Insurance Industry

General Insurance Association of Malaysia (PIAM) is an association of general (non-life) insurers, which was established in May 1979 in compliance with Section 3(2) of the Insurance Act 1963. It plays the role in promoting the establishment of insurance structure in Malaysia with consultation of Central Bank of Malaysia. Besides that, it also contributes to the development and progress of the general insurance industry in the international and Asean industry community.

According to the statistics provided by the Road Transport Department (RTD),¹² the number of motor vehicles registered in Malaysia have shown an increasing trend from 1997 to 2001. In 1997, there were as many as 8550469 motor vehicles in Malaysia and the number of motor vehicles for the year 1998, 1999, 2000 and 2001 are 9141357, 9929951, 10598804, and 11302545 respectively.

¹² <http://www.jpj.gov.my/statis.htm>

These numbers imply that motor vehicle is the most important equipment in Malaysia's transportation system compared with air vehicles and water borne traffic. Nevertheless, it is also the most potentially lethal item of transportation. Based on the Road Transport Department (RTD) statistics,¹³ there were 195984 road accidents cases involved in 1997, 210964 cases in 1998, 223116 cases in 1999, 250429 cases in 2000, and 265175 cases in 2001. Besides that, the PIAM Annual Report 2001/2002 also indicated that the claim ratio for motor insurance sector was quite high that was above 60% for the year 1997 to 2001.¹⁴ Therefore, it is not surprising that the motor insurance is strictly compulsory by law for all motorists in Malaysia.

Basically, there are three types of automobile insurance coverage, which are "Act" cover, Third Party insurance and Comprehensive insurance. "Act" cover is compulsory insurance cover required under the Road Transport Act (Malaysia) 1987. It covers only the legal liability to third parties for accidental death or personal injuries which are caused by the insured vehicle, the cover being restricted to the accidents happening in places to where the Act applies.¹⁵

The Third Party insurance is wider than "Act" insurance. It covers the claims for the damaged property, including the cost of repairing other drivers' cars, apart

¹³ <http://www.jpj.gov.my/statis.htm>

¹⁴ <http://www.piam.org.my/annual/2001/015.htm>

¹⁵ McBrien, P.J. (1973), "Company Insurance Handbook", Gower Press Limited, Epping, Essex. p.207

from accidental death, personal injury of the third parties. The important point is that it does not cover damage to the insured's car.

Whereas the Comprehensive insurance insures all the risks, which would be covered under, the third party insurance as well as the material damages to insured's car when the insured is liable for the accident (Richaudeau, 1997). Moreover, the comprehensive insurance also gives the protection including loss or damage to the motor vehicle as a result of fire or theft.

In a competitive insurance market where the insured parties are different, they will choose the appropriate type of coverage based on their specific personal characteristics, preferences, risk tolerance and other factors. Then, they will make a payment which is known as the premium when they obtain an insurance policy.

In the Malaysian automobile insurance market, the premium of coverage depends on a number of factors, such as use of vehicle, cubic capacity, and age of vehicle, sum insured and number of authorized driver. However, the No Claim Discount or No Claim Bonus¹⁶ will be offered to the insured to adjust the premium of coverage if the insured qualifies for No Claim Discount. For instance, the next premium of the insured will be reduced by 25% after one claim free year. This percentage coefficient will increase consecutively to 30%, 38.33%, 45% and

¹⁶ Refer to Willman, George (1973) "The Penguin Guide To Insurance", p.201, it is a percentage of the original full premium is deducted up to a fixed maximum for each claim free year of motoring.

maximum 55% if the insured able to maintain his claim free year's status. As a result, the insured has to ensure that he is not responsible for an accident in order to avoid losing the No Claim Discount.

We may conclude that the motor insurance sector is the most important element in contributing to the general insurance industry development. Therefore, in order to strengthen the market of motor insurance, The Central Bank of Malaysia and PIAM have implemented some initiatives such as centralizing the database for motor repairs estimation, online submission of motor cover notes to the Road Transport Department (RTD) and etc.

1.4 Information Asymmetry

Formal analysis of information asymmetry in microeconomic theory began about three decades ago by economists (Akerlof,1970; Pauly,1974; Wilson,1977). The situation of information asymmetry exists resulting from the presence of private information where some market agents (insured parties or the person covered or protected by a policy of insurance) know something and not the other party (insurer or the insurance company who agrees to provide the insurance required and accepts the risk).

The existence of information asymmetry in the contractual relationship has caused the insurance market to under-perform. This is because of it destroys the desirable state of contract between the economic agents by raising the possibility of opportunistic behavior such as lying and cheating (Molho, 1997).

Asymmetric information may be categorized under adverse selection, moral hazard and signaling. An adverse selection problem happens when the insured has relevant private information before the contract is signed, whereas the moral hazard problem arises after the contract has been signed (Macho-Stadler and Pérez-Castrillo, 1997).

Actually, the specific terms of adverse selection and moral hazard originated from the insurance industry. Both problems can be present in one situation. In the insurance industry, there is a pool of customers or potential insured parties seeking insurance. Some customers are classified as high-risk group and the others are low-risk group. However, the type of risk is unobservable to the insurer and it has to offer the same premium to every potential insured. As a result, the market will end up with the high-risk group. From the insurers' point of view, they get an adverse selection of customers in the sense that the high-risk group tends to buy insurance or to buy larger amounts than low-risk group (Cummins, Smith, Vance and VanDerhei, 1983).

The problem of moral hazard arises in the insurance industry after the customer buys an insurance policy. This means that the insured has less initiative in his preventive action in order to avoid an accident from happening. Thus, the moral hazard occurs in the industry since the insurer is unable to observe this hidden action of the insured parties.

Lastly, there is a signaling situation when the insured is able to reveal private information via individual behavior before the contract is formalized (Macho-Stadler and Pérez-Castrillo, 1997).

Therefore, we are interested in investigating whether these circumstances happen in the Malaysian automobile insurance industry since the presence of information asymmetry will cause the industry to perform ineffectively.

1.5 Need For Empirical Work On The Automobile Insurance In Malaysia

With reference to section 1.4, we know that problems are caused by asymmetric information namely, adverse selection, moral hazard and signaling and that it will affect the effectiveness and efficiency of the market. Thus, it is important for us to test whether such problems are present in our automobile insurance market today.

We have two main objectives in this paper. First, we are testing for the presence of adverse selection in the Malaysian automobile insurance market. According to the theory of adverse selection, the high-risk group will purchase full insurance coverage, whereas the low-risk group will purchase partial insurance coverage in the market equilibrium with presence of private information or hidden knowledge. So, we will analyze whether our automobile insurance market is consistent with this theory.

Second, we are interested in testing whether our automobile insurance market is presented by market signaling. We would like to know whether our market is satisfying the prediction of market signaling theory where high-risk group tends to choose an insurance policy with lower deductible associated with higher average price of coverage, and the low-risk group would like to signal themselves as “high quality” insured by choosing higher deductible with lower average price of coverage in the market equilibrium.

The objectives of this paper then will provide us more effective tools and instruments to improve our market performance and more efficient in the asymmetric information situation.

1.6 Organization of Study

To be concise and coherent, the study comprises of six chapters that discusses several elements within their own respective scope.

Chapter one introduces the subject matter, specifies the research objectives and the organization of this study.

Chapter two reviews the work done by other researchers in the field. Important findings are summarized.

Chapter three summarizes the theories of the research: theory of adverse selection, theory of signaling and alternative theory of adverse selection.

Chapter four encompasses the research methodology, which is employed in the study: regression and ordered logit. Data collection is also explained in this chapter.

In chapter five, the results from the data analysis are presented. Finally, the chapter six summarizes the important findings of this study and compares them with the results obtained by other researchers.