How do moral hazard and adverse selection affect the insurance market?

Experience, Human Nature

Traditional economic literatures often based themselves on the assumption that the market was efficient but the recent work of Nobel Prize winning Joseph Stiglitz and others proved the opposite by affirming that whenever there was the existence of information asymmetry, Pareto efficiency would not even be achievable. This problem of asymmetric information has become of considerable importance that it has not left apart the insurance market. With the insurance market, people are insured against any loss and today the size of the insurance market proves that that people do not hesitate to pay to avoid risk.

Information asymmetry occurs when one party of an economic transaction does not have sufficient information about the other party such that he cannot make correct decisions. For instance, the lack of complete information when a consumer buys a used car may make it difficult for him to determine whether or not it is a good car or a lemon. This increases the risk of the purchase and lowers the car’s value. The seller of the car, however, knows the quality of the car.

In the same line of thought, an insurance company does not have the same knowledge as the persons being insured. This creates two types of problems: moral hazard and adverse selection. If individuals are insured, their behaviour changes as they feel more protected and will lessen their efforts to avoid the misfortune. Hence, moral hazard occurs after the transaction. Ex ante moral hazard is where insured parties behave in a more risky manner. An individual may drive relatively more carelessly and be less careful about locking the automobile after purchasing automobile insurance and may be

relatively less security conscious at home if he is insured against burglary. Ex post moral hazard is the second type of behaviour that may change. For example, without medical insurance, individuals may forgo costly medical treatment by simply taking more precautious. But after medical insurance, they may ask the insurance provider to pay for the cost of medical treatment that will not have occurred otherwise.

Another example of moral hazard occurs when people do better than break even when misfortune strikes. If an accident costs a person Rs 3000 but insurance will pay Rs 5000, the insured person has no incentive to avoid the accident but has an incentive to cause it. Therefore, moral hazard brings irrational behaviour.

When the insurance company sets its rates, it has to consider the amount of care the consumers are taking. If no insurance is present, the consumers need to take the maximum possible amount of care. If it is impossible to buy house-theft insurance, then all individuals would use large expensive locks. The consumer bears the full cost of his actions. But if the individual buys house insurance, then the cost on him is much less. If a misfortune occurs, he will get the insurance money. Too much insurance means that people take inadequate care.

Insurance companies obviously respond to these problems. They specify more precisely the responsibilities of the people buying the insurance, for example, by making the first Rs 500 of damage the responsibility of the insured or by requiring insured persons to fit windows locks. Private

insurance companies most of the times do not cover the full loss. They will always want the consumer to face some part of risk. As said above, most companies include an amount that the insured party has to pay in any claim. This ensures that consumers have an incentive to take some care. It is usually against the law to bring misfortune on. Also, if the problem of moral hazard is too great, there will be no insurance coverage for the misfortune.

Adverse selection occurs when the seller values the good more highly than the buyer because the seller has a better understanding of the value of the good. This term was first used in the insurance industry to describe this sort of problem. Adverse selection occurs when the individual’s demand for insurance is positively linked with his/her risk of loss and where the insurance company is unable to input for this correlation in the price of the insurance. This therefore occurs because of some hidden characteristics such that private information, for example, is known only on one side of the transaction and not on the other side such that the latter cannot make accurate decisions. Therefore, adverse selection occurs before the transaction.

The insurance industry faces problems of signaling and screening. People who buy insurance have a better idea than the sellers. For instance, if insurance company wish to increase the premium for those who want to buy insurance against cancer, then it is only those who is in helpless situation or those who know that they will die soon will buy insurance from the company. This is because they know that they will never recover from the disease and they do not have to worry how high the premium is.

We can also frame the adverse selection problem in terms of car insurance. Suppose that there are two types of drivers: dangerous – “ high cost” consumers that are likely to get into accidents and safe – “ low cost” consumers that drive safely and are less likely to call on insurance companies to pay for damages. Type 1 consumers are the dangerous drivers whereas type 2 consumers are the safe ones. Type 1 consumers have an expected marginal cost of MC1 and car insurance for type 2 consumers have MC2, where MC1> MC2. The demand curves are equal to marginal willingness to pay. The aggregate demand curve D1 for type 1 consumers is the same as the aggregate demand curve D2 for type 2 consumers.

Panel (a) in Figure 1 illustrates what the car insurance market will be like if there are only type 1 consumers and panel (b) illustrates the market if only type 2 consumers exist. In panel (a), the equilibrium price p1 will cause consumers of type 1 to purchase x1 and from panel (b), the equilibrium price p2 will cause type 2 consumers to buy insurance policies x2. These equilibrium points are efficient quantities that maximize social surplus.

If a competitive insurance industry can distinguish between type 1 and type 2 consumers, all insurance policies will be priced at the marginal cost relevant for the type of consumer who is purchasing insurance. Panel (c) merges panels (a) and (b). If insurance companies can differentiate safe drivers apart from unsafe drivers, type 1 consumers will get consumer surplus equal to area (a) while consumers of type 2 will get consumer surplus equal to area (a + b + c + d + e + f). Since insurance firms are

making zero profit, the overall social surplus would then be equal to (2a + b + c + d + e + f).

Now suppose that firms cannot distinguish between type 1 and type 2 drivers. The only information that firms have is that half of all drivers are of type 1 and half are of type 2. Under perfect competition that drives profits for insurance companies to zero, this implies that the single price charged for car insurance will lie halfway between MC1 and MC2, indicated by p* in panel (c).

High cost consumers benefit from the information asymmetry. The price for car insurance decreases from p1 to p* as depicted from panel (a). Consumers of type 2 will, on the other hand, be hurt by the informational asymmetry: their price increase from p2 to p*. Some consumers are better off and some are worse off. This raises an efficiency problem.

Consumer surplus for type 1 consumers increases to (a + b + c) but consumer surplus for type 2 consumers falls to (a + b + c). The total surplus is (2a + 2b +2 c). The area (b) is equal in size to area (d), which means we can rewrite this overall surplus as (2a + b + 2c + d). The triangle (c) is equal in size to triangle (f), which means the overall surplus is now (2a + b + c + d + f). If we compare this surplus with that under the full information surplus of (2a + b + c + d + e + f), we can deduce that there has been a lost of area (e). Area (e) is the deadweight loss when there is no perfect information in the market.

Figure 1

Source: Microeconomics: An Intuitive Approach with Calculus by Thomas J. Nechyba (2011). Page 797

Area (g) is equal to half of area (e), and area (f) is equal to area (g). The deadweight loss is (f + g). Panel (a) of the graph places area (g) into the graph for just consumers of type 1 where we originally said that consumers would buy x1 insurance policies when they are priced at marginal cost.

For insurance companies it is efficient to provide policies up to x1 as all the way up to x1, the marginal benefit (as indicated by the demand curve) exceeds the marginal cost. When x* policies are bought by type 1 consumers, the deadweight loss from this " over-consumption" of insurance is then area (g). For safe drivers the marginal benefit exceeds marginal cost until x2. With the implementation of the uniform price p*, consumers of type 2 are now " under-consuming" insurance, with the deadweight loss (f). Consumers that cost less to insure are driven out of the insurance market due to the adverse selection of consumers.

To conclude we can say that moral hazard refers to situation where a party cannot observe the actions of the other. Thus, it is a hidden action problem. Adverse selection occurs when one party cannot observe the quality of goods on the other side of the market and therefore is sometimes known as a hidden information problem. In case of moral hazard the government may have other tools such as it can compel a particular level of care and set criminal punishments for those who are careless. However, it is said that the

government can do no better than the insurance companies. In the case of hidden information problem, if the government forces everyone irrespective of their risk classes to buy insurance, it is possible for everyone to be better off. But there are costs to the government intervention.