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Numerical Study on the Impact of COVID – 19 to Insurance Sector

Anita Singla[1*], Vinod Kumar[1] and Rupa Rani Sharma[2]
[1]Department of Mathematics, Guru Kashi University, Bathinda, Punjab.
[2]Department of Applied Sciences, G.L. Bajaj Institute of Technology and Management, Greater Noida, India.

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Abstract
Life is uncertain; there are no predictions about what will happen in one's life. Similarly, business and share market also don't have any guarantee as this face many unexpected losses in the long run. Assets like cars, bikes, costly mobile phones, laptops etc. also do have any certainty in their lifetime. They may get stolen or damaged. So, a person can defend all these risks with an insurance cover. The year 2020 is like a hurricane for the whole world. The world economy faced so many downfalls almost in every branch of life. The business of insurance needs a special attention as compared to the other business due to the change in economy and employment. The insurance sector has lost roughly 43% of their market value. Maximum of the minimum value and minimum of the maximum value technique as matrix multiplication is applied as get results. The intuitionistic index values are calculated and made using Sanchez‘s approach.The decline in the general insurance sector faced more loss in comparison of health insurance. So, insurance works by spreading the cost of unexpected risks among a large number of people in the same region who share similar risks.

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1.0 Introduction

Today, there is no shortage of investment options for a person to choose from. Modern day investments consist property, gold, mutual funds, fixed income instruments and of course, life insurance. In 1965, Zadeh [1965] introduced the concept of fuzzy sets as a new way of representing vagueness in everyday life. Fuzzy theory looked upon as a generalization of classical set theory whose elements have degree of membership and degree of non-membership which can take any value in the closed interval [0,1]. Yao [1998] has done a comparative analysis of fuzzy sets and

rough sets. Given the plethora of choices, it becomes essential to make the right choice when investing our hard-earned money. Life insurance is the only investment that helps us to meet our dual needs- saving for life's important goals and protecting our assets. A life insurance policy is a contract with an insurance company. The business of a life insurance company involves risks related to birth, illness, death, injuries, aging etc. Each insurance policy is related individually to create a rate for that person based on statistics and the insurance company's rating rules. The business of insurance plays an important role in the development of economy. But at present the business of life insurance has shrunk in our country from the March month. It has also hit by the pandemic COVID-19 and the subsequent lockdown.

There is a recession in India in life insurance business in 2020. According to the 'Global Data' (data and Analytics Company) the insurance sector has dipped 0.9% in 2020 as compared to 8.8% growth recorded in 2019. As per Insurance Regulatory Development Authority of India (IRDAI), the business of insurance has declined 32.6% to 6728 crores as against 9928 crores for the same time last year. In March 2020 there is a great fall in the premium collection approximately 32.2% in comparison of March 2019. The extended phase of lockdown and its related restrictions will have a negative effect on the premium collection growth in 2020. The Life Insurance Corporation of India (LIC) has recorded 32% declining in premium collection in comparison of last year collection. The private life insurers are also the witness of 33.3% (approximately) fall in the premium collection for April month at 3146 crores as compare to 4714 crores in April 2019. The largest private insurance companies like HDFC life insurance dipped 53% and ICICI prudential life insurance also faced a fall around 60%. According to the experts of this business up to mid-July this business will weak for the insurers. The pack of recovery may come to track as the lockdown may change to unlock. The lockdown phase has seen fewer claims from motor segment in comparison of health segment. Further, with the suggested increase in third party insurance kept on hold by the insurance regulator because of COVID-19, non-life sector is expected to face tough time ahead. There are many sorts of insurances available out there. And people can get many forms the system, as per need, as well.

1.1 Keen Takeaways

(a) Insurance is a policy in which an insurer indemnifies another against losses from specific contingencies.
(b) There are many types of insurance policies available in the market say life insurance, health insurance, homeowners etc. are the most common forms of insurance.

(c) The core components that make up most insurance policies are the deductible, policy limit, and premium.

2.0 Working Process and Principles

Nowadays, there are various types of insurance policies are available. People can purchase virtually or from the office of the insurance company according to our choice. The most common types of personal insurance policies are whole life, health, homeowners, and life. Most individuals in the United States have at least one of these types of insurance, and car insurance is mandatory by law. But businesses require special types of insurance policies that insure against specific types of risks faced by a particular business. For example, a fast-food restaurant needs a policy that covers damage which may occur as a result of cooking with a deep fryer. But a car dealer is not subject to this type of risk but does needs coverage for damage that can happen during test drives. While selecting the best policy for our family, it is important to pay attention to the three main components of most insurance policies: deductible, premium, and policy limit.

2.1 Principles

To ensure the proper functioning of the insurance contract, the insurer and the insured have to follow the following principles.

- Good Faith
- Direct Cause
- Interest from Insurance
- Indemnity
- Subrogation
- Contribution
- Loss Minimizing

2.2 Features and Functions of Insurance

Insurance coverage has some salient features are given below:

- It is a kind of risk management plan to use an insurance policy as a saving tool against an uncertain loss.

- Insurance coverage does not diminish the amount of loss that a person faces. Insurance only assures that the loss is shared and distributed among multiple people.
- Various customers of an insurance company pool in their risks. So, they pay the premiums together. This makes each client bears a nominal fee.
- Insurance coverage can be provided for medical expenses, vehicle damage, property damage etc. depending on the nature of insurance.
- The policy buyer should check the three components thoroughly while buying an insurance policy.

The main functions of insurance are listed as follows:

- The insurance policies provide surety to the insured.
- These ensure the protection of the family.
- These are risk-sharing policies.
- Insurance prevents the damages that can come from loss.
- It provides capital.
- It is known for improving efficiency.
- It helps in boosting the economy.

2.3 Position of General Insurance

A general insurance is a contract that offers financial compensation on any loss other than death. The customer can select the types of risks which the customer wish to cover by choosing the right kind of policy with the features need. But now in the COVID-19 pandemic the general insurance companies have faced 11% decline in premium collection in March 2020, after a record growth of 14% in the last financial year. If individually about the general insurance companies, Bajaj Allianz General's premium fell 29% (approximately) in the month of March. The premium collection of New India Assurance (largest state-owned general insurer) declined by 21% While ICICI Lombard faced 17.3% fall in premium collection. HDFC Ergo saw a fall of 16% and Reliance General dipped 8% in premium collection. Some other general insurance companies like National Insurance, Oriental Insurance and United India Insurance also recorded downfall in their premium collection. As a result, a lot of people deferred their installment payments. The announcement about the nationwide lockdown by Govt. of India is also the main factor of declination in premium collection. In April month the non-life insurers reported an over 10.6% to

14206 crores fall in premium earned as compared to 15891 crores in last year of same period. This includes state-owned, private sector, specialized and state alone health insurers.

2.4 Status of Health Insurance:

Health insurance covers medical expenses that arise due to illness and injuries. These expenses could be related to cost of medicines, hospitalization costs, doctor consultation fees etc. A health insurance policy is a constitutional contract between the insurance company and the owner of the policyholder. This contract details many conditions under which the insurance company will be responsible for the costs of the policyholder's medical care and possibly their families also. A health insurance policy contains some components as insurance premium, deductible, coinsurance, exclusion, coverage limit, provider panels, explanation of benefits etc. As the whole world is suffering from the pandemic COVID-19, a bunch of changes can be seen in health insurance sector. Almost all specialized health insurance companies have witnessed growth in the premium paid in February and March 2020. It is hard to quantify the rise in premium volumes due to this pandemic as the intensity and spread of this virus in India remains unclear. Health and life insurance companies will likely to be the key beneficiaries of any rise in volumes.

3.0 A Few Global Paradigms:

3.1 Severe Acute Respiratory Syndrome (SARS):

A viral respiratory disease spread in Singapore and China from November 2002 to July 2003. In Singapore, the overall individual business dipped 30% and 23% (approximately) in 2002 and 2003 in comparison of 58% growth in health insurance over the past three years. CLIC (insurance company of China) faced 34% compound annual growth rate (CAGR) in long-term health insurance, and term life insurance. CLIC also saw 40% CAGR in short-term health insurance.

3.2 Middle East Respiratory Syndrome (MERS):

A spread rapidly in Saudi Arabia from April 2013 to September 2014. The largest health insurance company of Saudi Arabia (Bupa Arabia) reported 44% and 81% growth in premium collection during 2013 and 2014. The overall industry of the health insurance premium sees a hike of 22% in 2014 as compared to 14% CAGR during 2010 to 2013 and 2% CAGR during 2015 to 2019. The whole life insurance premium increased 7% and 15% in 2014 and 2015 as compared to 2% decline in 2010 and 3% to 8% y-o-y rise from 2016 to 2018.

On the other hand, the pandemic COVID-19 that has led to a lot of deaths in the country, has led to a new problem against policyholders. It is whether the life or health insurance policy will pay for COVID-19 death claims. However, insurance companies as well industry body life insurance council have declared that death claims will be cleared without any delay. Most insurance companies have started covering the treatment of COVID-19 and medical expenses in their policies. Insurance Regulatory and Development Authority of India (IRDA) has issued some new guidelines IRDAI/HTL/REG/CIR/054/03/2020 in the end of March month and vide circular no. IRDAI/INSP/CIR/MISC/077/03/2020 dated 30/03/2020 for meeting health insurance requirements of different sections and also advised the insurance companies to design such type of products which will cover the cost of treatment for COVID-19. But a few insurance companies have used the word 'Forse Majeure' in their policy conditions. This clause meant the policy is held at abeyance in case of sudden incident like a natural calamity, riots epidemic etc. So, there is a worry that this statement would be appealed to reject COVID-19 claims. The insurance authority has said life insurance companies to settle death claims related to COVID-19. Also, the guidelines given by circular no. in March end might not be applicable on all insurance policies. But after some days the Life Insurance Council clarified that the clause 'Force Majeure' will not apply in case of COVID-19 death claims. Life Insurance Council also said that in these difficult times all insurance companies stand by their customers but the customers should not sway by misrepresentation or misinformation. In the health sector, non-COVID claims declined 40%. The claims from the motor segment also faced some decline. The cost of COVID-19 treatment and testing is likely to enfold insurance companies' profits, which could lead to higher premiums in 2021. There may be increase in premium collection in the range of 4-40% in next year. The product prices have also been sharply hiked by 25 to 40 percent during renewals.

3.3 Digitalization in Insurance Sector

Companies across various sectors have been struggling to work out ways to cut costs to counter the impact of COVID-19. Since the Government of India declared the nationwide lockdown from time to time to minimize the COVID spread, the life insurers have been forced to move operations online. So, the emphasis on digitalization has been given by insurance companies on these days. Sources from the insurance sector hold that the 7 to 10% branches may be closed or shut down for saving money. The insurance branches which are in big cities may be the first victims. In the coming weeks, more workers will be required to do work from home to avoid exposure from COVID-19. Now these insurers have been selling the insurance policies

through company websites, video calls, bank websites etc. Mr. Sumit Taneja (1984) and Rupesh Malik (insurance experts) have said that insurance sector is rapidly undergoing a digital transformation; facilitated by artificial intelligence technologies such as neural networks, machine learning, computer vision etc. The life insurance employs 350000 people as direct employees who work on a full-time basis with companies. The life insurance chiefs recommended that the staff of the branch would be transferred to other branches. The human resources have said that each branch would employ approximately 50 to 70 people and not all of them would be shifted to other branches. Mostly in every branch there are few people whose roles become inordinate once the unit closes. Those persons may lose their jobs. Some managers of insurance companies have told that job losses would be inevitable in the long term.

At present mainly the agents and banks are the only two largest distribution channels for life insurance companies. Since, face to face sale of insurance have not yet resumed in maximum parts of the country, so this product sale has seen a decline. In large cities like Mumbai, Delhi, Pune, Kolkata, Bangalore and so on. the commercial real estate costs have been high. For instance, the rent of a 700 square feet office space in some posh area of Mumbai could range between Rs. 75000 to 90000 per month. Added to this cost, the electricity expenses, water expenses and administrative cost of hiring housekeeping persons, canteen staff, security guard and so on. So, at a time when business is seeing a dip every month, Insurers are looking to sustain cash for business purpose. The visit of customers to branch is close to zero and despite all this; the monthly rental costs are being obtained. A chief executive of a private insurance company has given a statement that the reduction of branches will be gradual. Thus, it can be said that the immediate concern for insurance companies (especially in private sector) is the protection of employees, their distribution partners' health and safety along with the continuity of business.

4.0 Analysis and Discussion:

India is a developing country. The economy has faced a great loss because of COVID-19. Approximately 22% people have lost their jobs in North India. More than 25% people faced partial unemployment. More than 50% of the workers in the informal sector have lost their jobs. Due to Corona pandemic more than 40% self-businessmen faced unemployment in Northern region is really a shocking news. Younger workers lost more jobs as compared to older workers. The growth in GDP also faced decline during this crucial situation. Some information collected from internet source is presented below in the form of a table.

Name of Country	GDP growth in % of 2017	2018	2019
Germany	2.8	1.5	0.60
USA	2.4	2.9	2.3
China	6.9	6.7	6.1
UK	1.9	1.5	1.3
India	6.5	6.7	5.3

Table: - 1.1

Thus, the data reports lays emphasis on employment generation schemes which will not only provide support to affected workers but also produce large demand for goods and services which are required for growing the confidence of industrialists and investors for initiating productive activities in the economy. The emphasis on direct employment allowances, MNREGA, subsidized food is also recommended. The GDP growth can be seen from the following graph.

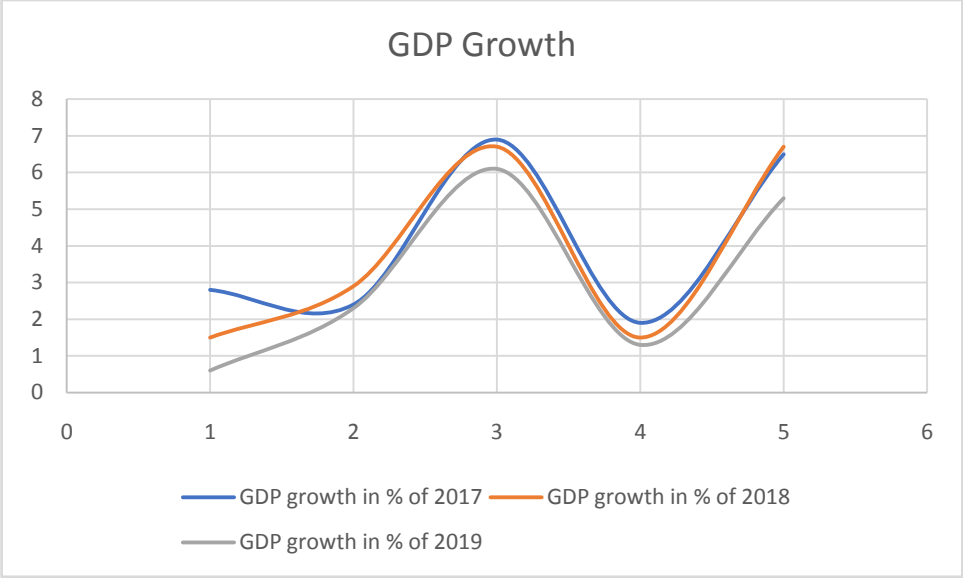

Figure 1.0: GDP Growth

4.1 Applied Technique and Sanchez's Approach

In order to find the solution, some efforts to know about some types of insurance, influencing factors and features. The data has been collected by preparing a questionnaire related to

the insurance sector and influencing factors. The questionnaire was filled by many groups of customers according to the Likert scale measurement tool between the range (0 to 1). Then the average of all these values was find out to prepare the tables (1.2) and (1.3). IF relation is established between some groups of clients and features or factors that influence with assigned degree of membership and degree of non-membership as explained in table (1.2). Secondly, IF relation between the influencing factors is established for the selection of an insurance policy and some types of insurance as explained in table (1.3). Then maximum of the minimum value and minimum of the maximum value technique as matrix multiplication is applied as get result as table (1.4). The intuitionistic index values are calculated and made the table (1.5). Finally, Sanchez‘s approach is applied on tables (1.4) and (1.5) and found the conclusion as table (1.6). If there is a tie in values then it means that group of farmers is interested in both kind crops with their features and factors.

During the covid-19 there is mainly lose in the lives of persons. A growth has been recorded in the demand of insurance after the Covid-19. Digitalization has made the process easier. People are also not much aware about the insurance and the facilities provided by the insurance companies. Some other reasons are illiterateness, less source of income, presence of some frauds, lack of knowledge etc.

Let $G = \{g_1, g_2, g_3, g_4\}$ be the set of various groups of customers who are interested in purchasing the insurance according to their need and requirements. And $F = \{f_1, f_2, f_3, f_4,\}$ be the set of factors affecting the insurance sector.

Now, consider the IFR Q ($G \rightarrow F$) is given as:

Table – 1.2

Q	**F_1**		**F_2**		**F_3**		**F_4**	
Farmers	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**
G_1	0.6	0.1	0.4	0.4	0.3	0.6	0.0	0.6
G_2	0.5	0.2	0.7	0.1	0.5	0.5	0.3	0.5
G_3	0.0	0.9	0.2	0.5	0.2	0.4	0.9	0.1

G_4	0.4	0.3	0.3	0.6	0.1	0.8	0.2	0.7

Now R = $\{r_1, r_2, r_3, r_4\}$ be the type of insurance which are available in the market according to the requirements of the clients and containing various features that attract.

Now taking the IFR R (F→I) is given as:

Table – 1.3

Q	**I_1**		**I_2**		**I_3**		**I_4**	
Features	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**
F_1	0.3	0.0	0.5	0.1	0.3	0.3	0.1	0.8
F_2	0.4	0.5	0.2	0.7	0.1	0.9	0.2	0.3
F_3	0.7	0.1	0.3	0.4	0.5	0.5	0.0	0.7
F_4	0.2	0.6	0.4	0.4	0.4	0.6	0.5	0.1

Now, we apply the max-min-max composition T = R o Q and find the results in the form of following table.

Table – 1.4

Q	**I_1**		**I_2**		**I_3**		**I_4**	
Farmers	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**	**u_Q**	**v_Q**
G_1	0.4	0.1	0.5	0.1	0.3	0.3	0.2	0.4
G_2	0.5	0.2	0.5	0.2	0.5	0.3	0.3	0.3
G_3	0.2	0.4	0.4	0.4	0.4	0.5	0.5	0.1
G_4	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.6

From the above table we make the table that contains the intuitionistic values as:

Table – 1.5

Q	**I_1**	**I_2**	**I_3**	**I_4**
Farmers	Π_1	Π_2	Π_3	Π_4
G_1	0.5	0.4	0.4	0.4
G_2	0.3	0.3	0.2	0.4
G_3	0.4	0.2	0.1	0.4
G_4	0.4	0.3	0.4	0.2

Now, calculate $S_T = u_T - v_T * \pi_T$is greatest where $\pi_T = 1 - u_T - v_T$ is called the intuitionistic index.

Table – 1.6

S_T	**I_1**	**I_2**	**I_3**	**I_4**
G_1	0.35	0.46	0.18	0.04
G_2	0.44	0.44	0.44	0.18
G_3	0.04	0.32	0.35	0.46
G_4	0.18	0.31	0.18	0.08

Now from the above table, the model concludes that for the first group of customers I_2 insurance policy is more beneficial after studying the influencing factors. And for the second group first three types of insurance policies are of same importance. Any of the insurance policies can be buy by second group. For the third group purchasing the I_4 policy gives more benefit while I_2 policy gives more benefit and investment directions to the last group of customers. While finding these results the various factors has been kept in mind.

5.0 Conclusion

At present the main motive of the insurance sector is the protection of their workers and the safety of their business. The increase in digitalization may be beneficial in the present situation. People have tried to know the various aspects or factors which influence the customers in purchasing the insurance product during COVID-19. The above data has been taken from some internet sources. The above work can be amplified as per the national scenario with some specific modifications. In general, insurance works by spreading the cost of unexpected risks among a large number of people in the same region who share similar risks.

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