Chapter 1

Introduction

1.1 Overview

The role of information is so important in our everyday life. Understanding its role will enable us to know the underlying behavior and the resulting consequences of an agent in the market place. We will address the underlying behaviors in terms of welfare improvement and transaction costs.

A basic economic "fact of life" is that in most activities there are usually some production gains to be made. In order to take advantage of this, people must interact via transactions, which are completed through contracts. It may be explicitly legal or without the backing of the legal force. Given this potential gain from the interactions, the economic system has to motivate and co-ordinate activities. An activity may be desirable in terms of Pareto Criterion, but the individuals who are in a position to undertake it must themselves have some incentive to carry it out, otherwise the opportunity for welfare improvement is meaningless. Coase (1937) argued that one could think of this economic system is involving of "*transaction costs*" in the organization of activities and economic interactions. There are costs to transacting in a very general sense, which include, for example; the cost of writing all the contracts that take production of a car through its various stages to the end users; i.e. transaction costs are the costs involved in solving the coordination and motivation problems.

The problems of information may affect the transaction costs in 2 ways, (1) Bounded Rationality, and (2) Asymmetry Information. In the first scenario, a social planner or producer/firm or individual, might fail to come up with the optimal solutions, even if they are fed with all sort of information relevant to an issue, due to the sheer complexities involved relative to the limited capacity of human beings to comprehend and understand the problems. Another case is that the informational disadvantage causes the decision makers to make second best or non-optimal decisions. The loss of social welfare that arises reflects a form of transaction costs inherent in this economic system.

One of the most apparent roles of information is that its asymmetry gives rise to cheating and lying. This happens when one party has informational advantage over the other party; car sellers do not cheat on the color of the car.

Lying and cheating have different sources. One of the most obvious reasons which motivates such behavior is private information. For example; a product which has a serious defect and is observable by the seller. Seller will cheat if it brings higher gains. Thus the larger the information gap between buyers and sellers, the larger the mark-up price.

Another potential source is hidden action. This refers to the behavior of a person that is not observable. Such private information leads to opportunistic behavior whereby it entails higher rent in order to cheat. Example is the employer does not know whether the employee is shirking on the job.

Even when there is no informational advantage, one or both parties may also cheat, particularly in the case of unverifiability of a contract. A contract is said to be incomplete when it cannot include all the possibilities of future events. Most importantly not all the circumstances and probabilities are taken into account in the contract. Therefore this type of contract is not verifiable in the court of law. Thus unverifiability is itself a special kind of information problem; it relates to the inability to credibly inform the third party.

There are many examples of these kinds of behaviors, although the words "lying" and "cheating" are not explicitly used. Consumers hide their valuation of the goods purchased, or misrepresent the valuation. This problem faced by decision maker results in non-optimal pricing schedule. This is because asking people to reveal their valuation and price accordingly will not work.

Misrepresentation is also obvious in cartels. Each member will have incentive to deviate in order to extract more rents. This is so if the party values highly future gains relative to current gains. One typical example is OPEC, each member has incentive to misrepresent the production cost, as low production cost will entail higher production quota. There is no obvious mechanism to extract truthful information and member state will take this opportunity to produce more. Even when the production quota is firmly set to keep the price of oil high, each member will still have incentive to deviate. This is because free-riding on higher price (high price is non-excludable; if one producer lowers the production to raise price, all producers will benefit) ensures higher profit than staying in the contract.

These asymmetry information problems and resulting opportunistic behavior arise in all markets in economic system; a supplier may cheat on product specifications, a manager may slack on the job, etc. Such behavior may cause Pareto Inefficiency; a mutually beneficial trade may not take place at all. Consider a firm is deciding whether to produce or to buy. If it is more efficient to produce at home, then so be it. But if it is more efficient to sub-contract, firm has to find a reliable and trustworthy supplier. It is to avoid any opportunistic behavior ex post; e.g. hold-up problems, price-cost mark up ex post, etc. And usually this type of activity involves some sort of agreement or contract. To ensure enforceability and verifiability in the court of law, parties concerned have to construct a contract which is complete; which must include all eventualities. But the major problem to this kind of contract is costly and impossible. Therefore this creates transaction costs and eventually results in lack of trade. And in insurance market, asymmetry information can make the buyers paying higher premium than the risk they face

The problems generated by private information and unobservabilty have specific names in economics; they are respectively "adverse selection" and "moral hazard". Adverse selection is a problem of "pre contract opportunism" and moral hazard is of "post contract opportunism". Although the two terms are originated in the insurance industry, they are present in different fields and industries. Consider an example; a manager may take actions that are unobserved by the firm's shareholders and have private information about the running of the firm and the policy choices he faces. Such lying is the abuse of private information to further one's own interests.

Thus the presence of private information and/or unobservabilty of behavior is one major obstacle to efficiency/ welfare improvement not only in insurance market. As this

raises the possibility of opportunistic behavior which contribute to transaction costs and hence causes efficiency losses.

Therefore, although our main concern is asymmetry information in insurance market, misrepresentation of information is also rampant in other industries and fields. These kind of behaviors resulted in non-optimality if trade occurs or non trade occur at all. Example regarding difficulty in pricing decision, the sellers will set its price which deviates from the marginal cost, or the buyer's marginal benefit is higher than the price they paid. Verifiability problems, non-excludability causes a cartel to eventually break up.

1.2 Issues Concerned

The research is concerned with examining the problems of informational advantage to one party in a contract. This asymmetry information will lead to lack of trade in insurance market; especially non-optimality and under-provision. In insurance market, insures will not be able to charge a premium according to risk type, insures may refuse to accept a particular risk due to informational disadvantage, and insureds will have to pay higher premium than the risk they face. These may lead to non-optimality and lack of trade in insurance market.

The first issue concerns us, non-optimality of insurance premium according to level of risk, arises due to informational disadvantage to the insurer. Potential insureds have advantage over the information concerning personal characteristics; personal behavior, tolerance to risk, willingness to pay, demand behavior, pattern of purchase etc. These are

not revealed or hidden at the point of purchase by consumers. To overcome the problems, insurer will either charge a standard price or charge differently according to risk type. In pooling equilibrium, high risk type is willing to pay the premium as it is lower than the risk they face. But for low risk type, the standard premium is far higher than the risk they face (Arkelof ;1970). They will either opt not to buy at all or purchase only partial coverage. And if the insurer charges separating price in "separating equilibrium", low risk individuals will not enjoy full coverage. This is to make the partial coverage not attractive to high risk type. Therefore the equilibrium is less attractive than when in full information. Particularly low risk type cannot buy full coverage if he desires to do so.

The second issue concerns us is that the insurer will not accept risks which are not known in terms of its risk level. The informational disadvantage of insurer will cause some of the risks are rejected or the contract is heavily loaded. In insurance market, the experience of underwriting is vital to differentiate risk level among purchasers. Lack of information and experience will cause the insurer not to accept the risk at all.

Although insurers adopted different pricing strategy from pooling and separating equilibrium, the problems of informational disadvantage and non-optimality of trade are not resolved completely. The results from quadratic pricing strategy adopted by insurers are more superior than pooling and separating price, but some of the problems mentioned above are still not addressed fully.

1.3 Objectives of The Research

This research paper intends to analyze the presence of asymmetric information in Malaysian insurance market through the pricing mechanism from the perspective of welfare improvement. We will analyze the pricing schedule, quadratic pricing adopted by insurers proves the presence of asymmetry information. We will then explain the reasons for this pricing strategy, and the consequences.

As pricing under pure pooling and equilibrium are both not optimal (Cawley and Philipson ;1999), alternative pricing strategy should be utilized to minimize the problem of adverse selection. It is to find a pricing schedule which is closer to perfect information equilibrium in order to avoid losses and at the same time good risk consumers are not crowded out from the market. Other alternatives may be considered to avoid problems of asymmetry information; public intervention or more tailored designed policy.

1.4 Outline of Research

The research paper will begin with some reviews of past researches and their results are shown in chapter 2. Chapter3 will suggest a model to analyze the presence of the problems and the method employed is discussed in chapter 4, and the results are depicted in chapter 5. In the case of full information, the coverage will be decided by the insureds themselves; coverage will commensurate with their respective risk types. And the price charged will be similar to first degree price discrimination in monopoly; low risk type and high risk type are charged differently according to their observable

characteristics. Whereas if under asymmetric information, insurers will limit the purchase; different premium will be charged after a certain level of purchase. It is assumed that high risk types will purchase larger than usual insurance coverage to maximize their utility level. One way to achieve this is through quadratic pricing; price paid is higher after a certain level of quantity purchased. Note one prominent difference in pricing schedule between these two scenarios is that low risk type will be paying higher premium if he buys larger than usual policy under quadratic pricing. Whereas in full information case, high and low risk types are paying the same premium throughout according to their risk type. Therefore the presence of quadratic pricing, one way to solve problems of asymmetry information implies informational disadvantage to the insurers at the point of purchase. The test is conducted in chapter 5.

Quadratic pricing itself may be a solution to efficiency loss due to private information in insurance market. Some other methods e.g. public intervention, heterogeneous customers sorting through correlative consumption, customized product, are also discussed as alternative solutions to adverse selection and moral hazard. These are covered in final chapter of the research.