Chapter Three
Fundamentals of Insurance

In the first two units you have learned about what risk and risk management means. Specially, in the second chapter you have seen risk management process and had an opportunity to appreciate the different tools of risk management. Among the tools, we have seen insurance as one and well pronounced tool of risk management. In this and the consecutive units of this course we will exclusively deal with insurance. Thus, this unit will be devoted to help you learn more about modern commercial insurance and try to appreciate the basic issues of insurance like meaning, function, and basic characteristics, elements of insurable risk and social cost and benefits of insurance.

3.1.   Meaning and Functions of Insurance

3.1.1. Meaning of Insurance

Insurance is one way of risk handling tool which can be applied by organizations and it is the most formal approach of risk management tool. Insurance is a complicated and intricate mechanism, and it is consequently difficult to define. However, in its simplest aspect, its definitions can be considered from four viewpoints, that is, from an individual, societal, functional and contractual viewpoints.

1. Insurance defined from the individual point of view.

Insurance is an economic device whereby the individual substitutes a small certain cost (the premium) for a large uncertain financial loss (the contingency insured against) that would exist if it were not for the insurance. From an individual point of view, insurance is an economic device were by the Individual substitutes a small certain cost (the premium) for a large uncertain financial loss (the contingency insured against) that would exist if it were not for the insurance. Insurance is the protection against financial loss provided by an insurer. The primary function of insurance is the creation of the counterpart of risk, which is security. Insurance does not decrease the uncertainty for the individual as to whether the event will occur, nor does it alter the probability of occurrence, but does reduce the probability of financial loss connected with the event. From the individual's point of view, the purchase of an adequate amount of insurance on a house eliminates the uncertainty regarding a financial loss in the event that the house might burn down.

Some people seem to believe that they have somehow wasted their money in purchasing insurance if a loss does not occur and indemnity is not received. Some even feel that if they have not had a loss during the policy term, their premium should be returned. Both views constitute the essence of ignorance. Relative to the first, we already know that insurance contract provides a valuable feature in the freedom from the burden of uncertainty. Even if a loss is not sustained during the policy term, the insured has received something from the premium; the promise of indemnification if a loss had occurred. With respect to the second, one must appreciate the fact that the operation of the insurance principle is based upon the contribution of the money paying the losses of the unfortunate few. If the premiums were returned to the many who did not have losses, there would be not funds available to pay for the losses of the few who did. Basically, then, the insurance device is a method of loss distribution. What would be devastating loss to an individual is spread in an equitable manner to all members of the group.

II.   Insurance defined from the society point of view.

From the social point of view, insurance is an economic device for reducing and eliminating risk through the process of combining a sufficient number of homogeneous exposures into a group to make the losses predictable for the group as a whole. Insurance is a device by means of which the risks of two or more persons or firms are combined through actual or promised contributions to fund out of which claimant are paid. Form the viewpoint of the insured, insurance is a transfer device. From the viewpoint of the insurer, insurance is a retention and combination device. The distinctive feature of insurance as a transfer device is that it involves some pooling of risks; i.e. insurer combines the risks of many insured's. Through this combination insurer improves its ability to predict its expected losses.

III.   Insurance defined from the Functional point of view.

 "Insurance is a co-operative device to spread the loss caused by a particular risk over a number of persons, who are exposed to it and who agree to insure themselves against the risk".

IV.   Insurance defined from THE contractual point of view.

Insurance contract may be defined as *a contract by which one party (the insurer/insurance company) agrees to pay to the other party (the insured) or his beneficiary, a certain sum upon a given contingency (the risk) against which insurance is sought.*

3.1.2. *Functions of Insurance*

The functions of insurance can be studied into two parts;

1.   **Primary functions**
2.   **Secondary functions**

PRIMARY FUNCTIONS

A. **Insurance provides certainty:** Insurance provides certainty of payment at the uncertainty of losses. The uncertainty of loss can be reduced by better planning and administration. But, the insurance relieves the person from such difficult task. There are different types of uncertainty in a risk. The risk will occur or not, when will occur? How much loss will be there?. In other words, there are uncertainties the timing and amount of loss. Insurance removes all these uncertainty and the assured certainty of payment of losses.

B. **Insurance provides protection:** The main function of the insurance is to provide protection against the probable chances of loss. The time and amount of loss are uncertain and at the happening of risk, the person will suffer loss in the absence of insurance. The insurance guarantees the payment of loss and thus protects the insured from sufferings. Insurance cannot check (or) control the happening of risk but can provide for losses at the happening of the risk.

C. **Risk Sharing:** The risk is uncertain and therefore, the loss arising from the risk is also uncertain. When risk takes place, the loss is shared by all the persons who are exposed to the risk. The risk sharing in ancient times was done only at the time of damage or death. But, today, on the basis of Probability of risk, the share is obtained from each and every insured in the shape of premium without which protection is not guaranteed by the insurer.

SECONDARY FUNCTIONS

A. **Prevention of loss:** The insurance joins hands with those institutions which are engaged in preventing losses for the society exert effort to prevent risk. This is done with the economic justification that reduction in loss causes lesser payment to the insured and so more saving is possible which will assist in reducing the premium. Lesser premium invites more business and more business cause lesser share to the insured. Here, the insurance assist financially to health organizations, fire brigade, educational institutions and other organizations which are engaged in preventing the losses of the masses from death and damage.

B. **It provides capital:** The insurance provides capital to the society. The accumulated funds are invested in productive channels. The dearth of capital of the society is minimized to a greater extent with the help of investment of insurance. The industry, business and individual are benefited by the investment and loans of the insurers.

C. **It improves efficiency:** The insurance eliminates worries and miseries of losses at death and destruction of property. A carefree person can devote his body and soul together for better achievement. It improves not only his efficiency, but the efficiencies of the masses are also advanced.

D. **It helps economic progress:** insurance by protecting the society from huge losses of damage, destruction and death, provides an initiative to work hard for the betterment of the masses.

3.1.3. Basic Characteristics of Insurance

An insurance plan or arrangement typically has certain characteristics which includes;
1. *Pooling of losses*
2. *Payment of fortuitous losses*
3. *Risk transfer*
4. *Indemnification*

1. POOLING OF LOSSES

Pooling of losses is the heart of insurance. The other names for pooling are sharing, spreading or combination. *"Pooling is the spreading of losses incurred by the few over the entire group, so that in the process, average loss is substituted for actual loss"*. In addition, pooling involves the grouping of a large number of homogeneous exposure units so that the law of large numbers can operate to provide a substantially accurate prediction of future losses. *Homogeneous exposure unit* means there is a large number of similar (e.g., houses), but not necessarily identical exposure units that are exposed to the same perils. Thus pooling implies:

♣ The sharing of losses by the entire group and

♣ The prediction of future losses with some accuracy based on the law of large numbers.

Sharing of loss: The concept of loss sharing can be explained with an example. Assume that there are 10,000 houses in Adama. All the 10, 000 households agree that if any one of the house is damaged or destroyed by a fire, the other households will indemnify, or cover, the actual costs of the household who has suffered a loss. Also assume that each home is valued at 1, 000, 000 birr, and, on average, one house burns every year. In the absence of insurance, the maximum loss to each household is 1, 000, 000 birr, if the house burns. However, by pooling the loss, it can be spread over the entire group, and if one household has a total loss, the maximum amount that each household would have to pay is only 10 birr i.e (1, 000, 000 Birr/ 10, 000 household) = 10 birr. Thus, the pooling technique results in the substitution of an average loss of 10 birr for the actual loss of 1, 000, 000 birr.

Prediction of future losses with the help of the law of large number {LLN}: If we are able to have large number of exposures units {members of insurance} we will be able to predict future losses with some accuracy. From the viewpoint of the insurer if future losses can be predict, objective risk is reduced. Thus, another characteristic of insurance is risk reduction based on the law of large numbers.

The *law of large numbers* states that the greater the number of exposures, the more closely will the actual results approach the probable results that are expected from an infinite number of exposures. For example, *tossing a coin* and having a look at the **expected** and **observed** probability and the resulting **deference** in prediction given different tosses {exposure units}. If you flip a balanced coin into the air once, the true or expected probability or the chance of getting a head is 0.5. After tossing it you may or may not get head, in both cases the difference is same. Let say we get head i.e the observed probability is 1. The difference is 0.5 means (1-0.5= 0.5). If you flip the coin only 10 times, you may get a head 7 times. Although, the observed probability is 0.7, the true probability still 0.5. The difference in prediction becomes smaller I.e 0.7-0.5= 0.2 If the coin were flipped 1 million times, however, the actual number of heads would be approximately 5,00,000{50% of the events} and the resulting difference will be very small. Thus, as the number of random tosses increases, the actual results approach the expected results. The same is true for insurance pool, the larger the exposure units the more approximate/ accurate the prediction will be.

events	Expected probability{ E.P}	Observed probability{O.P}	Diference= Op-Ep=
Tossing 1	0.5	0 or 1	0.5
Toss 10 times	0.5	Let say 7 head = 0.7	0.2
1 million times	.0.5	0.5000001	0.01

2. PAYMENT OF FORTUITOUS LOSSES

A second characteristic of private insurance is the payment of fortuitous losses. A fortuitous loss is one that is unforeseen and unexpected and occurs as a result of chance. In other words, the loss must be accidental. The law of large numbers is based on the assumption that losses are accidental and occur randomly.

3. RISK TRANSFER

Risk transfer is another essential element of insurance. With the exception of self- insurance, a true insurance plan always involves risk transfer. Risk transfer means that a pure risk is transferred from the insured to the insurer, who typically is in a stronger financial position to pay the loss than the insured. From the view point of the individual, pure risks that are typically transferred to insurers include the risk of premature death, poor health, disability, destruction and theft of property, and liability lawsuits.

4. INDEMNIFICATION

A final characteristic of insurance is indemnification for losses. Indemnification means that the insured is resorted to his or her approximate financial position prior to the occurrence of the loss. Thus, if your house burns in a fire, the homeowner's policy will indemnify you or restore you to your previous position. If you are sued because of the negligent operation of an automobile, your automobile liability insurance policy will pay those sums that you are legally obligated to pay.

3.2.   ELEMENTS OR REQUIREMENTS OF AN INSURABLE RISK

As we have seen in the second chapter risk management deals with pure risk exposure and consequently insurance normally insure/deals only with pure risk exposures. However, not all pure risks are insurable. Certain requirements usually must be fulfilled before a pure risk can be privately insured. From the view point of the insurer, there are ideally six requirements of an insurable risk.

1.   *There must be a large number of homogeneous exposure units*
2.   *The loss must be accidental and unintentional*
3.   *The loss must be determinable and measurable.*
4.   *The loss should not the catastrophic*
5.   *The chance of loss must be calculable*
6.   *The premium must be economically feasible*

1.   There must be a large number of homogeneous exposure units

The purpose of the first requirement is to enable the insurers to predict losses based on the law of large numbers. If a sufficiently large number of homogeneous exposure units are present within a class, the insurer can accurately predict both the average frequency and the average severity of loss.

The items in an insurance pool, or the exposure units, need to be similar so that a fair premium can be calculated. The fire damage done to brick homes will ordinarily be less than that of suffered by wooden homes. It would be unfair to combine them is the same insurance pool and charge each insured the same premium rate based on the combined losses of the pool. If such as attempt were made, the rate developed would cause the owners of brick home (less susceptible to loss) to pay too high a premium and the owners of wooden structures (more susceptible to loss) to pay too low a premium.

2.   Accidental and unintentional loss

This means that if an individual deliberately causes a loss, it should not be paid. If the intentional loss were paid the effect would be as follows. The loss should be accidental because the law of large numbers is based on the random occurrence of events. A curious example of the application of the principle of accidental losses occurs with life insurance, for which suicide within a year or two of a policy being purchased is considered non accidental. Insurers do not pay such losses. If a suicide occurs several years in after a policy is in force, however the loss is considered accidental, or the result of mental illness - a cause as accidental as any other illness.
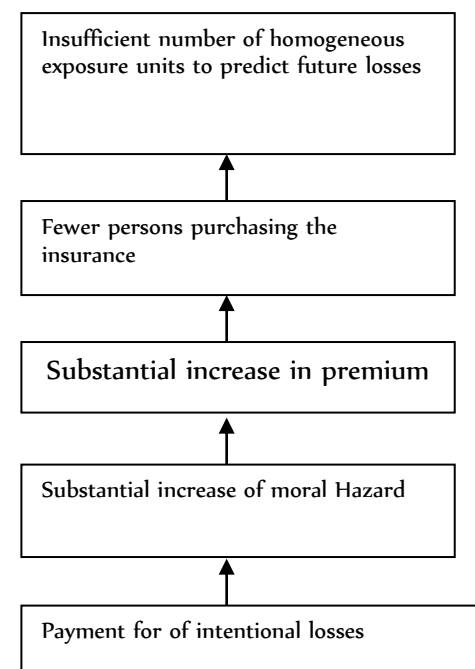
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┌────────────────────────────────────┐
│ Insufficient number of homogeneous │
│ exposure units to predict future   │
│ losses                             │
└────────────────────────────────────┘
                  ▲
┌────────────────────────────────────┐
│ Fewer persons purchasing the       │
│ insurance                          │
└────────────────────────────────────┘
                  ▲
┌────────────────────────────────────┐
│ Substantial increase in premium    │
└────────────────────────────────────┘
                  ▲
┌────────────────────────────────────┐
│ Substantial increase of moral      │
│ Hazard                             │
└────────────────────────────────────┘
                  ▲
┌────────────────────────────────────┐
│ Payment for of intentional losses  │
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Fig 3.1 payment of intentional loss and its consequential effect

3.   Determinable and Measurable loss

Loss must be definite, measurable and of sufficient severity to cause economic hardship. This means the loss must be definite to cause time place, and amount. Life insurance in most cases meets this requirement easily. The cause and time of death can be readily determined in most cases. It is difficult to determine and measure the losses in

some cases. E.g. there are chances of dishonest claims taking an illness or injury and collecting the insurance payment.

It is also important that the losses insured against be measurable. The company must determine whether the insured satisfies the definition of disability as stated in the policy, because sickness and disability are highly subjective. The basic purpose of this requirement is that the insurers must be able to determine if the loss is covered under the policy, and if it is covered, how much the company will pay.

4. No Catastrophic Loss / *The loss should not the catastrophic*

This means that ideally a large proportion of exposure units should not incur losses at the same time. The pooling technique breaks down if most or all of the exposure units in a certain class simultaneously incur a loss. Examples of catastrophic losses include, flood, hurricanes, earth quakes, wild fire, tsunami etc. Insurers ideally wish to avoid all catastrophic losses, but still employ two approaches to handle the this problem.

I.   *Reinsurance:*   i.e., Insurance companies are indemnified by re-insurers for catastrophic losses. It is shifting of part or all of the insurance originally written by one insurer to another.(to be dealt in detail @ chapter-5)

II. *Dispersing coverage over a large geographical area:*

This is a technique to reduce the burden of catastrophic losses by dispersing the coverage area to different geographic locations.

5. Calculable Chance of Loss

The insurer must be able to calculate both the average frequency and the average severity of future losses with some accuracy. This is necessary so that a proper premium can be charged that is sufficient to pay all claims and expenses and yield a profit during the policy period. Certain catastrophic losses, however, are difficult to insure because of the chance of loss can not be accurately estimated.

6. Economically Feasible Premium

The insured must be able to afford to pay the premium. Premium should be substantially less than the face value, or amount, of the policy.

APPLICATIONS OF REQUIREMENTS OF INSURANCE

Let us consider the risk of fire to a private dwelling this risk can be privately insured since the requirements of an insurable risk are generally fulfilled.

The risk of Fire as an insurable Risk

Requirements	Does risk of fire qualify as insurable?
1. Large n<u>o</u> of homogeneous exposure units. 2. Accidental and unintentional loss 3. Determinable and measurable loss 4. No catastrophic loss 5. Calculable chance of loss 6. Economically feasible premium	1. Yes. A large number of homogeneous exposure units are present. 2. Yes. With the exception of arson, most fire losses are accidental and unintentional. 3. Yes. If there is disagreement over the amount paid, a property insurance policy has provisions for resolving disputes. 4. Yes. Although catastrophic fires have occurred, all exposure units normally do not burn at the same time. 5. Yes. Chance of fire can be calculated, and the average severity of a fire loss can be estimated in advance. 6. Yes. Premium rate per Birr 100 of fire insurance is relatively low.

The risk of unemployment, which generally is not privately insurable.

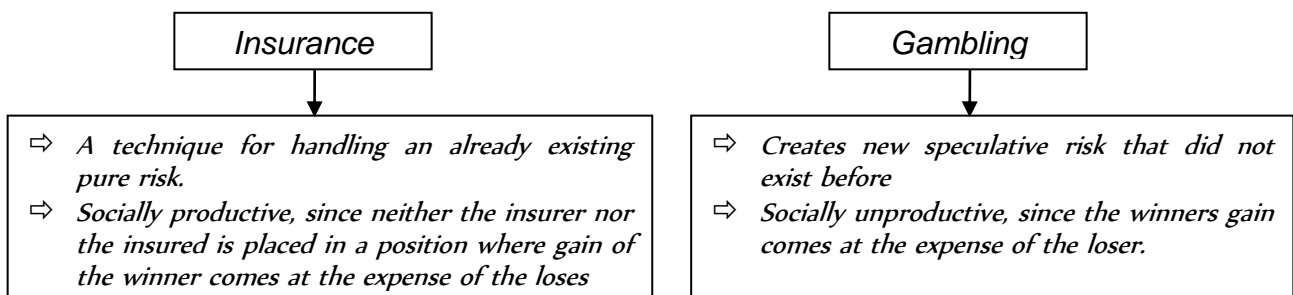| Requirements	Does risk of fire qualify as insurable?
1. Large number of homogeneous exposure units	1. Not completely. Exposure units are heterogeneous in nature (professional, skilled, semi skilled, and unskilled workers).
2. Accidental and unintentional loss	2. No. A large proportion of unemployment is due to individuals who voluntarily quit their jobs.
3. Determinable and measurable loss	3. Not completely. The level of unemployment can be determined, but the measurement of loss is difficult. Some unemployment is involuntary; however, some unemployment is voluntary.
4. No catastrophic loss	4. No. A severe national recession or depressed local business conditions could result in a catastrophic loss.
5. Calculable chance of loss	5. No. The different types of unemployment generally are too irregular to estimate the chance of loss accurately.
6. Economically feasible premium	6. No. Adverse selection, moral hazard, and the potential for a catastrophic loss could make the premium unattractive.

From the above illustration the risk of unemployment does not completely meet the requirements, because of the following reasons.

➢ Labor is heterogeneous (professionals, highly skilled, semi skilled, unskilled, blue collar & while collar workers).

➢ Unemployment rates vary significantly by occupation, age, sex, education, martial status city, state, etc.

➢ Duration of the unemployment varies widely among different group.

➢ The presence of potential catastrophic loss due to large number of unemployed persons.

➢ Different types of unemployment on an irregular basis

3.3.   Insurance, Gambling and speculation
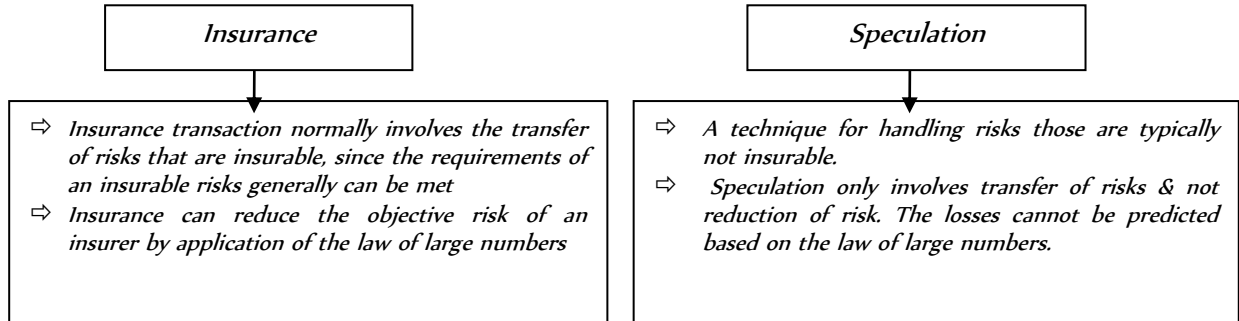
3.3.1.   Insurance and Gambling

Insurance is often confused with gambling. There are two important differences between them.

Insurance	Gambling
⇨ *A technique for handling an already existing pure risk.* ⇨ *Socially productive, since neither the insurer nor the insured is placed in a position where gain of the winner comes at the expense of the loses*	⇨ *Creates new speculative risk that did not exist before* ⇨ *Socially unproductive, since the winners gain comes at the expense of the loser.*

The insurer and the insured have a common interest in the prevention or non occurrence of loss and the insurer in indemnifies the losses incurred by the insured. Whereas, gambling transaction never restores the losses to his or her earlier financial position. A gambler presumably enjoys the risk of gambling and therefore would be unlikely to pay the premium needed for transferring the risk being enjoyed.

3.3.2. Insurance and Speculation

Both are similar in that risk is transferred by a contract and no new risk is created. The main difference between insurance and speculation lies in the type of that each is designed to handle, and in the resulting differences in contractual arrangements. The main similarity lies in the central purpose behind each transaction. However there are some important differences exist between them.

Insurance	Speculation
⇨ Insurance transaction normally involves the transfer of risks that are insurable, since the requirements of an insurable risks generally can be met ⇨ Insurance can reduce the objective risk of an insurer by application of the law of large numbers	⇨ A technique for handling risks those are typically not insurable. ⇨ Speculation only involves transfer of risks & not reduction of risk. The losses cannot be predicted based on the law of large numbers.

Speculation is a transaction under which one party, for a consideration, agrees to assume certain risk. The risk of adverse price fluctuation is transferred to speculators who believe they can make a profit because of superior knowledge of market conditions. The risk is transferred, not reduced and prediction of loss generally is not based on the law of large numbers. A speculator is a transferee of risk, and the transferor is usually a business person wishing to pass on a price risk to someone who is more willing and able to bear it. Such a business person then is using the transfer method of handling the risk.

3.4. Cost and benefits of insurance for the society

3.4.1. Cost and benefits of insurance for the society

The existence of insurance results in great benefits to society. The major social economic benefits of insurance include the following.

1. Indemnification of losses
2. Less worry & fear
3. Source of investment fund
4. Loss prevention
5. Enhancement of credit
6.

Indemnification for loss

The indemnification function contributes greatly to family and business stability and therefore is one of the most important social & economic benefit is of insurance. The following table lists the benefits to individuals and families and also to business firms through the indemnification function of insurance.

To individuals and families	To business firms
• Permits individuals & families to be restored to their former financial position of lei a loss occurs. • The families maintain their economic security. • They are less likely to apply for public assistance or welfare. • They are less likely to seek financial assistance from relatives & friends.	➢ Permits the firm to remain in business even after the loss occurs. ➢ Employees of the firm would be able to keep their jobs ➢ Suppliers continue to receive orders ➢ Customers can still receive the goods & services

Less Worry and Fear

Such families who may be exposed to risks the possible worry & fears are reduced.

♦ Persons insured their life in the event of their premature death.	⇨ Less worry about financial security of their dependents.
♦ Persons insured for long term disability	⇨ Do not worry about the replacement of their earnings, if a serious illness or accident occurs.
♦ Property owners who are insured	⇨ Enjoy greater peace of mind since they know they are covered if a loss occurs.

Worry and fear are reduced after a loss occurs since the insured know that they have insurance that will pay for the loss.

Source of Investment funds

Insurance provide funds for capital investment and accumulation. Premiums are collected in advance of the losses and funds not needed to meet the immediate losses can be loaned to business firms. These investments.....

- *increases society's stock of capital goods*
- *promote economic growth*
- *promote full employment*
- *reduce cost of borrowings of business firm*

Loss prevention

Insurance companies are actively involved in numerous loss prevention programs and also employ a wide variety of loss prevention personnel. (E.g. Safety Engineers, Specialists in fire prevention, Occupational Safety and Health, etc.) Some of the loss prevention activities are:

- *High way safety & reduction of automobile death.*
- *Fire prevention*
- *Reduction of work related disabilities*
- *Prevention of automobile thefts*
- *Prevention and detection of arson losses*
- *Prevention of defective products that could injure the users*
- *Prevention of boiler explosions*
- *Educational programs on loss prevention*

The loss prevention activities reduce both direct and indirect, or consequential losses. Society benefits since both types of losses are reduced.

Enhancement of Credit

Insurance makes a borrower a better credit risk, because its gives greater assurance that the loan will be repaid. Example:

- ♣ *Property insurance is obtained while lending for purchase of houses. Property insurance protects the lender's financial interest if the property is damaged or destroyed.*
- ♣ *Temporary loan may obtained by insuring inventories of business firms.*
- ♣ *Insurance on automobile is required to get a loan for purchasing any new automobile*

Thus insurance can enhance a person's credit worthiness

3.4.2. COST OF INSURANCE TO SOCIETY

No institution can operate without certain costs. These are listed below so that one can obtain an impartial view of the insurance institution as a social device. The major social costs of insurance include the following:

- Cost of doing business
- Fraudulent claims
- Inflated claims

Cost of doing the insurance business/operating costs

The main social cost of insurance lies in the use of scarce of economic resources *land, labor capital and organization* to operate the business. In financial terms, an expense loading must be added to the pure premium to cover the expenses incurred by insurance companies. An expense loading is the amount needed to pay all expenses, including commissions, general administrative expenses, state premium taxes, acquisition expenses, and an allowance for contingencies and profit. The cost is justified from the insured's view point as follows:

- *Uncertainty concerning the payment of a covered loss is reduced because of insurance.*
- *The cost of doing business is not necessarily wasteful, because insurers engage in a wide variety of loss prevention activities.*
- *The insurance industry provides jobs to millions of workers.*

However, because economic resources are used up in providing insurance, a real economic cost is incurred.

Fraudulent claims

These are the claims made against the losses that one caused intentionally by people in order to collect on their policies. There always exists *moral hazard* in all forms of insurance. Arson losses are on the increase. Fraud and vandalisms are the most common motives for arson. *Fraudulent claims are made against thefts of valuable property*, such as diamond ring or fur coat, and ask for reimbursement. These claims results in higher premiums to all insured. These social costs fall directly on society.

Inflated claims

It is a situation where, the tendency of the insured to exaggerate the extent of damages that result from purely unintentional loss occurrences. Examples of inflated claims include the following.

- a) *Attorney for plaintiffs may seek high liability judgments - Liability insurance*
- b) *Physicians may charge above average fees - health insurance*
- c) *Disabled persons may malinger to collect disability income benefits for a longer duration.*

These inflated claims must be recognized as an important social cost of insurance. Premiums must be increased to cover the losses, and disposable income that could be used for the consumption of other goods or services is thereby reduced. The social costs of insurance can be viewed as the sacrifice that society must make to obtain the social benefits of insurance.

"End of chapter three!"

Do good,
Do it well,
Do it your way!