MAHENG/2013/50733

भारतीय बीमा संस्थान
INSURANCE INSTITUTE OF INDIA

THE JOURNAL OF INSURANCE INSTITUTE OF INDIA

For Free Distribution
ISSN No. 2278-6759

VOLUME NO. XI ■ ISSUE NO. IV MUMBAI APRIL-JUNE - 2024

भारतीय बीमा संस्थान
INSURANCE INSTITUTE OF INDIA

COURSES OFFERED BY INSURANCE INSTITUTE OF INDIA

PROFESSIONAL CERTIFICATION

- Licentiate
- Associateship
- Fellowship

SPECIALISED DIPLOMA

- Marine Insurance
- Fire Insurance
- Health Insurance
- Life Insurance Underwriting

CERTIFICATE / DIPLOMA / ADVANCED DIPLOMA

- Foundation of Casualty Actuarial Science

COURSES IN COLLABORATION

- Certificate Course On Compliance, Governance and Risk Management (with Institute of Company Secretaries of India)
- Certified Insurance Anti-fraud Professional (CIAFP) (with North American Training Group)
- Life Insurance Underwriting (with Association of Insurance Underwriters)

COURSES WITH UNIVERSITY OF MUMBAI

- Post Graduate Diploma in Health Insurance (PGDHI)
- Post Graduate Diploma in Insurance Marketing (PGDIM)
- Ph.D. in Business Management

A candidate will be eligible to appear for the Professional examination if he has, successfully completed Matriculation, S.S.L.C., S.S.C. or any equivalent examination; OR Has worked with an insurer either in the field or in the office, for a period of at least three years prior to the date of registration.

REGULATORY EXAMINATIONS AND TRAININGS

The Institute conducts online trainings and examinations authorized by the Insurance Regulatory and Development Authority of India (IRDAI).

REGULATORY EXAMINATIONS

- Examination For Insurance Surveyors And Loss Assessors
- Registration of Insurance Web – Aggregators
- Registration of Insurance Marketing Firms
- Pre-Appointment of Insurance Agents (Life, Non-life, Health)
- Registration of Corporate Agents (Life, Non-life, Health)
- Registration of Authorised Verifiers of Insurance Brokers

ONLINE TRAININGS

- Insurance Broker - Training (Fresh and Renewal) - BQP and PO
- Insurance Agent - Training
- Corporate Agent - Training (Fresh and Renewal)
- Insurance Marketing Firm - Training (Fresh and Renewal)
- Web-Aggregators - Training (Fresh and Renewal)
- Authorised Verifiers of Insurance Brokers - Training
- POSP/MISP - Training and Examination

POSTAL LIFE INSURANCE

- The INSTITUTE provides Online training and conducts the licentiate online examination on behalf of the Postal Life Insurance Authority of India across the country in all 12 regional languages for POSTAL LIFE INSURANCE AGENTS.

CONTENTS

The Journal of Insurance Institute of India is registered in University Grants Commission - UGC CARE List.

The Journal of Insurance Institute of India

Since 1974
Volume

APRIL-JUNE 2024

Printed and Published by
SNEHA VIKAS PEDNEKAR on behalf of INSURANCE INSTITUTE OF INDIA,
Printed at
ACME Packs & Prints (I) Pvt. Ltd.,
Gala No. 16, Gr. Floor, Samkit Building,
Sagar Signature Industrial Estate,
Waliv Phata, Waliv, Vasai (East),
District Palghar - 401 208.
and Published from
INSURANCE INSTITUTE OF INDIA,
Plot No. C-46, G Block,
Bandra-Kurla Complex, Bandra (East),
Mumbai 400 051.
Editor: **P. Jaipuria**

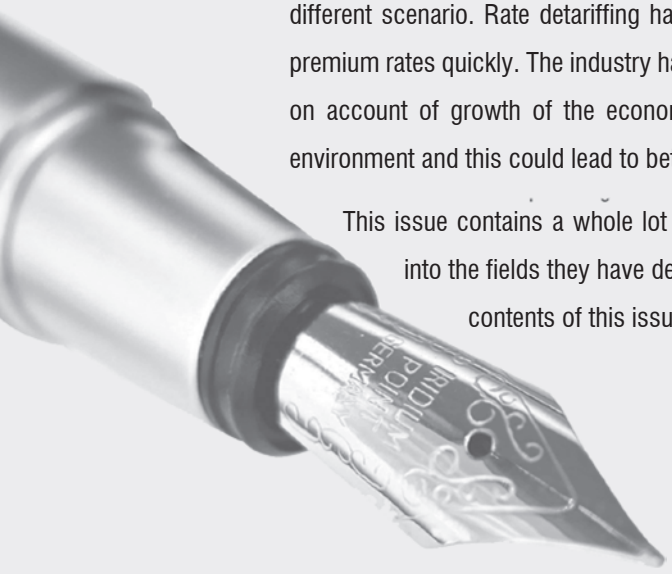
Editorial Support, Design and Printing by
ACME Packs & Prints (India) Pvt. Ltd.

EDITORIAL

Is the world on the brink of recession or are things fine as usual is the question which seems to be on everybody's minds. Investors world over, are trying to find answers to this question. But what is a fact is that the hotspots of the previous year continue to sizzle while new areas threaten to erupt. The Russia-Ukraine war shows no signs of closure. The Hamas attack on Israel has brought about a retaliation of great intensity which is causing intense misery to the residents of the narrow Gaza Strip. China continues its Sabre rattling. Will it develop into something bigger with the US having to directly get involved if China moves on Taiwan? Talk about the Chinese economy which is the second biggest in the world having problems keep appearing from time to time. How would all these plays out, only time will tell.

The Indian economy, continues to do well and seems to be well placed to continue its journey to higher levels. The elections are on and therefore there have been no major policy announcements. Impacting the world economy, in addition to the outcome of the Indian election, elections are around the corner in two other major economies ie., the UK and USA. The results of these would also affect the political and economic set up of the world.

Insurance in India has seen some activity in the first quarter. Various master circulars have been issued by IRDAI on different subjects. There have been changes in the regulations in life, surety, health sectors. The tariff wordings which were in force till now, have been done away with completely. It will take a little time for the insurance market to structure itself to a totally different scenario. Rate detariffing had happened in 2006. This led to a steep reduction in premium rates quickly. The industry has adjusted to the lower rates and grown in spite of that on account of growth of the economy. The industry soon learnt to handle the changed environment and this could lead to better underwriting practises.



This issue contains a whole lot of articles on various subjects, giving detailed insight into the fields they have dealt with. We hope that as a reader you find value in the contents of this issue.

Editorial Team

Blue Economy Marine Insurance and Sustainable Development Goal: An Analysis of Scope, Challenges and Prospects with Special Reference to India

Dr. Deo Narayan Singh
deonarayan@cusb.ac.in

Assistant Professor of Law (Senior Scale), Department of Law and Governance, Central University of South Bihar, Gaya. (NAAC-A++ University). He has done Ph.D in Insurance Law (Privatization of Insurance Business in India: Legal Issues and Challenges). The author has more than eight years of teaching experience the Insurance Law. In addition to this, the author has also written around half dozen of research article.

Abstract

The Blue Economy has emerged as a major force behind the expansion of the world economy, defined by the sustainable and ethical use of ocean resources. This abstract examines how the insurance industry and the Blue Economy interact, highlighting the critical role insurance plays in reducing the hazards connected to marine activity. Innovative insurance solutions are essential when industries grow into ocean-based endeavors to protect against certain risks and uncertainties.

This essay examines the dangers that are intrinsic to the blue economy, including piracy, environmental liabilities, natural disasters, and legislative changes. It examines the situation of insurance products designed specifically for the maritime industry, pointing out weaknesses and areas in need of development. The abstract also addresses the effect that climate change may have in increasing marine threats as well.

Keywords

Blue Economy, Marine Insurance, Sustainable Development Goal, Challenges, Prospects.

I. Introduction

The sustainable use of ocean resources for job creation, improved livelihoods, and economic growth is known as the "blue economy" since it protects the ecosystem's health. It covers a range of industries, including aquaculture, tourism, renewable energy, coastal infrastructure, and maritime transportation. The Blue Economy is a recent field of study that encompasses economic activities that depend on the sea, often associated with other economic sectors, including tourism, maritime transport, energy and fishing. Blue growth supports the sustainable growth of the maritime and marine sectors as the oceans and seas are engines of the global economy and have great potential for growth and innovation.[1] Gunter Pauli defined blue economy as a sustainable business model by living in harmony with nature[2]. The Blue Economy (BE) aims to promote economic growth, improve life and social inclusion without compromising the oceans' environmental sustainability and coastal areas since the sea's resources are limited and their physical conditions have been harmed by human actions.[3] It includes sectors ranging from sustainable and efficient water supply and sanitation to ocean-friendly chemicals and plastics, fisheries, offshore renewable energy

[1] Martínez-Vázquez, R.M., Milán-García, J. & de Pablo Valenciano, J. (2021), "Challenges of the Blue Economy: Evidence and Research Trends". Environ Sci Eur 33, 61. Available at-https://doi.org/10.1186/s12302-021-00502-1. Visited on 01-10-2023.

[2] The Blue Economy: A Report to the Club of Rome (2010).

[3] Kaczynski Wlodzimierz, (2011), "The Future of Blue Economy: Lessons for European Union," Foundations of Management, Sciendo, vol. 3(1), pages 21-32.

production, sustainable tourism and marine ecosystem restoration.

Advancing global economic integration through the oceans, an interplay of economic, social, climatologic and technical forces are bringing the oceans to the forefront of resource development and business activity. With oceans covering over 70 percent of the Earth's surface, the future of the ocean space is increasingly being shaped by the interaction of numerous and powerful forces, most important of them being human activities. Over next 20 years, increasing uncertainty will be generated by the confluence of rapid social, cultural, technological and geopolitical changes. The rapid global increase in the production outputs of industry, agriculture and fisheries, as well as rising levels of consumption of marine products and the demand for coastal space worldwide is exerting increasing environmental pressure on the ocean[4].

Marine insurance plays a crucial role in supporting the blue economy in India. Here are some reasons why marine insurance is needed in India's blue economy. Modern-day insurance's roots can be traced to the maritime industry, and the insurance industry's relationship with the ocean economy continues to evolve. From shipping, fisheries and tourism; to aquaculture, energy, biotechnology and nature-based solutions for coastal protection and blue carbon, the insurance industry's risk management, insurance and investment activities can play a key role in ensuring a sustainable ocean economy. In this, there is need of Blue Finance too in order to cope with the requirements of expenses. Along with, the United Nations' Sustainable Development Goals (SDGs), blue finance aims to fund the blue economy while reducing carbon emissions, pollution, and biodiversity loss. The International Finance Corporation (IFC) has defined "blue finance" as the use of financial instruments, including insurance, to promote the sustainable utilisation of marine and freshwater resources.[5]

To meet out the challenges posed by blue economy use and extraction, there is a dire need for the insurance industry to come forward to play pivotal role. The safety and stability of a facility, as well as potential risks during operation and maintenance phase are core risks faced by offshore renewable energy facilities. Insurance covers can provide financial compensation for damage resulting from equipment failure, natural disasters or human causes. Property insurance can protect the direct loss of renewable energy facilities, and engineering insurance can protect the construction of facilities or project delay, etc. Marine environmental impairment liability insurance can address the potential environmental risks.

Offshore wind power projects can be insured with wind power equipment product quality guarantee insurance, offshore wind power insurance for construction and installation period, offshore wind power insurance for operation period, and wind power index insurance. For offshore solar power stations, long-term quality and power guarantee insurance for solar photovoltaic modules and solar exposure index insurance.

II. Meaning, Nature and Scope of Marine Insurance

Marine insurance is the oldest form of insurance. It developed alongside the trade and commerce during the transportation on high seas, rivers and canals. Thus it is divided into two broad branches- i. Ocean Marine Insurance and ii. Inland Marine Insurance. It started in Italy, Spain, Belgium and came to England in 15th century. In 1774, an association of insurers emerged, called Lloyd's association. It started where merchants and mariners used to meet at Lloyds coffee house to narrate their adventures.[6]

A. Subject Matter of Marine Insurance

The subject matter of marine insurance is the insurable property

[4] The Global Maritime Issues Monitor 2022 is based on a survey conducted between April 4 and May 10, 2022, which was completed by senior maritime stakeholders from the Global Maritime Forum, Marsh, and IUMI's multi-stakeholder networks. Respondents included board members, C-suite, and functional decision makers from the private sector, and government and civil society representatives. The sample represents a diverse network of maritime stakeholders from six continents.

[5] Akankshita Mukhopadhyay, 'Insurance Industry to Support Sustainable Development of Blue Economy: Swiss Re Institute (3-07-2023), Re Insurance News. Available on- https://www.reinsurancene.ws/insurance-industry-poised-to-support-sustainable-development-of-blue-economy-swiss-re-institute/. Retrieved on-01-12-2023.

[6] C.L Tyagi and Madhu Tyagi (2010) "Insurance: Law and Practice", Atlantic Publishers & Distributors (P) Ltd.

against which the risks can be covered. The risks against cargo, vessels, freight and liability to a third party can be insured.

1. **Cargo:-** The 'Cargo' is the most important subject matter of marine insurance. The following types of cargo can be insured-
   a. Cargo in the process of export-import
   b. The goods transported through water ways to reach the port city.
   c. The goods transported through rail, road and other means of transport.
2. **Hull/ Ship or Vessels:-** Vessel is the valuable asset in the voyage which carries the cargo form one destination to another. The sea voyage risk is always involved to the ship. Therefore, insurance of the ship is very essential. But shipping companies get one policy issued to cover the risks of the complete fleet, which is known as "Fleet Insurance"[7].
3. **Freight: -** the object of providing shipping servies is to earn freight. The freight is paid either in advance or on reaching the goods to the destination port. In case the ship could not reach the destination port due to sea perils, shop owner losses his freight. In such a situation he can recover the freight by obtaining a marine policy covering freight, which is known as freight insurance. Where the owner of the cargo pays the freight in advance, and the ship is subjected to marine perils, he may be losing the cargo as well as freight, both[8].
4. **Liability:-** This is another subject matter of insurance, which arises due to marine risks. This is the liability of the owner of ship to a third party by reason of marine perils. For example, if a ship collides with another in its voyage, the owner of the shop shall be liable to the owner of other ship (third party). By obtaining an insurance policy, such a risk can be transferred to the marine insures. This is known as liability insurance[9].

B. Risks Covered in Marine Insurance

In early days, only the marine risks were covered by the marine policies. But in modern times, along with marine risks, the policy covers 'land risks' also. The following types of risks are covered by the marine insurance policies:

1. **Peril of Sea:**

   Peril of the sea means the perils consequent on, or incidental to, the navigation of the sea, which includes, rovers, captures, seizures, restraints , collision, foundering, standing, capsize etc.
2. **Fire:-** Fire is the next risk which is covered by marine insurance. Coals, oils, electricity, gas etc. used in the ship may be caught by the fire at any time. Similarly, lightening, explosions in the sea, fire form the oils spread in the sea water etc. cause fire and damages to vessels as well as cargo.[10]
3. **Navigation by negligence, or barratry:-**It is the wrongful act wrongfully committed by the master of the ship or crew members in contravention of their duties, thereby causing prejudice to he owner or charterer and is covered by the policy[11].
4. **Jettison:-** Jettison is the throwing (overboard) of cargo, or the cutting and casting away of masts, spars, rigging or sails to tighten the ship in an emergency. Losses by jettison are also recoverable under the marine insurance policy.[12]

III. Meaning and Definitions, Nature and Scope of Blue Economy

According to the World Bank the term blue economy means the sustainable use of ocean resources for economic growth, the improvement of livelihoods and jobs, and the health

[7] R.N Chaudhary (2015) 'General Principles of Insurance Law, Central Law Publications, Allahabad 2nd Edition.

[8] Id.

[9] Id.

[10] R.N Chaudhary, (2015) General Principles of Insurance Law, Central Law Publications, Allahabad 2nd Edition.

[11] Id.

[12] Id.

of ocean ecosystems.[13] Further, blue Economy has become synonymous with generating wealth from activities related to the oceans while protecting and supporting marine ecosystems[14]. It is the mainstream of national development and can integrate land and sea-based socio-economic sustainable development.[15] It also refers to the commercially sustainable development of the ocean[16].

"Blue economy" is an economic term linked to exploitation and conservation of the maritime environment and is sometimes used as a synonym for "sustainable ocean-based economy". There is, however, no consensus on the exact definition and the field of application depends on organization that uses it.[17] The economic philosophy of the Blue Economy was first introduced in 1994 by Professor Gunter Pauli at the United Nations University (UNU) to reflect the needs of future growth and prosperity, along with the threats posed by global warming. The concept was based on developing more sustainable models of development including concepts of engineering based on "no waste and no emissions". The Blue Economy assumed greater importance after the Third Earth Summit Conference - Rio+20 in 2012. The conference focused inter alia on expanding the concept of Green Economy to include the Blue Economy.[18]

IV. Sustainable Development Goals and Blue Economy

The 17 Sustainable Development Goals (SDG) are the focal point of a development policy on sustainability that was accepted by all United Nations Member States in 2015. By 2030, the 17 goals—which offer a global framework for human and environmental development and peace—are expected to be accomplished. The conservation and sustainable use of the oceans, seas, and marine resources for sustainable development is the focus of Goal 14, "Life Below Water," which calls for international cooperation to restore the oceans to their natural balance. In order to achieve Goal 14, global environmental protection must be prioritized, and international forces must be deployed through institutional and legal structures. Although there has been some progress, the targets for 2030 are still far off, which emphasizes the urgency of taking action now.[19]

An increasing number of sectors are using the oceans and seas for various types of activity, and they are a major source of food, energy, and minerals. The processing, trading, and management of fisheries and aquaculture resources are common examples. Through tankers, containerships, and port facilities, maritime transportation is also a major player in the global economy. In terms of employment, seaside tourism is the industry with the biggest share of ocean-related businesses. Recently, the phrase "Blue Economy" has gained popularity and has been used by organizations such as the World Bank, OECD, UN, and EU to describe the relationship between the ocean, economy, and sustainability.

The Government of India's Vision of New India by 2030 enunciated in February 2019 highlighted the Blue Economy as one of the ten core dimensions of growth. The Blue Economy was mentioned as the sixth dimension of this vision stressing the

[13] World Bank (01-) Fish to 2030—Prospects For Fisheries And Aquaculture. World Bank Report Number 83177-GLB. Washington, DC.. Available on- https://documents.worldbank.org/en/publication/documents-reports/documentdetail/458631468152376668/fish-to-2030-prospects-for-fisheries-and-aquaculture

[14] Phelan A, Ruhanen L, Mair J (2020) Ecosystem Services Approach for Community-Based Ecotourism: Towards An Equitable And Sustainable Blue Economy. J Sustain Tour 28:1–21. Retrieved on-02-04-2024.

[15] Nicholas Kathijotes (2013), Keynote: Blue Economy-Environmental And Behavioural Aspects Towards Sustainable Coastal Development. Procedia Soc Behav Sci 101:7–13.

[16] Kaczynski W (2011) The Future of The Blue Economy: Lessons For The European Union. Found Manag 3 (1):Pp-21–32.

[17] Blue Economy: Oceans as the Next Great Economic Frontier, UN Regional Information Centre For Western Europe. Available at-https://unric.org/en/blue-economy-oceans-as-the-next-great-economic-frontier/. Visited on 30-09-2023. Retrieved on-31-03-2024.

[18] India's Vision of the Blue Economy, A Draft Policy Framework Economic Advisory Council to The Prime Minister, Government of India New Delhi 2020.

[19] Blue Economy: Oceans as, "The Next Great Economic Frontier", UN Regional Information Centre for Western Europe. Available at-https://unric.org/en/blue-economy-oceans-as-the-next-great-economic-frontier/. Visited on 30-09-2023.

need for a coherent policy integrating different sectors so as to improve the lives of the coastal communities and accelerate development and employment.[20]

V. Challenges and Prospects of Insurance Relating to Blue Economy

Broadly speaking, all the risks and challenges can be divided into the following categories. Establishing demand for and supply of insurance products targeted at the protection of nature-based[21]

1) Combatting the misperception that nature can be exploited for free, forever;
2) Correctly pricing products and identifying customers who would benefit from them – and who are willing to purchase them;
3) A lack of data and tools for quantifying the value of nature-based systems in monetary terms; and
4) Policy and regulatory issues of national and international levels
5) Assets assessment, protection and issues of insurable interest etc.
6) Challenges of Insurance and Re-insurance Companies for huge value to be mitigated.

VI. Risks Which Need To Be Addressed By Insurance Industry for Smooth Growth of Blue Economy

Insurers may innovate new business models for cross-sector collaboration, with a focus on "insurance + services", and "insurance + financial loans". We see opportunities for the insurance industry to work with public sector and corporate stakeholders to better safeguard and sustainably develop the blue economy. With the synergies from integrating available financial resources and services, insurers can provide comprehensive support for the sustainable development of the blue economy.[22]

For the better growth of blue economy and cooperation by insurance industry, the following kinds of risk may be covered broadly.

A. Physical Risks:-This includes the following perils to be covered by insurance industry[23].

i. Natural disasters
ii. Natural ecology and environmental pollution,
iii. Technological risks,
iv. Sea level rise and ocean acidification risks.

Marine insurance offers coverage for vessels, equipment, and cargo, protecting these valuable assets from damage, loss, or theft. This protection is essential for the smooth functioning of various sectors in the blue economy, such as fisheries, aquaculture, and maritime transport. The insurance industry or the person/ agency ready to exploit the blue economy or going to gain the fruits of the same must keep in mind the risks or perils like natural disaster, environmental pollution, technical risks and also risk relating to rise of sea level or ocean acidifications. A checklist of warning signals for pirate fishing activities was released in February 2019 by the Principles for Sustainable Insurance (PSI), Oceana, and top insurers as part of an international insurance industry initiative to stop illicit fishing. The risk assessment criteria were created to assist the insurance sector in identifying and denying insurance to ships and businesses suspected of engaging in pirate fishing or discovered in the act. The UN Environment Programme (UNEP) and PSI collaborated to launch "the first global insurance industry study on managing the risks associated with plastic pollution, marine plastic litter, and microplastics" in November 2019. This paper demonstrates how

[20] India's Blue Economy a Draft Policy Framework Economic Advisory Council to The Prime Minister Government of India New Delhi September 2020.

[21] The Geneva Association. 2022. Nature and the Insurance Industry: Taking action towards a nature-positive economy. Authors: Maryam Golnaraghi and Adrien Mellot. November, 2022.

[22] Xin Dai, Chief Economist China, (28 Jun 2023), "Insurance For The Blue Economy". Available on- https://www.swissre.com/institute/research/topics-and-risk-dialogues/china/expertise-publication-insurance-blue-economy.html. Retrieved on-04-04-2024.

[23] Innovative Insurance Solutions for Blue Economy & Sustainability' 'Swiss re Institue', Available on- https://beinsure.com/insurance-blue-economy/#:~:text=renewable%20energy%20production.-,Insuring%20the%20blue%20economy,development%20of%20the%20blue%20economy. Retrieved on-04-04-2024.

risks associated with plastic pollution can have an impact on investment and insurance portfolios in the form of physical, transitional, liability, and reputational hazards. All of these[24].

Natural catastrophes, piracy, accidents, and theft are just a few of the risks that come with marine enterprises. These hazards are covered by marine insurance, enabling enterprises to operate confidently and securely financially. The floods, heavy rains, typhoons, tsunamis and other catastrophes may damage the coastal and maritime infrastructure and also ports and ships. The insurance industry should be ready to cover all these risks so that there can be adequate growth of the industry. Not only this, the extraction of blue economy may also cause potential damage to pollution including water pollution by ships, ports or energy plants, for which the cost of water treatment must be covered by insurance.

Further, in extracting the minerals for the sea will require huge equipment which may fail during the operations either due to explosion, fire or otherwise. Therefore, the insurance industry must adequately cover these risks and ready to finance for these failures, if any. Furthermore, due to exploitation form the sea or ocean, there is chance acceleration of acidification in the water and consequently shorten the lifespan of the assets and marine lives. The insurance company must undertake the responsibility of all the above risk before we become eagar to extract the blue economy.

B. **Transition Risks[25]:** This may include the followings perils to be covered by insurance industry in order to help the blue economy grow smoothly.

   i. Regulatory requirements,

   ii. Intellectual property,

   iii. Changing format of products and services,

   iv. Evolving customer behaviour/ demand.

The risks include property and engineering covers, which can provide compensation for losses brought on by natural disasters and climate change, environmental impairment liability insurance, which can provide coverage against potential contamination of desalination plants, safety production liability insurance, which can protect plant safety and longevity of plant operations, and others. The insurance sector must introduce and create cutting-edge products that can deal with such problems or the blue economy in order to support it and connected enterprises.

In addition to the above mentioned requirements for insurance industry, the following things must also be taken into consideration.

- **Devising Water efficiency technologies/equipment and water management activities:-**

  With the establishment and protection of intellectual property rights, water-saving technology companies can gain better access to capital and expand scale of production. Water efficiency technology companies can also benefit from using product liability surance or product guarantee insurance with independent charter coverage, so enhancing consumers' trust in new products[26].

- **Water sanitation :** Property and engineering, environmental impairment liability and safety production liability insurance can provide risk protection for wastewater treatment plants against risks of natural catastrophe events, pollution, legal defence and workers' injuries. There can also be tailored risk transfer solutions for the process of recycling of wastewater in case of extraction of blue economy.

- **Ocean- and water-friendly products:** This can protect manufacturers of ocean- and water-friendly products against the risks inherent in production.

[24] How the Insurance Industry can Shape a Sustainable Blue Economy, "UN Environment Programme (Finance Initiatives), Blue Finance, Nature, News, Available at https://www.unepfi.org/themes/ecosystems/how-the-insurance-industry-can-shape-a-sustainable-blue-economy/ Retrieved on-04-04-2024.

[25] Id.

[26] Innovative Insurance Solutions for Blue Economy & Sustainable Development. "Beinsure" Media Insurance & InsurTech Insights Available at- https://beinsure.com/insurance-blue_economy/#:~:text=renewable%20energy%20production.-,Insuring%20the%20blue%20economy,development%20of%20the%20blue%20economy. Retrieved on-01-04-2024.

The companies need to evolve such kinds of water friendly products which lasts long leaving least damageable product to the water.

- **Trade credit insurance:** It can protect operators against manufacturers' default risks. Product liability insurance offers protection against the personal injury or property losses of third parties caused by product defects, while product guarantee insurance can address quality risks incurred in the sale of products.
- **Ocean-friendly chemicals and plastic-related sectors:** Environmental impairment liability insurance can mitigate pollution and other risks, and insureds can benefit from risk management services offered by insurers. China's regulator encourages property insurers to enhance risk mitigation services in environmental impairment, safety production and food safety liability insurance etc.

VII. Conclusion

In conclusion, it can be said that the marine insurance can play a crucial role in supporting and promoting the growth of India's blue economy. It provides risk mitigation, asset protection, liability coverage, facilitates trade and commerce, encourages investments, and ensures compliance with regulations. The Ministry of Earth Sciences has been doing unique and significant work under its charter. However, in the contemporary context there is a need for a holistic and inter sectoral approach to address evolving issues in this important domain called the Blue Economy.

Marine insurance acts as a risk mitigating factor for investors looking to invest in the blue economy sectors. The availability of insurance coverage reduces the perceived risks associated with these sectors, attracting more investments and promoting their growth.

Marine insurance is often a legal requirement in many sectors of the blue economy. Thus, Marine insurance is a need of an hour especially for the growth, protection and encouragement of blue economy not only in India but also across the globe.

In conclusion, especially considering India, the incorporation of marine insurance into the blue economy is essential to accomplishing sustainable development objectives. Through an examination of the extent, obstacles, and potential of marine insurance within the blue economy, interested parties can seize fresh chances for financial expansion while preserving marine environments and assets. Collaboration and the implementation of successful solutions are essential if policymakers, insurers, enterprises, and communities are to support sustainable marine insurance practices that are in line with the Sustainable Development Goals of the UN.

Recommendation and Suggestions

1. *Create Comprehensive regulations:* To encourage marine insurance for sustainable practices in the blue economy, government and regulatory agencies should work together to create comprehensive regulations.
2. *Encourage Public-Private collaborations:* To improve the price and accessibility of marine insurance for environmentally friendly projects including coastal and marine activities, public-private collaborations should be encouraged.
3. *Tailored Insurance Solutions:* Providers of insurance have to create and present tailored insurance plans that meet the particular requirements of various blue economy industries, including shipping, renewable energy, aquaculture, and fisheries.
4. *Improved Risk Assessment techniques:* To effectively analyze the possible risks and liabilities connected to sustainable blue economy projects, invest in the development of cutting-edge risk assessment techniques and technology.
5. *Training and Capacity development:* Hold targeted training sessions and capacity development programs to inform stakeholders about the advantages and
6. *Engagement with the Community:* In order to promote inclusion and community resilience, include the local community in sustainable maritime insurance activities. TJ

Maritime Losses - 'Lost or Not Lost' not to last long

S. Rajalakshmi
srajalakshmi@uiic.co.in

S. Rajalakshmi having around 25 years of experience in Public Sector General Insurance Industr. She is acknowledged trainer in the fields of Insurance, Marketing and HR.

Abstract

Marine losses are immense that they affect not only the Insurance Companies, but the whole of economy and trade to a great extent. It is a fact that the safety regulations are instrumental in minimising the loss experience and is not an assurance for loss avoidance. But the growth in cargo values and technological developments in ship makes the loss minimisation measures paramount for marine underwriters. Hence, it is essential to continuously examine the major causes of marine losses and propose risk management measures to mitigate the loss.

Exceptional forethought is needed for risk management strategies to establish sustainable and resilient Maritime Industry. Technological innovations are the primary contributors to respond to maritime threats. Tracking and monitoring technologies bring improved control and visibility throughout the supply chain. The modern Marine Insurance industry is viewing digital disruption as opportunity to enhance better operations and profitability.

A thorough understanding of maritime threat and losses is essential for insurers to effectively manage risk, price policies accurately and maintain a stable and competitive marine insurance market.

Keywords

Maritime Loss, Risk Management, Collaboration of Stakeholders, Technology.

Introduction

India has a significant network of waterways covering 14,500 kilometers. Waterways play a crucial role in transporting goods and passengers, especially in regions with navigable rivers and water bodies. The country has 13 major ports and 187 notified minor and intermediate ports, serving as key gateways for maritime trade. Extensive and interconnected transportation infrastructure is essential for facilitating trade, commerce and movement of people across the country and the world. This comprehensive network contributes to economic development, regional connectivity and the overall functioning of diverse transportation system.

Maritime transportation serves as a key enabler for international trade, facilitating the movement of goods and commodities across oceans. The efficiency and cost-effectiveness of transporting large quantities of goods by sea make it an indispensable component of the global supply chain. The expansive reach of maritime routes allows businesses to access markets worldwide, contributing to economic growth and development.

There is always an interconnections between human society and the oceans. Hence, there is more thrust on Blue Economy in the recent days, which encompasses a wide range of economic sectors and activities that directly or indirectly utilize or impact the marine environment. This includes industries like fisheries, aquaculture, shipping and maritime transport, tourism and recreation, offshore energy production (such as wind, wave, and tidal energy), marine biotechnology and marine conservation efforts. The World Bank defines the blue economy as the "sustainable use of ocean resources to benefit economies, livelihoods and ocean ecosystem. [1]

India's Blooming Blue Economy

The challenges related to India's blue economy indeed present significant

hurdles that need to be addressed including lack of infrastructure, Overfishing & Over exploitation, Marine Pollution and Climate Change.

The Indian government has implemented various initiatives and policies to promote the blue economy and harness the potential of marine resources sustainably.

Sagarmala Project:

The Sagarmala Programme is a flagship initiative of Ministry of Ports, Shipping and Waterways, aimed at promoting port-led development and unlocking the potential of India's maritime sector. The project includes infrastructure development, modernization of ports, port connectivity enhancement and promotion of coastal shipping and inland waterways to boost trade and economic growth.

The theme of the Project encompasses:

- Port Modernisation
- Port Connectivity
- Port-led Industrialisation
- Coastal Community Development
- Coastal Shipping and IWT (Inland Water Transportation)

The main objectives of the Project are:

- Enhancing Logistics Performance
- Promotion of Port-Led Development
- Unlocking Potential of Waterways
- Minimizing Infrastructure Investments
- Strategic Maritime Sector Growth
- Utilization of Coastal and Waterway Resources
- Increasing Export Competitiveness
- Cost-effective and competitive logistic ecosystem

Deep Ocean Mission:

Launched by the Ministry of Earth Sciences, the Deep Ocean Mission aims to explore and harness the vast resources of the deep sea for economic, scientific, and strategic purposes. The mission includes initiatives such as deep-sea mining exploration, development of underwater technologies, and environmental studies of the deep ocean.

SMART (Ocean Services, Technology, Observations, Resources Modelling and Science):

O-SMART is an integrated ocean observing system launched by the Ministry of Earth Sciences to provide real-time data and information on ocean parameters such as sea surface temperature, ocean currents and marine biodiversity. The initiative aims to support various sectors including fisheries, coastal management, disaster management, and climate research.

Integrated Coastal Zone Management:

The Government of India has implemented Integrated Coastal Zone Management (ICZM) plans to promote sustainable development and conservation of coastal areas. These plans focus on integrated coastal planning, ecosystem-based management, community participation and adaptation to climate change to ensure the long-term health and resilience of coastal ecosystems.

National Fisheries Policy:

India has formulated a National Fisheries Policy to guide the sustainable development of the fisheries sector. The policy emphasizes measures such as responsible fishing practices, conservation of fish stocks, enhancement of aquaculture production, and welfare of fisher communities to promote the sustainable utilization of marine resources.

NavIC (Navigation with Indian Constellation):

NavIC is an indigenous satellite navigation system developed by the Indian Space Research Organisation (ISRO). It provides accurate positioning and timing information in the Indian Ocean region, supporting various applications including maritime navigation, fisheries management, disaster management, and coastal surveillance.

India is committed to promoting sustainable blue economy development through technological innovation, strategic partnerships, and integrated coastal management approaches. By implementing these measures, India aims to unlock the economic potential of its marine resources while ensuring environmental conservation and social equity.

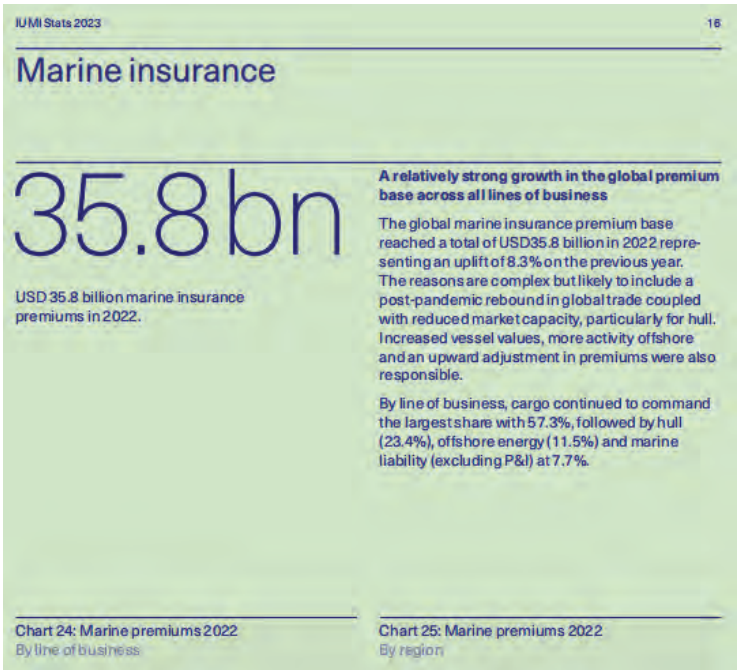
Economy & Marine Insurance

Development of Trade is determined by many factors. One of the major factors ensuring the same is Marine Insurance. Without Marine Insurance,

trade cannot flourish. Marine insurance is as much important as navigation to ship. Without Insurance, trade would become a half-enterprise.[2]

Marine cargo insurance is expected to have the highest market share and cover the maximum market globally. Exporters, Importers and Insurers continuously adapt to evolving trade dynamics, regulatory requirements and emerging technologies to enhance the effectiveness of marine cargo insurance and in safeguarding global supply chains.

Table 1 : Growth in Global Marine Insurance premium - in 2022



Global Marine Insurance has grown by 8.3% in 2022. Marine Cargo Insurance has the largest share with more than 57% followed by Marine Hull business with more than 23%.

Current Patterns of Maritime Casualties

As per the International Union of Marine Insurance (IUMI) report, the average cargo loss shows a general upward trend since 2017. The smaller losses are continuing to grow in number whilst the larger losses are decreasing.

Thirty years ago, the global fleet was losing 200+ vessels a year. At the end of 2022 fewer than 40 losses were reported. It has now been six years since a triple-digit total loss year. [3] In 2020, only 49 large ships were lost on oceans worldwide. These numbers are low, particularly considering that traffic has increased exponentially in recent decades. [4]

Though it is an encouraging trend, we can't deny the fact that Marine losses are huge that they affect the economy and trade to a great extent. Whatever be the safety regulations provided, there is always a possibility of the voyage meeting with numerous risks and resultant loss. Safety regulations are meant for mitigating the loss experience and it is not a tool for prevention of loss.

Recent wars and conflicts have had significant implications on the marine insurance industry, particularly in regions directly affected by armed hostilities or geopolitical tensions. Some notable examples include Yemen Conflict, Syrian Civil War, Somali Piracy, Ukraine Crises, Gulf of Guinea Piracy, South-China Sea Disputes.

Rise in cargo values and technological developments in ship increases concerns for marine underwriters, who must carefully assess the risks associated with transporting such valuable goods and high-end vessels like autonomous ships. Hence, it is important to continually analyse the major causes of marine losses and suggest preventive measures to mitigate such losses to Hull and Cargo.

Fire:

Earlier, Sinking and collision losses were ranked to be the highest cause of marine losses. But, now there is a major shift in the leading cause of losses in the marine sector to fire and explosion. This spotlights evolving nature of risks in the maritime industry.

The statistics that fire losses constitute nearly 18% of the overall losses in the marine sector (as of December 31, 2021) denotes the significance of fire as a risk factor. The increase from 13% in the five-year period ending July 2018 to 18% indicates a notable upward trend.

Particularly, fire accidents on board the ships have increased alarmingly in the recent past. Firefighting at sea presents unique challenges due to the limited resources and confined spaces on board vessels. The isolation from immediate external assistance, such as fire departments on land, adds to the complications. The nature of cargo has also changed making the firefighting complex.

Many a times, extinguishing becomes almost impossible resulting in not only total loss of the ship and cargo but also loss of valuable lives. There is also a massive threat to the environment, especially if the vessel is carrying hazardous materials or pollutants.

IUMI recently noted an increase in engine room fires. [5] The increase in engine room fires may be influenced by various factors, including the complexity of modern ship engine systems, reliance on advanced technologies and the need for specialized crew competencies.

A battery fire was reported to have been a contributing factor in the March 2022 sinking of ro-ro carrier Felicity Ace in the Atlantic Ocean, along with its cargo of 4,000 vehicles [6]. This underscores the potential financial impact of such incidents.

Fires involving Li-ion batteries can pose environmental challenges, as the batteries contain hazardous materials, known to be highly inflammable and improper handling or damage to the batteries can lead to thermal runaway—a rapid and uncontrollable increase in temperature. This poses a significant fire risk, especially when multiple batteries are transported together.

To mitigate the risks, it is crucial to implement strict safety protocols which include specialized packaging, temperature monitoring, and measures to prevent physical damage to the batteries.

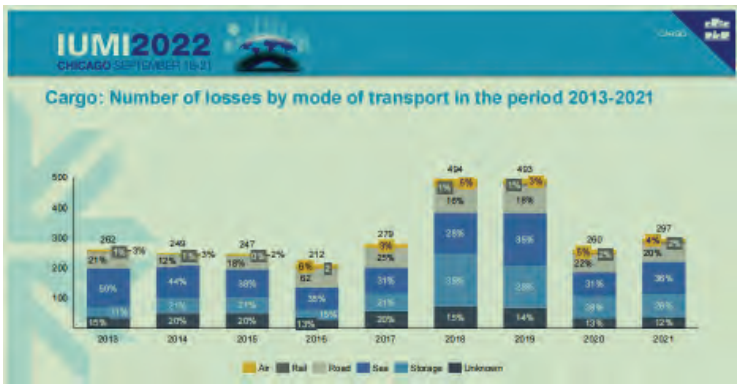
In June 2020, a fire on the car carrier **Höegh Xiamen** in Florida was attributed to a failure to properly disconnect and secure vehicle batteries. [7] The omission to disconnect the batteries of the cars reportedly led to a fire accident. This details the importance of proper procedures and precautions in the transportation of vehicles with internal combustion engines, particularly in Ro-Ro vessels.

Fire Protection Systems should also improve with the size of the ship, which does not happen practically in many cases. Integration of fire detection systems with alarm systems ensures that alerts are quickly communicated to crew members, allowing for immediate response. Incorporating remote monitoring capabilities enables shore-based personnel to receive real-time information about the status of fire detection systems and take appropriate actions, if needed.

Handling Damage:

The mishandling, stowage or storage of cargo leading to damage is indeed a significant concern in the realm of marine insurance. Breakage or damage to cargo is cited as a common cause of claims. This damage can occur due to various factors, including poor cargo handling practices, inadequate stowage, insufficient packaging or improper storage conditions.

Table 2 : Marine Cargo Losses by mode of transport - for the period from 2013 to 2021



The analysis of AUMI shows that storage risks have increased to 26% in 2021 as compared to 11% in 2013. Inappropriate storage conditions at port or intermediary warehouses, such as exposure to moisture & contaminants or extreme temperatures can contribute to cargo deterioration and result in insurance claims. Lack of proper equipment or human errors during the loading and unloading of cargo can contribute to mishandling and subsequent damage. This emphasizes the importance of skilled personnel and adherence to best practices in cargo handling. The quality of packaging plays a crucial role in protecting cargo not only during transit but also during storage. Insufficient

or improper packaging may expose the cargo to external forces, environmental conditions, or other risks, leading to damage.

Inaccurate Declaration:

Inadequate or inaccurate declaration of dangerous cargoes poses a significant risk to maritime safety. Mis-declared cargo is the root cause of fires on board. [8] Misdeclaration involves providing inaccurate information about the nature of the cargo being transported. Often batteries are wrongly mentioned as mobile phone accessories and so required care is not given in handling the cargo, resulting in fire accidents.

Accurate labeling and documentation of cargo essential for ensuring that proper safety measures are taken throughout the transportation process. Hazardous cargoes are not declared properly.

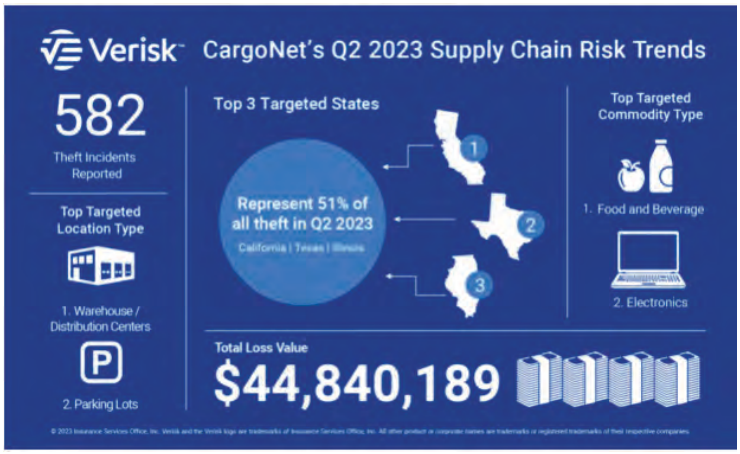
A study by the National Cargo Bureau (NCB) inspected and found that the majority of containers had issues with mis-declared or improperly stowed cargo. The analysis revealed that an unsettling 55% of inspected containers were non-compliant, with 43% failing due to poorly secured dangerous goods and an astonishing 6.5% found to be carrying mis-declared dangerous cargoes. [9] Even the stowage, labeling and declaration had deficiencies. Inaccurate declaration of cargo leads to unnecessary litigation among stakeholders.

Theft and Pilferage:

Theft and pilferage are significant concerns in the maritime industry, especially when it comes to high-value cargo. The vulnerability of valuable shipments to theft poses risks at various points along the supply chain, including ports, storage facilities and during transit.

Latin America has been known for higher incidents of cargo theft. The incident at the Netherlands Airport, where mobile phones valued at €3 million were stolen, involved insiders within the airport. Incidents of cargo theft can occur at different points along the supply chain and is not limited to specific regions.

Table 3 : Supply Chain Risk Trends as per Verisk CargoNet report for Quarter 2, 2023



Over $44 million in shipments were stolen in the second quarter of 2023, Verisk's CargoNet reported. The average shipment value per event increased nearly $100,000 to $260,703 per theft as cargo thieves focused on high-value shipments. [10]

According to the report, fictitious pickups of cargo were more by around 130 every year. Criminals use fraudulent means like posing as custodians of cargo, to gain access to shipments. Impersonation tactics can lead to the theft of goods without detection. This shows there is a high need for modern technology to handle the risk.

The use of tracking and tracing technologies can help monitor the movement of high-value cargo in real-time. This allows for prompt intervention in the event of any suspicious activities or deviations from the planned route.

Temperature Variations:

Another main cause of Marine Claim are due to deterioration of cargo due to change in temperature of reefer containers. This is particularly critical for sensitive cargo such as pharmaceuticals, which require precise temperature control to maintain their efficacy and integrity.

The problem was felt more during shut down of ports around the world due to a COVID outbreak in 2020 and 2021 and resultant congestion of ships in ports leading to heavy traffic. Vessels queued up in the port waiting for not only unloading the cargo but even to get their berth in the port. The port congestion was too high that the

vessels had to return to its base as it was not economical just to wait for a long time for loading or unloading. The vessels avoided any call at ports en route, which caused spoilage of cargo carried in reefer containers.

Sailing of vessels without cargo is called “blank sailing” or “void sailing.” In case of blank sailing of the scheduled vessel, the cargo which are intended to be loaded on that ship would have to wait for the next appropriate available ship. The void sailing always causes a delay, which might be disastrous for a cargo of fresh produce. [11]

Numerous precautions are taken up for safety of the cargo carried in reefer containers. Few reefer containers have special set up to control air flow between outside and inside of the containers so that an optimal balance of O2 and CO2 is maintained. This helps in sustaining the temperature and humidity required for the cargo. Few containers are designed for respiration of cargo and thus the decomposition is avoided. Containers carrying produce like citrus, berries and kiwi fruits use ‘cold treatment’ to maintain the shelf life of the cargo.

Advanced reefer containers are equipped with monitoring and data logging systems that track and record temperature conditions throughout the transit. Regular monitoring and maintenance ensures that any deviations from the required temperature range are promptly identified and addressed.

Hazards associated with Container Ships:

The container shipping industry has experienced substantial growth in recent years, driven by globalization, increased international trade and the efficiency in transporting goods. The turnaround time for containers to be unloaded, processed and made available for the next shipment is crucial for the shipping industry.

Between 1980 and 2022, the deadweight tonnage of container ships grew from about 11 million metric tons to roughly 293 million metric tons. [12]

Despite proper packing, correct container weight distribution and securing stowage aboard ships, various factors can contribute to containers being lost at sea including natural catastrophic events, groundings, structural failures, collisions and other accidents.

The average losses for the two-year period of 2020-2021 were notably higher, with 3,113 containers lost at sea, compared to 779 in the previous two-year period. [13]

During times of container shortages, defective containers are used. Container defects include structural weaknesses, sealing problems or even faulty temperature control systems of refrigerated containers.

Continuous improvement in container quality standards and operational procedures contribute to the ongoing enhancement of the safety and reliability of the container supply chain. The adoption of technology, such as IoT (Internet of Things) devices and container tracking systems can enhance real-time monitoring of containers. This technology provides insights into container conditions, allowing for proactive measures to address potential defects.

Climatic Conditions:

The impact of climatic conditions and natural catastrophes on marine insurance claims is a significant concern in the shipping industry. Extreme weather can lead to substantial losses, affecting both vessels and cargo. In 2021, nearly 25% of total losses of ships were attributed to extraneous climatic conditions and natural catastrophes such as hurricanes, earthquakes, tsunamis and floods.

Drought conditions can have various impacts on the shipping industry, influencing the navigation of vessels and potentially leading to deviations from typical routes or entry points. Drought conditions can result in lower water levels in rivers, canals and other waterways. This reduction in water levels may impede the navigation of vessels, particularly those with deeper drafts. Vessel traffic may require additional navigational assistance.

Drought-related disruptions in shipping can have downstream effects on supply chains. Cargo delays, port congestion and changes in shipping schedules can impact the timely delivery of goods and affect industries reliant on maritime transport. Lower water levels increase the risk of groundings, especially in areas where navigation channels become narrower or shallower.

Decreased water levels may also raise environmental concerns, impacting aquatic ecosystems and water quality. Considering the potential for more frequent and severe

drought events linked to climate change, the maritime industry may engage in long-term planning to enhance climate resilience.

Extreme weather conditions can have a cascading effect on various aspects of maritime operations, leading to disruptions and challenges. To mitigate these challenges, the shipping industry employs advanced weather forecasting, route optimization technologies and improved communication systems to enhance situational awareness. Shipping companies have started giving more thrust in strengthening the ship design and enhancing weather monitoring systems to withstand the rough weather.

To help mitigate the impact of climate change on maritime trade routes, the UN Conference on Trade and Development (UNCTAD) has called for an 'all hands on deck' response to enhance the climate resilience of seaports and other critical transport infrastructure to advance the UN's 2030 Agenda for Sustainable Development. [14]

Risks faced while curtailing Greenhouse Emissions:

The effort to decarbonize the shipping industry is a significant initiative which has environmental implications and also impact on various aspects of maritime sector, including marine claims.

Shipping is a major contributor to global greenhouse gas emissions, as more than 90% of international trade is moved by sea. As more greenhouse gases get trapped in the atmosphere, more heat from the sun gets trapped within the Earth. Most oceans absorb radiant heat, which increases ocean temperatures. [15]

The IMO is actively working toward reducing greenhouse gas emissions from the global fleet. Targets include a 40% cut by 2030 and at least a 50% cut by 2050. This transition involves exploring alternative fuels, energy-efficient technologies, and innovations in ship design and propulsion to minimize the environmental impact of maritime operations.

The adoption of alternative fuels, such as liquefied natural gas (LNG), green hydrogen, methanol, and advancements in electric and wind-powered vessels, introduces new risk factors. These may include challenges in fuel supply chains, fuel compatibility, technical complexities, safety considerations and the potential for accidents during the transition period.

Collission with Offshore Installations:

The transition to greener energy sources, including the installation of offshore wind farms, is introducing new claims scenarios in the maritime industry. In 2022, the bulk carrier 'Julietta D' collided with an offshore wind turbine foundation and transformer station in the Hollandse Kust Zuid Wind Farm at North Sea, Netherlands. The incident highlighted the risk of vessels colliding with offshore wind infrastructure, including wind turbines and associated facilities.

It is estimated by The Maritime Research Institute Netherlands (MARIN) that the risk of collision of ship-to-turbine in the North Sea may increase by 1.5 to 2.5 times a year after setting up of around 2500 wind turbines on the North Sea by 2030. A collision with an installed wind turbine carries a real risk of the turbine toppling onto the vessel, seriously endangering crew, passengers, the ship itself and the environment. [16] Navigating through areas with offshore wind farms poses challenges for vessel operators, especially in adverse weather conditions. The presence of fixed and floating structures requires careful navigation to prevent collisions and ensure the safety of both maritime traffic and wind infrastructure.

War Risks:

Increased security concerns in war-prone regions may necessitate alternative routes or heightened security measures for vessels operating in affected areas. The Russia-Ukraine war has a significant and far-reaching impacts on global shipping, exacerbating existing challenges in the maritime industry. The increased demand for alternative routes has attributed to congestion at certain ports. Ukraine is a significant player in the energy markets and the conflict has led to uncertainties and volatility in energy prices. The disruption in the supply chain and potential impacts on energy infrastructure have contributed to market fluctuations. The disruption in shipping and supply chains can have broader economic implications globally.

The imposition of sanctions in response to the conflict has added economic pressure to the maritime industry. Sanctions may affect the ability of certain vessels and entities

to operate, leading to financial implications for shipowners and stakeholders.

The war risks brought sweeping changes in War cover under Marine Insurance, including 'Blocking and trapping' coverage provided by some Marine Underwriters. Under this clause, the insured party may be able to claim for a total loss after a specific time. [17] The inclusion of 'blocking and trapping' coverage in Marine insurance policies provides a mechanism for insured parties to make claims in the event of vessels or cargo becoming blocked or trapped for a specified period due to war.

Piracy:

Piracy had been always a major threat to Maritime adventure. Though, sometimes, it seems to be waning, sudden emergence of piracy attacks have far-reaching implications that extend beyond the immediate loss of cargo or personnel. It disrupts trade routes resulting in rerouting vessels to avoid piracy-prone areas, adding to transit times and costs. In extreme cases, shipping companies may even opt to halt operations in the affected regions altogether, leading to economic stagnation in those countries. Piracy attacks can result in environmental disasters, especially if the hijacked vessels are carrying hazardous materials such as oil or chemicals. In the event of a ship hijacking or sabotage, there's a risk of oil spills or other pollutants being released into the ocean, which can have devastating consequences for marine ecosystems.

Recent hijack of Malta-flagged Merchant Vessel MV Ruen by Somalian pirates had created shock waves among the international traders. MV Ruen was hijacked by Somali pirates in December, 2023. The Indian Navy conducted a high-staked Operation to rescue the crew of the vessel. Indian Naval Ship, INS Kolkata, intercepted the hijacked vessel confirming the presence of armed pirates through a ship-launched drone on March, 15th 2024. However, the drone was shot down by the pirates, prompting a calibrated response from the Indian Navy. The INS Kolkata took strategic actions, including disabling the pirate ship's steering system and navigational aids, to force it to stop. Despite the pirates using the crew members as human shields, negotiations led to the surrender of the pirates and the release of the hijacked vessel and its original crew. The Operation was supported by extensive surveillance efforts by the Indian Navy, including the tracking of the pirate ship's movements and the deployment of additional assets such as the INS Subhadra, MQ-9A high altitude long endurance remotely piloted aircraft and P8I maritime reconnaissance aircraft. The Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR) played a pivotal role in coordinating the operation and monitoring the situation. The 40-hour operation culminated as all 35 Somali pirates surrendered and all 17 original crew members of *MV Ruen* were safely evacuated from the pirate vessel. [18]

Role of Technology in Navigating Through the Maritime Challenges

The increase in the percentage of losses in the marine sector emphasizes the need for continuous vigilance, adaptation to emerging risks and a proactive approach to safety and risk management. The enhanced frequency and severity of claims can impact marine insurance premiums. Insurers may reassess risks and adjust premiums to account for the heightened exposure to various risks.

Collaboration among Insurers, Shipping companies, logistics providers and cargo owners is vital to ensuring a comprehensive approach to cargo safety. Effective communication and co-ordination can contribute to minimizing the risks. Lessons learnt from accidents contribute to improving safety measures, regulations and industry practices to prevent similar occurrences in the future.

The maritime industry follows international regulations and guidelines to enhance safety and prevent accidents. Compliance with these standards is crucial for minimizing the risk and ensuring a integrated global approach to maritime safety.

Ongoing research and innovation in technologies and strategies can contribute to improving the industry's ability to prevent and respond to maritime threats effectively. Leveraging technological advancements contribute to minimizing the mishaps and its impact in the maritime sector. Implementing technological solutions, such as improved tracking and monitoring systems facilitates better control and visibility throughout the supply chain.

Predictive Analytics can be instrumental in detecting and preventing fraudulent activities. Insurers can leverage external data sets, to anticipate trends, make more accurate predictions about future claims and proactively manage risks. This enhances overall decision-making and strategic planning.

Advanced Analytics, including machine learning algorithms, can analyze historical data to identify patterns associated with fraud.

Artificial intelligence (AI) analyzes historical claims data to predict outcomes, assess risk and optimize claims decisions. AI algorithms can analyze large datasets to identify patterns and anomalies that may indicate fraudulent activities. This includes unusual claim patterns, inconsistencies in information or suspicious behaviors.

Data from *Internet of Things (IoT)* can be used to detect and prevent fraud, receive incident notifications, reduce claims processing time, lower actual risk and mitigate losses.

Blockchain Technology helps to bring coordination between different stakeholders which would result in streamlining transactions. The concept of a unified information platform in the insurance industry is becoming paramount. This trend is characterized by the integration of various stakeholders into a cohesive digital ecosystem, offering several benefits like shared database, operational efficiency, automated process, real-time data access, improved efficiency, unified platforms for time management etc. Once executed, Smart Contracts cannot be altered, enhancing the integrity of transactions and reducing the risk of fraudulent alterations, assuring real-time monitoring of supply chain.

Conclusion

Recent trends in marine insurance losses reflect the evolving nature of risks and challenges faced by the Maritime Industry. Marine losses have been influenced by various factors including changes in global trade patterns, technological advancements, Piracy, Climatic changes and extreme weather events. Few significant emerging risks are Increased Cargo Value, Complexity of the nature of cargo, cyber risks, supply chain disruptions etc.

Marine insurance plays a crucial role in mitigating the financial risks associated with maritime activities, providing peace of mind to stakeholders and ensuring the smooth functioning of global trade and transportation networks.

Marine Insurance can be made more attractive and profitable only if the root causes of various major losses are analysed and steps taken to mitigate them. Special attention to loss prevention and response strategies is essential to ensure the sustainability and resilience of the maritime industry. Periodic reviews of risk management practices, safety protocols and industry trends are essential to address emerging challenges effectively. Adequate training for personnel on vessels and at maritime facilities is crucial to respond swiftly and effectively to any situation.

Studying maritime losses is crucial for assessing risk in the marine insurance industry. Insurers analyze historical loss data to understand the frequency and severity of maritime incidents. This analysis helps in the setting of premiums, coverage terms, and overall market dynamics.

Insurers specializing in marine insurance assess the risks involved, determine appropriate coverage options and offer customized insurance solutions to meet the unique needs of their clients in the maritime industry.

The study of maritime losses influences various aspects of the marine insurance market, viz.:

Risk Assessment: By examining past losses, insurers can identify trends and patterns in maritime incidents. This helps them assess the likelihood of future losses for specific types of vessels, routes, cargo, or other factors. For example, if a certain shipping lane has a history of frequent accidents or piracy incidents, insurers may adjust premiums accordingly for vessels operating in that area.

Premium Rates: The frequency and severity of maritime losses directly impact the premiums charged to insure vessels, cargo, and maritime liabilities. Higher risks typically result in higher premiums, while lower risks may lead to lower premiums. Insurers use sophisticated actuarial models to calculate premiums based on loss data, risk assessments, and other factors.

Coverage Terms: Insurers may adjust coverage terms based on their assessment of maritime risks. For instance, they may impose higher deductibles or exclude certain perils from coverage for vessels operating

in high-risk areas. Conversely, insurers may offer more favorable terms, such as broader coverage or lower deductibles, for vessels with a strong safety record or operating in low-risk regions.

Market Dynamics: Fluctuations in maritime losses can influence the overall dynamics of the marine insurance market. Periods of high losses may lead to increased premiums, tightened underwriting standards and reduced capacity as insurers seek to mitigate their exposure to risk. Alternatively, declining losses and favourable maritime conditions may result in softer market conditions with lower premiums and broader coverage options.

Overall, a thorough understanding of maritime losses empowers insurers to make informed decisions that balance risk, profitability, and market competitiveness. By effectively managing risk, accurately pricing policies, and fostering market stability, insurers can provide valuable protection to maritime stakeholders while ensuring the long-term sustainability of the marine insurance industry.

The Marine Insurance Companies has to be flexible to embrace the changes in contemporary technological evolution. The digital disruption in the Industry has to be grabbed as an opportunity to overcome the challenges posed in the form of Maritime losses. Complete digitisation of Maritime sector helps in accuracy of the data relating to risks. Scientific analysis of the risk would help the insurer in taking accurate and appropriate decisions regarding acceptance of the risk and proper rating, which would help in the overall profitability of Marine Insurance portfolio. TJ

References

[1] Darian McBain, (16th May, 2023), London School of Economics and Political Sciences, 'Climate and the Economy'

[2] Solomon Huebner, (September, 1905), 'The Development and Present Status of Marine Insurance in the United States', p.3

[3] Ulrich Kadow, Global Head of Marine, Allianz Global Corporate & Specialty, 'Executive summary'

[4] Lloyd's List Intelligence Casualty, 'How Detailed Casualty Data Helps Keep World Trade Moving'

[5] International Union of Marine Insurance, (September 19, 2022), 'Underwriters Have Significant Challenges Ahead Amidst New Untested Technologies, Inflation, Geo-political Tensions and Conflicts'

[6] Allianz Global Corporate & Specialty, Safety and Shipping Review

[7] NTSB, (December 16, 2021), 'Failure To Properly Disconnect And Secure Vehicle Batteries Led to Fire Aboard Vehicle Carrier Höegh Xiamen'

[8] Allianz Commercial News Letter (July 15, 2020), 'Extent of mis-declared cargo revealed'

[9] National Cargo Bureau, (September 6, 2023), 'NCB Container Inspections Safety Initiative'

[10] Carrier Management (August 8, 2023), 'Cargo Theft Increases 57% in Q2 2023 Versus Same Period Last Year'

[11] Marjolijn Maliepaard (April 10, 2023), 'Reefer container shipping: An insider's outlook on 2023', Shypple.com\ blog

[12] Statista Research Department, (January 10, 2024), 'Container shipping - statistics & facts'

[13] World Shipping Council (June, 2022), 'Containers Lost at Sea Report 2022 Update'

[14] Natasha Brown, acting head, public information services, at the International Maritime Organization (IMO), Wartsila (16 Mar 2022), 'How climate change is impacting shipping and maritime trade'

[15] Forwarder Magazine (18th January, 2022), 'Impacts of Climatic Change on Shipping Industries'

[16] Maritime Professionals (22 March 2022), 'Crashes Between Wind Turbines and Ships'

[17] Expert risk article, Allianz Global Corporate & Specialty, (November 2022), 'Global claims trends to watch in marine insurance'

[18] Dinakar Peri, (17th March, 2024), thehindu.com

The Transformative Role of Artificial Intelligence in the Insurance Industry

Jeet Singh Khurana
jeetsingh.28@gmail.com

The author is working as an Assistant Manager (Legal) with National Insurance Co. Ltd. since 2015. He is presently posted at Delhi and handling the litigation of the Supreme court and High Court cases of the company.

Abstract

Artificial Intelligence (AI) is revolutionizing the insurance industry, transforming traditional practices and enhancing efficiency. Through advanced algorithms and data analytics, AI optimizes risk assessment, underwriting, and claims processing. By analyzing vast amounts of data, AI enables insurers to personalize policies, pricing, and customer experiences, leading to improved customer satisfaction and retention. Predictive analytics powered by AI forecasts future trends, aiding insurers in proactive risk management and fraud detection. Additionally, AI-driven chatbots provide instant customer support, reducing response times and operational costs. Automation of routine tasks frees up human resources to focus on complex decision-making and strategic initiatives. Overall, AI is reshaping the insurance landscape, driving innovation, and fostering a more agile and competitive industry poised for continued growth and adaptation in an increasingly digital world.

Keywords

Artificial Intelligence (AI), Risk Assessment, Claims Processing, Predictive Analytics, Fraud Detection, Automation, Digital Innovation.

Introduction

Data has long been the core element of the insurance industry's operational procedures. The Information Age saw a rapid expansion of data collection in the modern insurance industry, necessitating a more sophisticated use of technologies that could accelerate processes with higher efficiency & reduced operational costs. Furthermore, this paved the way for the insurance sector to use AI & machine learning (ML) in a number of areas, including customer service, risk management, claims processing, fraud detection, and customer onboarding & management.

In the rapidly evolving landscape of the insurance industry, the integration of artificial intelligence (AI) & machine learning (ML) has emerged as a game-changer. Artificial Intelligence (AI) is revolutionizing various sectors, and the insurance industry is no exception. As technology continues to advance, insurers are leveraging AI & ML to enhance efficiency, mitigate risks, and provide more personalized services.

Artificial Intelligence (AI) and Machine Learning (ML) are two interconnected concepts in the field of computer science, both aimed at enabling machines to perform tasks that typically require human intelligence.

AI refers to the development of computer systems that can perform tasks that normally require human intelligence. These tasks include understanding natural language, recognizing patterns, solving problems, and making decisions. AI encompasses a wide range of techniques, including rule-based systems, symbolic reasoning, expert systems, neural networks, and machine learning. The goal of AI is to create systems that can mimic, supplement, or enhance human intelligence across various domains.

Machine Learning (ML) is a subset of AI that focuses on developing algorithms and models that enable computers to learn from data and improve their performance over time

without being explicitly programmed. ML algorithms learn patterns and relationships from data to make predictions or decisions. They can be categorized into supervised, unsupervised, and reinforcement learning. The goal of machine learning is to enable computers to automatically learn and adapt from experience, rather than relying solely on explicit programming instructions.

AI and ML are closely related concepts with overlapping goals and methodologies. ML is a specific approach within the broader field of AI, focused on developing algorithms and models that learn from data to perform tasks autonomously. AI is a broader field that encompasses various approaches and techniques for creating intelligent systems, whereas ML is a specific subset of AI focused on learning from data. In AI, learning can be achieved through symbolic reasoning, rule-based systems, or other techniques besides data-driven learning, whereas ML specifically focuses on learning from data. AI systems may require more human intervention in terms of explicit programming and rule definition, whereas ML algorithms can learn autonomously from data with minimal human intervention once they are trained.

Opportunities for the Indian Insurance Industry

1) Enhanced Customer Experience

AI has the potential to revolutionize the way insurers interact with customers. Chatbots and virtual assistants powered by AI can provide instant and personalized assistance, addressing customer queries, and guiding them through the complex process of insurance. This not only improves customer satisfaction but also increases the efficiency of customer service operations. AI-powered chatbots and virtual assistants are transforming the way insurers interact with customers. These systems enhance customer service by providing instant responses to queries, assisting with policy information, and even guiding customers through the claims process. Furthermore, AI enables insurers to offer personalized recommendations and policies based on individual preferences and behavior, creating a more customer-centric approach.

2) Data-Driven Underwriting

In the insurance sector, accurate risk assessment is crucial. AI algorithms can analyze vast amounts of data in real-time, allowing for more precise underwriting decisions. This not only reduces the risk for insurers but also enables them to offer more customized and affordable policies to a broader range of customers.

3) Fraud Detection and Prevention

Fraudulent claims are a significant concern for the insurance industry. AI can be a powerful tool in detecting patterns and anomalies in data, helping to identify potentially fraudulent activities. This not only safeguards the interests of the insurer but also contributes to maintaining the integrity of the entire insurance ecosystem.

4) Predictive Analytics for Better Decision-Making

AI-driven predictive analytics can assist insurance companies in making informed decisions. By analyzing historical data and trends, insurers can forecast future risks and market changes, enabling them to adapt their strategies proactively. This can be particularly beneficial in the dynamic and evolving Indian insurance market.

5) Process Automation for Efficiency

The insurance sector involves numerous complex processes, from claims processing to policy issuance. AI-powered automation can streamline these processes, reducing manual intervention, minimizing errors, and speeding up the overall workflow. This not only enhances operational efficiency but also allows employees to focus on more strategic tasks.

6) Underwriting and Risk Assessment

AI plays a pivotal role in streamlining underwriting processes. Insurers use machine learning algorithms to analyze vast amounts of data, including customer profiles, historical claims, and external factors. This enables more accurate risk assessments, allowing insurers to tailor policies to individual needs. By harnessing AI, insurers can identify patterns and trends that might not be apparent through traditional underwriting methods, leading to more informed decision-making.

7) Claims Processing

One of the significant contributions of AI in insurance is the acceleration of claims processing. Automated systems equipped with natural language processing and image

recognition capabilities can swiftly analyze and validate claims, reducing the time it takes to settle them.

Possible Challenges While Using AI

The increasing role of Artificial Intelligence (AI) in the insurance sector in India brings with it several legal and ethical challenges. Some of the possible challenges include:

1. **Regulatory Framework**: India does not have a comprehensive regulatory framework specifically tailored for AI in the insurance sector. Existing regulations, such as those related to data privacy and non-discrimination, may not fully address the unique issues raised by AI. Insurance companies and regulators need to work together to develop a robust and comprehensive regulatory framework that takes into account the specific challenges and opportunities presented by AI.
2. **Contractual Issues**: As AI systems become more prevalent in the insurance sector, contractual issues may arise. For example, it may be unclear who should be held accountable in case of a breach of contract – the AI system's developer, the insurance company, or the individual user. Insurance policies and contracts may need to be reevaluated and updated to address these issues.
3. **Enforcement of Insurance Contracts**: AI systems could potentially make it more difficult for policyholders to understand and enforce their insurance contracts. This could lead to disputes and litigation, as policyholders may not be aware of their rights and responsibilities under the contract. Insurance companies and regulators need to ensure that AI systems are designed in a way that promotes transparency and understandability.
4. **Workforce Implications**: The increasing use of AI in the insurance sector could lead to job displacement and other workforce-related issues. Insurance companies need to consider how they will manage these changes and ensure that their employees are not negatively affected. This may involve retraining employees for new roles or providing support for those who are displaced.
5. **Ethical Concerns**: AI systems raise numerous ethical concerns, such as privacy, bias, and the potential for misuse. Insurance companies and regulators must consider these ethical considerations when implementing AI systems and develop guidelines and safeguards to address them. The potential for bias in algorithms, discrimination, and the lack of transparency in decision-making processes raise questions about fairness and accountability. Insurers must navigate these ethical challenges to ensure that AI-driven systems uphold principles of equity and treat all individuals fairly.
6. **Legal Challenges and Regulatory Compliance**: The adoption of AI in insurance necessitates a careful examination of legal frameworks and regulatory compliance. Data privacy is a critical concern, especially in a country like India with a robust data protection regime. Insurers must ensure that AI systems adhere to established privacy laws, protecting sensitive customer information and maintaining trust. Clear guidelines on the use of AI in insurance need to be established to address potential legal issues and safeguard consumer rights.
7. **Future Prospects and Challenges**: As AI continues to evolve, its role in insurance is expected to expand further. Predictive analytics, advanced risk modeling, and enhanced cybersecurity measures are likely areas of development. However, challenges such as the explainability of AI decisions, accountability, and ongoing regulatory adaptations will remain on the industry's agenda.
8. **Data Privacy and Security Concerns:** One of the primary challenges in adopting AI in the insurance sector is ensuring the security and privacy of sensitive customer data. As insurers collect and process vast amounts of personal information, there is a need for robust cybersecurity measures to protect against data breaches and unauthorized access.
9. **Skill Gap and Workforce Transformation:** The successful implementation of AI in the insurance sector requires a

skilled workforce capable of developing, implementing, and maintaining AI systems. The industry faces a challenge in upskilling existing employees and attracting new talent with expertise in AI and related technologies.

9. **Integration Costs and ROI Concerns:** While AI presents significant opportunities, the initial costs of integration can be a barrier for many insurance companies, particularly smaller players in the market. Concerns about the return on investment (ROI) and the time it takes to realize tangible benefits may hinder widespread adoption.

The Path Forward: Striking a Balance

To harness the full potential of AI in the Indian insurance sector, a strategic approach is essential. Here are some key considerations for insurance companies looking to navigate this transformative journey:

- **Prioritize Data Security and Privacy:** Invest in robust cybersecurity measures and compliance frameworks to ensure the secure handling of customer data. Building trust with policyholders is paramount, and safeguarding their privacy is a non-negotiable aspect of AI adoption.
- **Collaborate with Regulators:** Engage with regulatory bodies to establish clear guidelines for the ethical use of AI in insurance. Collaborative efforts between industry stakeholders and regulators can help create a regulatory framework that fosters innovation while ensuring consumer protection.
- **Invest in Workforce Development:** Recognize the importance of human expertise alongside AI. Invest in training programs to upskill existing employees and attract new talent with a focus on AI and data science. A well-trained workforce is crucial for the successful integration and ongoing maintenance of AI systems.
- **Foster Ethical AI Practices:** Implement measures to address biases in AI algorithms and ensure ethical decision-making. Transparent communication about how AI is used and continuous monitoring of algorithms can help build trust among customers and regulatory authorities.
- **Conduct Cost-Benefit Analysis:** Conduct a thorough cost-benefit analysis before embarking on an AI implementation journey. While the initial investment may be significant, a well-planned strategy that considers long-term benefits and efficiencies can justify the costs over time.

Significant role of AI in Motor (Auto) Insurance: Sector specific discussion:

To specifically talk about the auto insurance industry, Artificial Intelligence is quickly changing how we view the automobile business, whether it's the manufacturing unit or the dealer showrooms, the design of the cars, or the digital dashboard. Additionally, it's not surprising that even auto insurance policies are increasingly seeing the positive impact of AI. The sheer volume of business and the responsibility of customer expectations for smooth, quick, and seamless transactions in the digital age are driving a global transformation of the automotive insurance industry and with respect to this, AI offers unparalleled clarity to lower risk and improve consumer experience by facilitating quicker decision-making than ever.

Significant Role of AI in Auto Insurance

While insurance is ideally meant to relieve drivers and car owners of any worries in the aftermath of accidents, the conventional documentation-heavy, fraud-riddled claims processes are often inefficient, inaccurate, time taking, and tedious. AI is an emerging answer to several issues that the auto insurance industry grapples with.Auto insurers are increasingly recognizing the pivotal role that Artificial Intelligence and Big Data can play in enhancing customer experience. To keep pace with the digitization, insurers feel that these cutting-edge technologies can streamline and accelerate their operations, expand their customer base, and help with driving customer loyalty. The new AI-led analytics can collate, analyze and interpret data fast and drastically improve the way insurance is taken or renewed and how road accidents and damages are handled. As the automotive industry touches new horizons with applications like connected and autonomous vehicles, the auto insurance industry is embracing AI-driven end-to-end digitized technology to finetune

insurance policy formulations and speed up claim validation like never before.As a result, several future-proof innovations that save policyholders time, money and improve the prospects of the insurer in the long term.

How Does it Work?

The auto insurer can now use AI-led analytics to present best-suited insurance products/services to customers by intelligently ascertaining their identity and creditworthiness while ruling out the possibilities of frauds. The new tech can also provide data protection that can safeguard important information from corruption, compromise, or loss.And, above all, the optimal use of AI-based technologies ensures that vehicle data can be swiftly analysed & processed to foster new - models that deliver quick resolution creating a positive customer experience.

Key Areas Where Artificial Intelligence Can Make a Real Difference

A diverse set of emerging AI use cases in the auto insurance sector demonstrate strong potential for improving operational efficiency while lowering costs and truly enabling insurance carriers to offer technology-enhanced product lines.

Quick and Smooth Claims Processing

Insurance companies handle claims and assist customers in settling them, but processing claims is a time-consuming task which is also prone to errors. To calculate how much the customer would receive for their claim, agents must examine numerous policies and scrutinize each and every detail.AI technologies hold the potential to quickly ascertain the components of a claim, analyze all the incoming data, interpret the results and project the probable costs associated with it. With the help of machine learning, claims investigations become more accurate over time. They can easily spot "Red Flags" for false or illegitimate claims which means genuine claims can be processed, accepted, and resolved much more quickly. All of this adds up to a better customer experience, improved service, and happier employees. Customers can benefit from the savings realised by streamlining the claims process in the form of lower premiums or additional value, whichever works best for them.

Accelerated Claims Adjustments

Prompt claim settlement is the best customer service that any insurance firm can offer to their customers. Artificial intelligence intends to accelerate that pace by taking over some of the labour-intensive and often dangerous inspection tasks. The technique of computer vision allows AI models to derive meaning from visual inputs such as images and videos. By analysing geospatial information collected from sensors and videos or images captured by customers or drones, computer vision models assist claims adjusters.

OCR for Quick Document Digitization

There are numerous new technologies available to automate time-consuming document-related processes such as claims processing. Optical character recognition (OCR) is one of these technologies. It is a text-to-image conversion technology that extracts data from scanned documents and images. It reduces the amount of time insurance agents spend manually processing data. With the help of the OCR technology, the documents can now be easily uploaded or transmitted to the software, and all necessary data is instantly available, and ready for processing.

Rapid and Accurate Underwriting

Manual underwriting involves stacks of physical and digital paperwork, numerous instances of rekeying data to ensure application completeness, and a lot of back-and-forth between client representatives, decision-makers, and third parties. Such efforts, however, only allow for procedural errors, quality issues, inefficient pricing, and suboptimal loss ratios, all while incurring high costs due to expensive person-hours and inefficient use of expert talent. AI-powered insurance underwriting is laying the groundwork for new operational and strategic pillars. It allows underwriters to service more requests more accurately, resulting in more business written. Underwriters usually spend hours entering data, but AI solutions can simplify and shorten the quoting process. Furthermore, AI can validate and enrich information from insurance application forms. Real-time insights aid in the updating, enrichment, and maintenance of portfolio data, as well as the assessment of new risk, resulting in a smoother process and faster premium and policy auditing.

Insurance Fraud Detection & Prevention

Auto insurance fraud is the intentional filing of a false auto insurance claim

for personal gain and is a growing global issue that can be difficult to detect. Every year, insurance companies lose millions of dollars due to fraudulent auto insurance activities.AI assists the insurance companies in detecting fraud in real time. The proper use of AI and data analytics gives insurance companies more control over fraud prevention. AI data analytics provides context for unusual system behaviour and patterns. As a result, insurance companies can act as investigators by focusing on customer profiles and quickly identifying any fraudulent activities and prevent any prevailing or upcoming fraudulent claims.

- **Fraud Detection in Insurance with Artificial Intelligence**

  Insurance fraud can present in many guises. Some are basic and unimaginative, while some are far more subtle and ingenious. The fundamental principle of commission of fraud tends to be the same – deliberate non-disclosure or misrepresentation of material information with the intention to obtain unauthorized benefits.

- **The extent of the problem**

  According to Indiaforensic Research, India's insurance sector loses INR 300 billion (US$6 billion) every year due to fraud, representing a loss of 8.5% of total industry revenue. Additionally, six times more fraud is seen within the life insurance sector (which accounts for 86% of total insurance fraud) than in the non-life / general insurance sector.

  Indiaforensic also found in 2011 that mis-selling of insurance policies was responsible for 36% of fraud, and fake documentation for 33% of fraud in the life insurance sector.

  RGA India recently conducted a survey with our clients which compared the incidence of fraud in 2012 with 2011. The survey, scheduled to be published in late 2013, found that 41% of the participants said mis-selling has decreased due to proactive measures taken at the proposal stage to control fraud. However, 56.5% of the participants said submission of fake documents has risen by 7.3% and incidence of non-disclosure has increased by 7%. Additionally, more than half of the survey participants believe this recent increase in fraudulent activity has contributed at least 3% to the cost of insurance, with some participants believing the cost increase may be as high as 20%.

- **How can we address the problem?**

  Managing fraud presents a great challenge for the insurance industry. Insurers are under constant pressure to cover new risks and develop original products. This pressure, combined with the fast-evolving business and technology landscapes, makes for a favorable environment for fraudsters to use to come up with innovative ways to stay one step ahead of fraud detection. Often the insurance industry is left trying to play catch-up when managing the ever-changing nature of fraud and abuse.

  Fraud is unlikely to ever be eradicated completely, but there are steps we can take to control it effectively.

  The first step in the process to control fraud is, of course, to detect fraud. Fraud detection tools and techniques, which can be used to identify actual as well as potential fraud, fall into two primary categories: traditional/ manual and artificial intelligence.

- **Traditional/manual techniques**

  Traditional techniques of detecting fraud include:

  Manual assessments and desktop investigations of targeted claims.

  Manual data processing techniques, both to validate claims and to detect claims that are suspicious and could be fraudulent.

  Internal audits and post payment claims audits, to detect suspicious claims settled due to lack of evidence and flag them in the event any future claims are made by the same claimant. A person who has defrauded an insurer once will often attempt to do so again, and usually using the same methods. Large patterns of fraud can be unearthed using this method.

  Other traditional techniques include 'Random Welcome' calls to prospective or new policyholders to confirm no mis-selling, mystery shopping to

detect provider fraud, and having a dedicated risk control unit (RCU).

The traditional, manual approaches of detecting insurance fraud are costly and inconsistent for insurance companies. Close to 50% of the respondents in our recent fraud survey believe that experience analysis, having an RCU and using random welcome calling are the most effective tools for detecting fraudulent activity. However, in isolation, these are not adequate to control fraud.

Industry Uses of Artificial Intelligence

Data mining and experience analysis

This is the automatic (or semi-automatic) analysis of large quantities of data or groups of data records to extract previously unknown patterns. Data mining uses information from past data to analyse the outcomes of specific problems or situation that may arise. Data mining can also be used to determine functional strategies and develop new underwriting and claims guidelines.

Automated red flag systems: These systems use specific criteria to identify claims with suspicious trend items. Such systems need regular monitoring and periodic evaluation to verify that the cases being flagged deserve scrutiny.

Profiling systems

These systems may also help detect trends and abnormal patterns of behaviour among an insured's claimants, advisors, providers, etc., to enable identification of the nature of the fraud being perpetrated.

Predictive modelling

The methods listed above are often disadvantaged by the fact that instances of fraud can present similarly in content and appearance to genuine claims. However, they are not usually identical. The techniques covered so far may point to actual or potential fraud, but predictive modelling can help to unearth future fraud. This is a process whereby current facts, historical facts and abnormal patterns of behaviour are used to develop predictions about future events and behaviours. Predictive modelling is rapidly gaining attention in the insurance industry as more structured data becomes available, allowing sophisticated analytics to advance underwriting, claims and risk assessment knowledge. It can be used to identify claims that are most likely to be fraudulent in nature and also to triage claims, allowing assessors to focus on claims most likely to have the biggest impact on an insurer's bottom line.

In the RGA fraud survey, which was completed by 24 participants from 20 companies across India, only two respondents indicated they are currently using artificial intelligence in fraud detection, but 50% of the remaining respondents stated they plan to develop the capability for using artificial intelligence in the future.

Expertise gathered during manual assessments and audits will help to develop system frameworks and rules engines. Artificial intelligence tools will not only provide insights into past trends but will also help to create predictions about future events and behaviors which could improve the industry's ability to detect and manage fraud exposure. The future is likely to lie in blending the use of artificial intelligence with traditional fraud detection methods.

Current Use of Artificial Intelligence in the Insurance Industry

Digital life insurance company Aegon Life is pilot-testing facial recognition technology to identify gender, age and general well-being and helps in validating information already provided by customers. Cholamandalam MS General Insurance Company Ltd is engaging AI in its motor claims servicing through an application for motor damage assessment and claims settlement, wherein 94% of motor claims are settled through this application.

Shriram Life Insurance Company (SLIC), which has about 45% of its retail premium being sourced from rural areas, uses AI and digital technology for retail claims management. It uses technology to analyze historical claim data, identifying patterns to effectively manage claims. With AI-based predictive models, it can anticipate claim trends and provide proactive service to policyholders and nominees.

Such initiatives have reflected in rapid claim settlement, which includes settling of non-investigated claims within 12 hours even for the remotest of regions, he added. The company started engaging AI tools in the past five years and using it

across many areas of businesses, which is approximately 30%-40% of the processes. Leading standalone private health insurer, Star Health and Allied Insurance Company Limited, says auto adjudication of claims using AI/Machine Learning (ML) based tools for digitisation and automation has helped in drastic improvement of turnaround time. 65% of cashless claims evaluation are processed using automation engine. About 50% of their teams and departments use AI & ML based tools for customer experience improvements, efficiency enhancement and cost optimisation. SBI General Insurance underscores that AI has the potential to revolutionize the insurance industry, making it more efficient, effective, and customer-centric.

InsurTech - Working Group Findings & Recommendations

1. Financial Services, including insurance, are embracing technology faster by the day. InsurTech is emerging speedily giving scope to the introduction of new business models, applications, processes and products. Innovations in InsurTech come in from different sources—there are both demand side and supply side perspectives. There are several types of innovations that fall within the scope of InsurTech—Digital platforms, Internet of Things (IoT), Big Data Comparators, Robo Adviser, Machine Learning, Artificial Intelligence, Blockchain, P2P, Usage based and so on. Insurers are keen on investing in technology as they perceive the risk of disruption if they don't. Many insurers have dedicated teams to monitor new technologies to be able to understand their true potential for disruption.
2. Insurers believe that technology will help them assess risks better. Data analytics and Predictive Models are seen as a boon by insurers to understand the risks they take on as part of their core business. When it comes to underwriting, Artificial Intelligence and Machine Learning can help insurers and agents underwrite risk effectively, by using big data from customers that has been collected from multiple sources. Wearables can play a crucial role in underwriting in both Life and Health Insurance. In motor insurance, insurers can track driving habits via telematics and IoT devices. IoT and AI can also help tremendously in fraud detection.
3. The use of technology has an impact on product design and the efficiency of inclusive insurance delivery. However, it can pose certain risks. There are various possibilities where technology can help device better products that could help cover hitherto little covered categories, sub-standard lives for examples. For instance, product and benefit offering could be directly linked to the performance and progress of the individual's health score.
4. Data capture may pose several concerns and challenges. Insurers ought not to use the data for purposes other than those intended. They ought not to share it with anybody without the policyholders' consent. The intent of collection of data and usage thereof ought to be part of the product filing with the Regulator.
5. Jurisdictions across the globe have different approaches to InsurTech. UK's Financial Conduct Authority (FCA) has an innovation department which is involved in policy engagement with the InsurTech community. BaFin of Germany takes a "technologically neutral" approach to emerging InsurTech. When it comes to Mexico, the supervisor feels that the high costs involved in developing cutting-edge technologies may or may not be a barrier for local insurers—it is too early to draw any inference they feel.
6. Emerging technological innovations in insurance are posing new challenges and questions to regulators. Conventional risk pool mechanisms may be challenged even as there is a move towards individualistic pricing approach with the use of wearables etc. Technology could also disrupt existing insurance business models. However, technology that aids more scientific pricing and facilitates ease of business for both the insurer and the insured ought to be encouraged. Regulators would need to understand how innovations work and should be able to facilitate innovations where the

policyholder stands to benefit. Regulators ought to have proper technical resources, knowledge and skills to be able to deal with InsurTech. Regulators should also address concerns relating to collection and use of personal data.

Insurance 2030—the Impact of AI on the Future of Insurance: Mckinsey & Company

With the new wave of deep learning techniques, such as convolutional neural networks, artificial intelligence (AI) has the potential to live up to its promise of mimicking the perception, reasoning, learning, and problem solving of the human mind. In this evolution, insurance will shift from its current state of "detect and repair" to "predict and prevent," transforming every aspect of the industry in the process. The pace of change will also accelerate as brokers, consumers, financial intermediaries, insurers, and suppliers become more adept at using advanced technologies to enhance decision making and productivity, lower costs, and optimize the customer experience.

In industrial settings, equipment with sensors have been omnipresent for some time, but the coming years will see a huge increase in the number of connected consumer devices. The penetration of existing devices (such as cars, fitness trackers, home assistants, smartphones, and smart watches) will continue to increase rapidly, joined by new, growing categories such as clothing, eyewear, home appliances, medical devices, and shoes. Experts estimate there will be up to one trillion connected devices by 2025. The resulting avalanche of new data created by these devices will allow carriers to understand their clients more deeply, resulting in new product categories, more personalized pricing, and increasingly real-time service delivery.

Views of the European Insurance Industry

The benefits that AI can bring to insurers, their customers and society as a whole are many and varied, depending on the specific use case at hand. According to the World Economic Forum, AI will help insurers to predict risk with greater accuracy, customise products and use enhanced foresight to rapidly deploy new products in response to emerging risks. In its 2018 report, the World Economic Forum identifies numerous potential AI applications in the insurance sector in the coming years, which include:

- improve underwriting, pricing efficiency and accuracy;
- increase capital efficiency through better risk modelling and real-time risk monitoring;
- process claims instantly;
- increase the efficiency and capabilities of sales agents;
- improve scale efficiencies to enter new markets;
- provide predictive analytics to clients that help them better understand their risk;
- introduce new pricing and payment models; and
- develop modularised policies.

AI applications in the insurance sector are already giving rise to efficiency gains, helping to improve customer service and offering more insight into customers' needs, and helping to prevent fraudulent transactions. TJ

References

- Artificial Intelligence: A Modern Approach by Stuart Russell and Peter Norvig
- "Pattern Recognition and Machine Learning" by Christopher M. Bishop
- "InsurTech: A Legal and Regulatory View" by Kevin M. Quinley
- https://www2.deloitte.com/cn/en/pages/financial-services/articles/financial-services-industry-outlooks-2024/insurance-industry-outlook.html
- https://www.accenture.com/in-en/insights/insurance/insurance-industry-outlook#accordion-e7509da468-item-78f9706e6e
- Balasubramanian, R., Libarikian, A., & McElhaney, D. (2018). Insurance 2030—The impact of AI on the future of insurance. McKinsey & Company.
- https://irdai.gov.in/documents/37343/366723/Report+on+InsurTech+-Working+Group+Findings+%26+Recommendations.pdf/a3b8f207-f16d-f76f-8660-ea53edabc677?version=1.1&t=1665242100745&download=true
- https://www.insuranceeurope.eu/publications/1721/views-of-the-eu-insurance-industry-on-artificial-intelligence/

Women in Insurance: Exploring the Evolving Landscape

S. Abinaya
abinaya131988@gmail.com

Ms. S. Abinaya is a Research Scholar at the Department of Banking Management, Alagappa University, Karaikudi. She was awarded the University Gold Medal for securing the top position in her MBA (Banking & Insurance) program. She holds UGC- NET JRF in the subject of Management and UGC- NET Eligibility for Assistant Professorship in the subject of Commerce. She has published articles in UGC CARE Listed and peer- reviewed journals.

K. Alamelu
alameluk@alagappauniversity.ac.in

Dr. K. Alamelu is a Senior Professor at the Department of Banking Management, Alagappa University, Karaikudi. She has an extensive background in teaching and research spanning 34 years. She has contributed to number of research papers in various Scopus- indexed, UGC CARE Listed and peer- reviewed journals. She is a certified Financial Literacy Resource Person by the Securities Exchange Board of India.

Abstract

This study delves into the examination of gender diversity trends within the Indian insurance sector, with a particular focus on women's roles as insured, agents, and employees. The study is based on secondary data compiled from the Annual Reports of the IRDAI spanning from 2017-18 to 2022-23. Notably, it reveals that in the life insurance sector, LIC exhibits a commendable performance in terms of women policy holders in comparison to private sector counterparts. However, in the context of gender diversity in employment, private insurance companies take the lead, both in the life insurance and general insurance segments. Consequently, it is evident that while private sector insurers should strive to increase policies issued to women, the public sector, along with the regulatory authority IRDAI, needs to make concerted efforts to enhance female representation within their workforce. Thus, the collaborative efforts from all stakeholders will foster a more equitable insurance sector.

Keywords

Agents, Bima Vahaks, Employees, General Insurance, IRDAI, Life Insurance, Women Policy Holders.

Introduction

Women have historically faced disadvantages due to gender discrimination and unequal gender roles, which have profoundly affected their self-determination, dignity, and freedom. This inequality also extends to their access to financial literacy and essential financial services like savings, credit, and insurance. However, achieving financial well-being can serve as a powerful catalyst in the pursuit of gender equality. It equips women with the necessary tools to accumulate assets, generate income, manage financial risks, and actively engage in the economy. In particular, ensuring equal access to insurance is a crucial component in empowering women to effectively manage risks associated with health, life, business, and more (Programme, 2020).

In the realm of insurance, a common misconception prevails, suggesting that it is solely meant for those who earn income. This notion has led to a

lack of interest in insuring non-earning female family members. However, the situation is changing as awareness of insurance options tailored to women's financial security is growing in India. Consequently, Indian insurance companies have introduced specialized plans for women, including life, term, health, ULIP, and money-back insurance options such as LIC's Aadhaar Shila, Shriram Life New Shri Vivah Plan, SBI Life - Smart Women Advantage Plan, HDFC Life Smart Woman Plan (CreditMantri, 2019), Max Life Insurance- Smart Secure Plus Plan (Kaushal, 2022) and TATA AIG Wellsurance Women Plan. Insurance products not only provide financial protection but also serve as investment vehicles for women to amass wealth over time. Moreover, single women and single mothers can find solace in life insurance, ensuring their families are safeguarded in unforeseen circumstances. Furthermore, insurance plans offer a means of building a substantial retirement fund during one's prime earning years. Lastly, the allure of tax benefits adds another incentive, as premiums paid for life insurance policies are eligible for tax deductions, up to a specified limit. The multitude of advantages provided by insurance products and the availability of tailored women-specific plans encourage women to consider insurance policies in their own name. (CreditMantri, 2019).

Women's presence in the insurance industry goes beyond being policyholders; there are compelling reasons to incorporate them into the field as insurance agents and employees. Selling complex products like life insurance to disadvantaged, often poorly educated, and superstitious individuals is a challenging task. However, having female agents can be advantageous as they can easily gain access to people's homes and naturally comprehend their family's needs, hopes, fears, and dreams. Additionally, women typically have extensive social connections, providing them with a valuable edge. This network not only helps build trust with clients but also serves as a platform for them to explore their entrepreneurial potential. Furthermore, research supports the notion that women excel in socializing and effectively interacting with people, which is particularly valuable in the insurance industry. The commitment and dedication that women bring to this career can significantly contribute to the success of insurance companies (Dhall & Tiwari, 2007).

In the context of women's representation in employment, as of 2021, only six women held leadership positions in insurance companies. Similarly, when it came to the role of chief executive, women led only two out of 24 life insurance companies and four out of 34 non-life insurance firms, constituting just 10 percent of the CEOs in the insurance sector. Nevertheless, it is important to note that the representation of female CEOs in the insurance sector exceeded that in other industries such as manufacturing, automobiles, FMCG, retail, and e-commerce (Saraswathy, 2021). Therefore, in this backdrop, this study explores the involvement of women in two distinct roles: as insured individuals seeking financial protection and as insurance professionals shaping the industry's landscape.

Inclusion of Women in Life Insurance Policies

Table 1: Proportion of policy holders in life insurance industry (2017-18 to 2022-23)

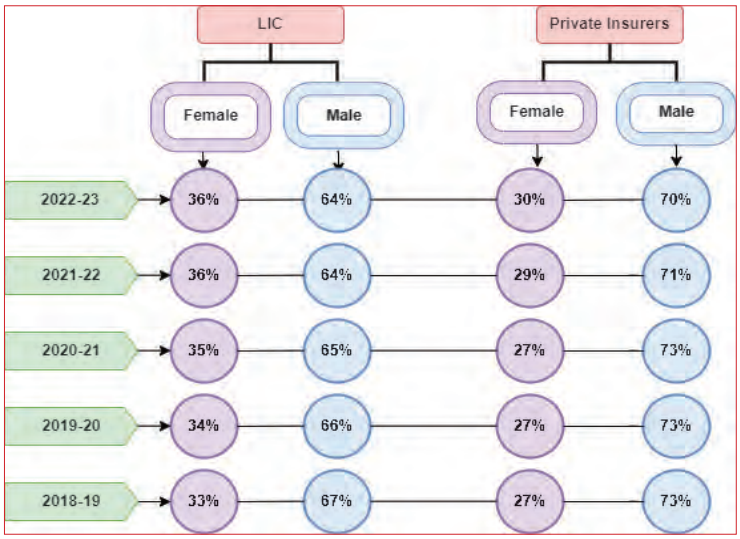
Year	Proportion of female policies	Proportion of male policies	Total no. of policies
2022-23	34.2	65.8	2.84 crore
2021-22	34.7	65.3	2.91 crore
2020-21	33.0	67.0	2.81 crore
2019-20	32.0	68.0	2.88 crore
2018-19	31.8	68.2	2.86 crore
2017-18	32.0	68.0	2.82 crore

Source: IRDAI Annual Reports 2017-18 to 2022-23

Table 1 reveals an encouraging shift in the Indian life insurance sector, illustrating a steady increase in the proportion of female policyholders, rising from 32.0 per cent in 2017-18 to 34.2 per cent in 2022-23. This progression is set against a backdrop of growing number of total policies, with the highest recorded at 2.91 crore in 2021-22. This surge in policies could be attributed to the life-threatening challenges posed by the COVID-19 pandemic, coupled with an increased awareness of the importance of life insurance in response to these challenges. Meanwhile, the proportion of male policyholders has slightly decreased, from 68.0 per cent in 2017-18 to 65.8 per cent in 2022-23. In essence, this shift can be attributed to awareness campaigns and initiatives aimed at promoting women's financial inclusion and insurance coverage, highlighting the impact of targeted efforts. Moreover, this data signifies not only improved financial security and protection for women but also the existence of an untapped market opportunity for insurers.

Figure 1 portrays that from 2018-19 to 2022-23, a distinct trend emerges in the gender distribution of policyholders within the Indian insurance sector. Notably, the LIC experienced a consistent increase in the proportion of female policyholders, with a rise from 33 per cent in 2018-19 to 36 per cent in 2022-23, indicating a progressive shift towards greater female participation in LIC policies. On the other hand, private insurers maintained relatively stable figures, with 27 per cent female policyholders across three years and further increasing to 30 per cent in 2022-23. In the context of male policyholders, both LIC and private insurers observed a marginal decrease of 3 per cent, from 2018-19 to 2022-23. This data underscores LIC's notable success in attracting and serving female policyholders and reveals an opportunity for private insurers to explore strategies aimed at enhancing female participation in the industry.

Figure 1: Gender wise distribution of policy holders in LIC and private insurance companies



Source: IRDAI Annual Reports 2018-19 to 2022-23

Table 2: States with highest and lowest proportion of female policies (2017-18 to 2022-23)

2022-23			
Top 5 States/UT with highest share in number of policies bought by women to the total number of policies in that State/ UT		Bottom 5 States/UT with the least share in number of policies bought by women to the total number of policies in that State/ UT	
State	Share to total policies (%)	State	Share to total policies (%)
Karnataka	44	Gujarat	30
Kerala	44	Uttar Pradesh	30
Mizoram	43	Jammu & Kashmir	28
Sikkim	43	Haryana	27
Meghalaya	42	Ladakh	23
All India Average- 34.2%			
No. of States/UT higher than All- India Average- 15			

2021-22			
Top 5 States/UT with highest share in number of policies bought by women to the total number of policies in that State/ UT		Bottom 5 States/UT with the least share in number of policies bought by women to the total number of policies in that State/ UT	
State	Share to total policies (%)	State	Share to total policies (%)
Karnataka	45	Jammu & Kashmir	26
Kerala	44	Ladak	26
Sikkim	42	Haryana	27
Goa	42	Rajasthan	30
Arunachal Pradesh	41	Uttar Pradesh	30
All India Average- 34.7%			
No. of States/UT higher than All- India Average- 16			
2020-21			
Top 5 States/UT		Bottom 5 States/UT	
State	Share to total policies (%)	State	Share to total policies (%)
Kerala	43	Haryana	27
Sikkim	41	Jammu & Kashmir	27
Andhra Pradesh	40	Gujarat	28
Lakshadweep	40	Uttar Pradesh	29
Puducherry	40	Rajasthan	30
All India Average- 33%			
No. of States/UT higher than All- India Average- 19			
2019-20			
Top 5 States/UT		Bottom 5 States/UT	
State	Share to total policies (%)	State	Share to total policies (%)
Kerala	43	Diu, Daman Dadar & Nagar Haveli	19
Andhra Pradesh	40	Ladakh	22
Mizoram	40	Haryana	27
Puducherry	39	Gujarat	27
Tamil Nadu	38	Jammu & Kashmir	27
All India Average- 32%			
No. of States/UT higher than All- India Average- 18			
2018-19			
Top 5 States/UT		Bottom 5 States/UT	
State	Share to total policies (%)	State	Share to total policies (%)
West Bengal	59	Sikkim	11
Meghalaya	49	Dadar & Nagar Haveli	19
Manipur	46	Punjab	22
Assam	46	Gujarat	23
Arunachal Pradesh	44	Tamil Nadu	27
All-India Average- 36%			
No. of States/UT higher than All- India Average- 17			

Table 2 presents the discernible transformation that has taken place in the policies purchased by women across Indian states and union territories from 2017-18 to 2022-23. The data provides insights into the varying levels of women's engagement in the insurance sector, revealing shifts across different regions. Notably, some areas have made substantial strides in advancing women's financial inclusion through insurance, while others have witnessed more gradual changes. For instance, Kerala consistently held a top-ranking position for five years, while Sikkim maintained its position among the top states for four years. In contrast, Jammu & Kashmir, Haryana, and Gujarat consistently ranked among the bottom five states for five years, with Uttar Pradesh doing so for four years. An interesting development unfolded in Tamil Nadu and Sikkim, as they transitioned from being among the lowest-ranking states in 2018-19 to emerging as top-performing states in 2019-20 and 2020-21, respectively.

The data covering the period from 2017-18 to 2022-23 also reveals a fluctuating trend in the proportion of policies purchased by women across Indian states and union territories. The All-India average for each year reflects these variations, with proportions varying between 32 per cent and 36 per cent. Similarly, the number of states and union territories surpassing this average also fluctuates, with a range of 15 to 19

2017-18			
Top 5 States/UT		Bottom 5 States/UT	
State	Share to total policies (%)	State	Share to total policies (%)
Lakshadweep	55	Jammu & Kashmir	24
Puducherry	43	Haryana	27
Kerala	43	Gujarat	27
Mizoram	41	Uttar Pradesh	28
Sikkim	40	Jharkhand	28
All India Average- 32%			
No. of States/UT higher than All- India Average- 19			

Source: IRDAI Annual Reports 2017-18 to 2022-23

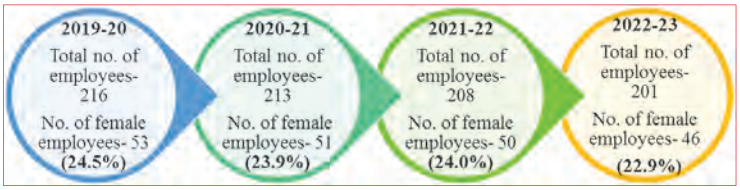
regions exceeding the national average each year. This data highlights the dynamic nature of women's involvement in the insurance sector across different regions, with certain states making significant progress while others fall behind. This highlights the significance of customized strategies to address gender disparities and promote women's financial inclusion in the insurance industry.

Gender Diversity Trends in the Employment of Insurance Sector

The data given in Figure 2 regarding the employment pattern of Insurance Regulatory and Development Authority of India (IRDAI) underscores that the participation of women employees within this apex body of the insurance sector remains relatively low. In 2022-23, female employees accounted for only 22.9 per cent of the total workforce, with similar percentages in the previous years. Considering that IRDAI is a key regulator in the insurance industry, it holds a unique position to lead by example and promote gender diversity and inclusion within the sector. Thus, as an influential authority, IRDAI has the responsibility to ensure gender diversity and inspire insurance companies to enhance similar efforts and work towards achieving a more equitable workforce.

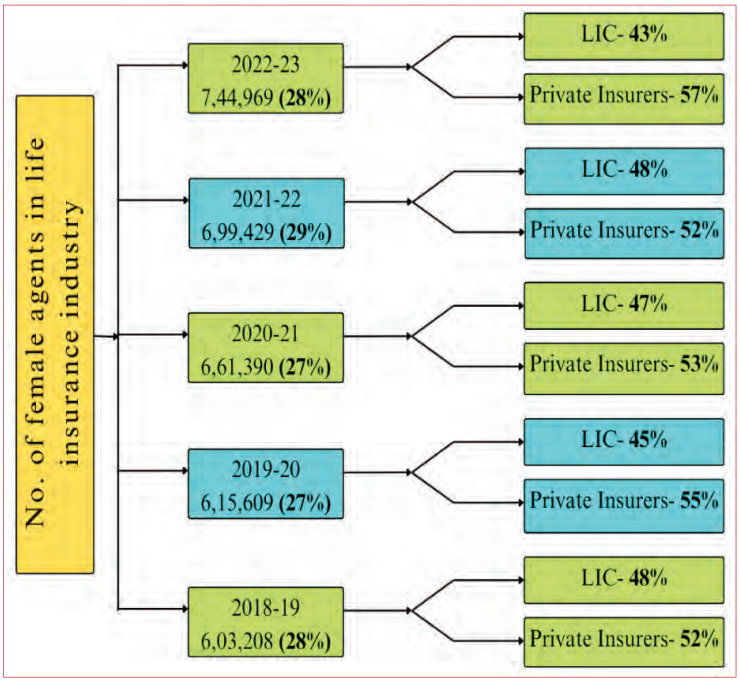
Figure 3 portrays the increasing trend in the number of female agents in life insurance marketing. Between

Figure 2: Representation of women employees in IRDAI



Source: IRDAI Annual Reports 2019-20 to 2022-23

Figure 3: Participation of female agents in the life insurance industry



Source: IRDAI Annual Reports 2018-19 to 2022-23

2017-18 and 2022-23, the total number of female agents in the life insurance industry increased from 6,03,208 to 7,44,969, and the percentage of female agents among the total number of women agents in the life insurance industry remained constant at 28 per cent from 2018-19 to 2022-23. However, the trend in the employment of women in LIC and private insurers varied over the years. The proportion of female agents in LIC decreased from 48 per cent in 2018-19 to 43 per cent in 2022-23. This decline is captured by private insurers, thereby increasing their proportion from 52 per cent in 2018-19 to 57 per cent in 2022-23.

This trend is likely due to several factors, including increasing educational attainment among women, changing societal attitudes towards women in the workplace, growing demand for life insurance products, and the increasing focus of life insurers on digital marketing. The increase in the number of female agents in private insurance companies is a positive trend that reflects the growing participation of women in the workforce and the increasing recognition of their skills and abilities.

The data given in Table 3 regarding the gender-wise distribution of agents associated with life insurers reveals several key trends. In the case of LIC, the proportion of female agents has fluctuated between 23 percent and 25 percent over the past six years, and the proportion of male agents has

Table 3: Gender-wise Distribution of Agents Associated with Life Insurers (2017-18 to 2022-23)

LIC					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	3,17,887	24	10,29,438	76	13,47,325
2021-22	3,35,510	25	9,90,922	75	13,26,432
2020-21	3,11,122	23	10,42,686	77	13,53,808
2019-20	2,77,776	23	9,31,050	77	12,08,826
2018-19	2,84,467	24	8,94,762	76	11,79,229
2017-18	2,92,306	25	8,56,505	75	11,48,811
Private Insurers					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	4,27,082	33	8,53,801	67	12,80,883
2021-22	3,63,919	33	7,52,258	67	11,16,177
2020-21	3,50,268	32	7,51,001	68	11,01,269
2019-20	3,37,833	32	7,31,806	68	10,69,639
2018-19	3,18,741	31	6,96,777	69	10,15,518
2017-18	2,86,914	31	6,46,942	69	9,33,856
Total insurers					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	7,44,969	28	18,83,239	72	26,28,208
2021-22	6,99,429	29	17,43,180	71	24,42,609
2020-21	6,61,390	27	17,93,687	73	24,55,077
2019-20	6,15,609	27	16,62,856	73	22,78,465
2018-19	6,03,208	27	15,91,539	73	21,94,747
2017-18	5,79,220	28	15,03,447	72	20,82,667

Source: IRDAI Annual Reports 2017-18 to 2022-23

varied between 75 percent and 77 percent. On the other hand, among private insurers, the proportion of female agents increased from 31 percent in 2017-18 to 33 percent in 2022-23, accompanied by a corresponding decrease in the proportion of male agents from 69 percent to 67 percent. When considering all insurers, the proportion of female agents has fluctuated between 27 and 29 percent over the study period, and the proportion of male agents has also fluctuated between 71 and 73 percent. These findings suggest a gradual shift towards a more gender-balanced distribution of agents in private insurance companies.

Table 4 depicts that over the years, there has been a significant increase in the average proportion of female agents in top companies recognized for their dedication to promoting inclusion. Specifically, this proportion has risen from 40.7 per cent in 2018-19 to 42.2 per cent in 2021-22. However, the individual data for these companies, exhibits a more nuanced picture. For instance, Max Life Insurance Co. has experienced a decrease in the proportion of women agents, declining from 45.0 per cent in 2018-19 to 42.5 per cent in 2021-22. Similarly, Ageas Federal Life Insurance Co. Ltd. has also witnessed a reduction, with the proportion of women decreasing from 43.0 per cent in 2020-21 to 42.4 per cent in 2021-22. Conversely, Star

Table 4: Private Life Insurers with Highest Participation of Women Agents (2018-19 to 2021-22)

Year	Insurance Company	Proportion of women agents	Average
2021-22	Max Life Insurance Co.	42.5	42.2
	Ageas Federal Life Insurance Co. Ltd.	42.4	
	Star Union Dai-ichi Life Insurance Co.	41.7	
2020-21	Ageas Federal Life Insurance Co. Ltd.	43.0	42.0
	Star Union Dai-ichi Life Insurance Co.	42.0	
	Max Life Insurance Co.	41.0	
2019-20	IDBI Federal Life Co.	45.0	41.0
	Max Life Insurance Co.	45.0	
	Star Union Dai-ichi Life Insurance Co.	37.0	
	Tata AIA Life Insurance Co.	37.0	
2018-19	Max Life Insurance Co.	45.0	40.7
	IDBI Federal Life Ins. Co.	41.2	
	Star Union Dai-ichi Life Insurance Co.	35.9	

Source: IRDAI Annual Reports 2018-19 to 2021-22

Table 5: Gender wise Distribution of Insurance Agents Associated with General and Health Insurers (2019-20 to 2022-23)

Public Sector General Insurers					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	57,942	19	2,51,806	81	3,09,748
2021-22	58,459	19	2,41,427	81	2,99,886
2020-21	53,247	18	2,36,103	82	2,89,350
2019-20	54,880	25	1,68,261	75	2,23,141
Private Sector General Insurers					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	1,11,101	27	3,06,644	73	4,17,745
2021-22	97,677	25	2,90,213	75	3,87,890
2020-21	90,972	25	2,70,076	75	3,61,048
2019-20	53,237	18	2,39,119	82	2,92,356

Stand-alone Health Insurers					
Year	Female		Male		Total no. of agents
	No. of agents	Proportion	No. of agents	Proportion	
2022-23	3,27,004	28	8,31,290	72	11,58,294
2021-22	2,69,082	28	6,94,511	72	9,63,593
2020-21	2,15,644	28	5,56,262	72	7,71,906
2019-20	1,88,745	28	4,92,400	72	6,81,145

Source: IRDAI Annual Reports 2019-20 to 2022-23

Union Dai-ichi Life Insurance Co. has seen an increase in women's participation, rising from 35.9 per cent in 2018-19 to 41.7 per cent in 2021-22. These variations in gender representation within individual companies highlight the complexity of the overall trend.

The gender-wise distribution of insurance agents associated with general and health insurers is exhibited in Table 5. In public sector general insurers, male agents consistently dominated with a proportion increasing from 75 per cent in 2019-20 to 81 per cent in 2022-23, while the proportion of female agents fell by 6 per cent. Among private sector general insurers, the proportion of male agents decreased from 82 per cent to 73 per cent during the study period, while the proportion of female agents increased by 9 per cent, rising from 18 percent to 27 per cent. Between 2019-20 and 2022-23, in stand-alone health insurers, the proportion of male and female agents remained constant at 72 per cent and 28 per cent, respectively. These data indicate that within the realm of general insurers, the public sector remains male-dominated compared to private and stand-alone health insurers. Moreover, the private sector appears to be gradually moving towards achieving a more equitable gender distribution in its workforce.

The Path Ahead

To promote inclusion of women in insurance, IRDAI is undertaking an ambitious initiative to launch Bima Vahak, a women-centric distribution channel with a strong focus on women-centric insurance plans, in every Gram Panchayat across the country by December 31, 2024. IRDAI has released new guidelines for Bima Vahaks on October 9, 2023 with some changes from the framework released in May 2023. The previous restriction on Bima Vahaks working with only one life insurer, one general insurer, and one health insurer has been removed. This change allows more flexibility and collaboration within the insurance industry.

Bima Vahaks, both corporate and individual, will have the authority to collect proposal information, manage know-your-customer documentation, and coordinate claims-related services. Insurers are encouraged to provide optional modes for premium payment to prospects and policyholders. Further, Bima Vahaks are expected to adopt electronic payment processes for seamless premium remittance.

The IRDAI's initiative extends beyond Bima Vahak; it is also gearing up to introduce Bima Vistaar as part of Bima Trinity. The strategy is to launch both initiatives simultaneously, with the aim of offering a comprehensive range of affordable insurance products covering life, health, and property insurance through women. This coordinated effort aligns with IRDAI's ambitious vision of achieving universal insurance coverage by 2047 while simultaneously addressing prevalent gaps in product design, pricing, and distribution channels.

Furthermore, it is anticipated that female 'Vahaks' will play a pivotal role in advocating for affordable social security among women in rural households and encouraging them to opt for coverage through Bima Vistaar (Sridhar, 2023). Thus, these initiatives are part of a broader effort to expand the reach of insurance services and promote financial inclusion. They seek to empower individuals, particularly women, with access to insurance coverage and financial security, contributing to the overall growth of the insurance sector in India.

Conclusion

The participation of women as policyholders in the insurance sector seems to hold more promise in LIC compared to private insurers. Consequently, private insurers could benefit from adopting the best practices employed by LIC to enhance female representation in their customer base. To fully tap into this potential, it is essential for policymakers and insurance companies to design products and strategies tailored to the specific needs and preferences of female policyholders. This will ensure their active and confident engagement in the insurance sector, ultimately empowering women to secure their financial futures.

Regarding gender representation within the workforce, private sector insurers excel when compared to both IRDAI and public sector insurers. Therefore, it is imperative for IRDAI and public sector insurers to work toward achieving greater gender representation. Such efforts can contribute to broader industry-wide initiatives focused on fostering diversity and inclusivity within the insurance sector's workforce.

Fortunately, the future of the Indian insurance sector offers promise for women, thanks to initiatives like the Bima Vahak programme. This programme aims to make insurance accessible and available throughout the country, bridging gender disparities in insurance participation through a dedicated women-centric distribution channel.

References

CreditMantri. (2019, December 9). *Insurance Policies Designed For Women*. https://www.creditmantri.com/article-insurance-policies-designed-for-women/

Dhall, A., & Tiwari, D. (2007, December 31). Women outperform men as insurance agents. *The Economic Times*. https://economictimes.indiatimes.com/wealth/insure/women-outperform-men-as-insurance-agents/articleshow/2663047.cms

Kaushal, T. J. (2022, January 28). *Insurers focusing on women-specific plans to boost growth—BusinessToday*. https://www.businesstoday.in/latest/trends/story/insurers-focusing-on-women-specific-plans-to-boost-growth-320667-2022-01-28

Programme, T. I. S. F. (2020, March 6). *Gender and financial inclusion* [Document]. http://www.ilo.org/empent/areas/social-finance/WCMS_737729/lang--en/index.htm

Saraswathy, M. (2021, March 5). *These women CEOs are leading the way in the path to "insured" India*. Moneycontrol. https://www.moneycontrol.com/news/business/economy/these-women-ceos-are-leading-the-way-in-the-path-to-insured-india-6597731.html

Sridhar, G. N. (2023, December 22). *All-in-one insurance product, Bima Vistaar, to be rolled out in Q1 of FY25*. BusinessLine. https://www.thehindubusinessline.com/money-and-banking/all-in-one-insurance-product-bima-vistaar-to-be-rolled-out-in-q1-of-fy25/article67666272.ece

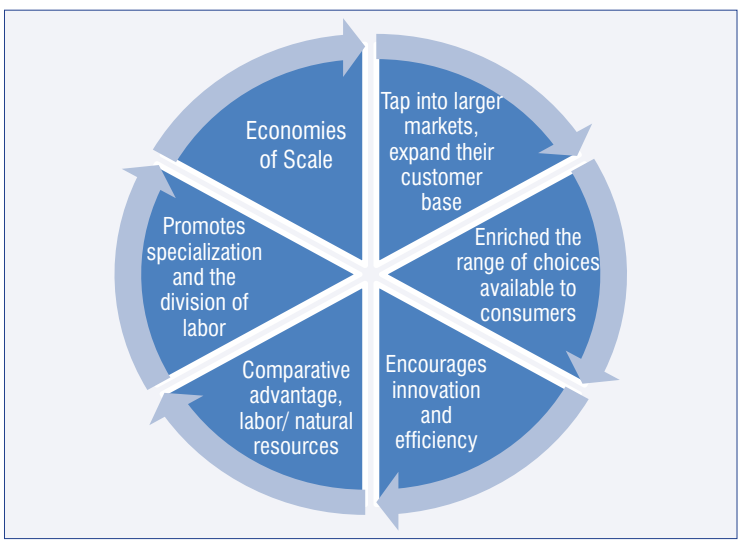
Trade Credit Insurance - Supporting the International Trade in Times of Turbulence

Rajshree Mandal
Rajshree.mandal@ecgc.in

Ms. Mandal is working as Assistant Manager in ECGC limited (Government of India Enterprise) and has decade of experience in Credit Insurance sector, handling Product Underwriting, Claim processing and Claim Recovery departments. She was awarded Gold medal in Undergraduate degree and has done Agribusiness Management from National Institute of Agricultural Extension Management. She also worked for Tata Chemicals as Management Trainee and SREI Sahaj e village Limited (Under National e-governance Programme) as District Manager before joining ECGC Limited.

When Goods Do Not Cross Borders, Soldiers Will- Frédéric Bastiat

The famous quote by French economist in single sentence summarises the relevance of international trade in political stability and economic prosperity of nations. Over the years, international trade has served as a catalyst for growth, fostering prosperity, and facilitating international cooperation. The multifaceted role of global trade in economic development, includes its impact on GDP growth, employment, technological advancement, poverty reduction, and overall well-being of the country. The exchange of goods, services, and ideas across borders creates opportunities for countries to leverage their strengths, enhance productivity, and achieve sustainable development. Ushering of the new wave of Globalisation 3.0 in 2000's spurred by the technological developments and concerted efforts to reduce trade barriers, led to the creation of intricate network of economic interactions across the world. Global trade acted as a conduit for the transfer of technology, knowledge, and innovation across borders. By promoting economic growth, job creation, technological advancement, poverty reduction, and regional integration, international trade transformed economies and improved living standards. As per World Bank report, from 1990 to 2017, developing countries increased their share of global exports from 16 percent to 30 percent; in the same period, the global poverty rate fell from 36 percent to 9 percent. Not all countries have benefited equally, but overall, trade has generated unprecedented prosperity, helping to lift some 1 billion people out of poverty in recent decades.



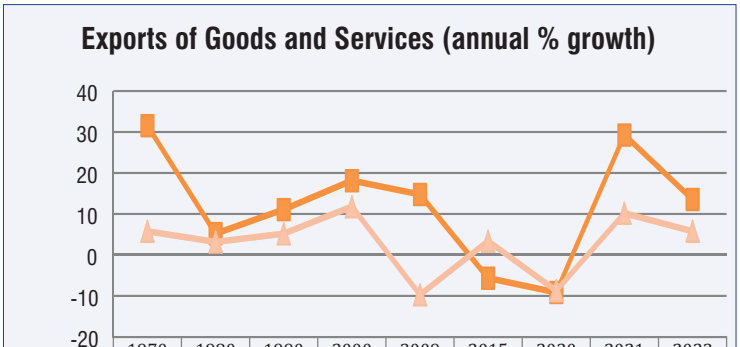
Virtuous Cycle of International Trade

Key Trends in International Trade

International trade has increased dramatically in past decades, rising from US$6.5 trillion in 2002 to around US$12 trillion in 2006, to reach around US$18 trillion in 2011 ^ .As per World Trade Organisation latest data, trade in goods and services amounted to US$ 31.0 trillion in 2022 registering a 13% rise year-on-year. Developed countries continue to constitute the main players in international trade with destination of international trade. Although trade growth (both import and export) has been higher for developing countries during the last decade, this trend is slowly abating. More generally, increased demand in developing (especially middle-income) countries is having important repercussions for international trade. This rise in demand paired with fragmentation of production processes has resulted in the rapid increase of rising share of dynamically growing economies in international merchandise and services trade during the last two decade. Seven countries in particular have contributed immensely to this trend: Brazil, India, China, Mexico, the Russian Federation, South Africa, and South Korea.

India's assimilation in the global trade system was delayed and baby step in this direction started in 1990's with introduction of Liberalization, Globalisation, and Privatization policy. India accounted for 2 percent of world exports when it became independent in 1947. However, with political embarkment of inward-looking policy of self-sufficient economic independence India's share of global exports reduced to 0.45 percent by 1986.Till the early 1990s, India was a closed economy: average tariffs exceeded 200 per cent, quantitative restrictions on imports were extensive, and there were stringent restrictions on foreign investment. Post Economic reform country has progressively opened its economy to international trade, whether through the multilateral trading system, increased regional cooperation or as part of domestic reform programs. The significant structural shift in international trade regime and conducive Government policies have reaped benefits and during the last 25 years Indian exports have increased by 17 times and imports by 19 times. India's share in global merchandise exports has risen from 0.6 percent in early 1990s to 1.77 percent in 2021. According to World Bank data the average annual real growth (%) of Indian export during 2000 -2020 was 15.2 and 4.2 % during 2010-2022.@

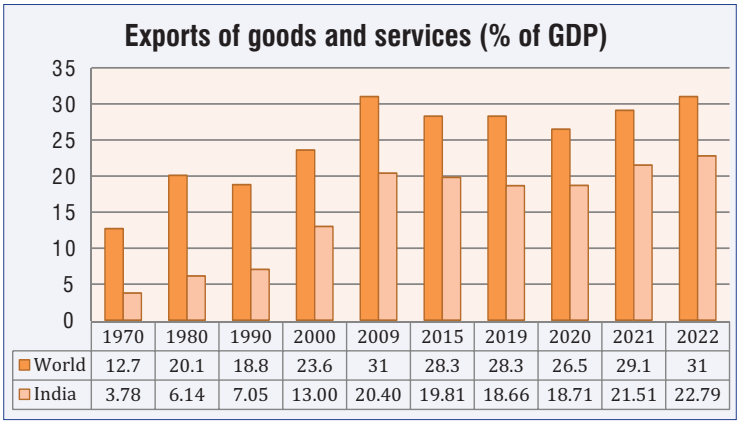
The trajectory of Indian Export growth vis a vis with World Export is given below:



	1970	1980	1990	2000	2009	2015	2020	2021	2022
India	31.55	5.23	11.1	18.15	14.77	-5.64	-9.13	29.29	13.57
World	5.8	3.2	5.2	11.8	-9.7	3.4	-8.7	10.2	5.8

(Source-Collated data from data.worldbank.org)

India's trade to GDP ratio, a measure of an economy's openness and integration into the global economy, has witnessed a phenomenal increase over the last few decades. Foreign trade which constituted around 13-15 percent of India's GDP in the early nineties, peaked around 30 percent in 2022. As per World Trade Organization (WTO) World Trade Statistical Review (WTSR) 2023 India ranks 18th in merchandise exports and 7th in the list of services exporters accounting for 4.4 per cent of global services trade share.



	1970	1980	1990	2000	2009	2015	2019	2020	2021	2022
World	12.7	20.1	18.8	23.6	31	28.3	28.3	26.5	29.1	31
India	3.78	6.14	7.05	13.00	20.40	19.81	18.66	18.71	21.51	22.79

(Collated from https://data.worldbank.org/indicator)

India's overall exports projected to scale new heights, growing at 13.84 percent during FY 2022-23 over FY 2021-22 to achieve USD 770.18 billion worth of exports. Merchandise exports have registered highest ever annual exports of USD 447.46 billion with 6.03% growth during FY 2022-23 surpassing the previous year (FY 2021-22) record exports of USD 422.00 billion. Services export lead the overall exports growth and projected to set a new record annual value of USD 322.72 billion with growth rate at 26.79 percent during FY 2022-23 over FY 2021-22.

Indian Export Performance		
	2022-23	**2021-22**
Merchandise	447.46	422
Services	322.72	254.53
Total Export	**770.18**	**676.53**

(https://pib.gov.in/PressReleasePage.aspx?PRID=1916220)

Role of Trade Credit Insurance

Trade per se is risky and uncertain and international trade is even more so, given the additional risks of commercial risks (including delay or default in payments in addition to insolvencies, bankruptcies, liquidation, and winding-up of buyers) and political risks (including credit risks related to government buyers and government policy related risks such as regulation changes, import-export licence restrictions, political disturbances, confiscation, war, riot, civil war, .For achieving export led economy growth, it is therefore imperative that exporters are protected against these Credit risks. Availability of adequate financial resources and optimal liquidity are the prerequisites for helping the business in achieving the competitive edge and compete with the global players.

Trade Credit insurance is the effective financial risk management tool that safeguards business against unforeseen losses and allows exporters to offer competitive open account terms to foreign buyers while minimizing the risk of non-payment. The pivotal role of the credit insurance in driving the world trade is summarised below:

14.52%	• Percentage of World Trade in 2020 protected by credit insurance
EUR 6.35 tn	• Total value of insured shipments
EUR 12.07bn	• Total global credit insurance premium

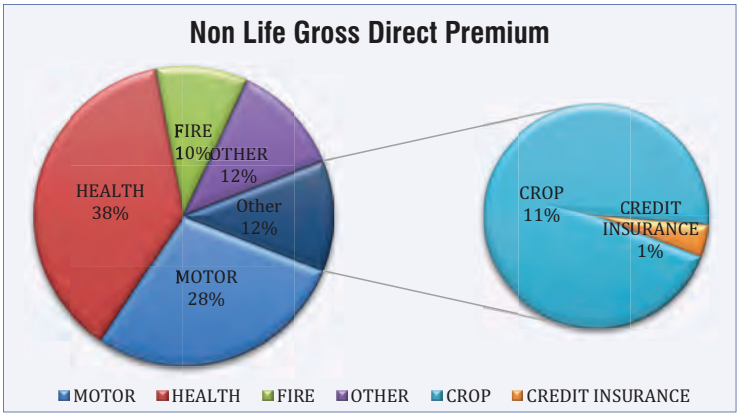
(Source: International Credit Insurance & Surety Association – www.icisa.org)

Governments supports to the export sector against foreign trade risks essentially entails two functions: one is providing insurance cover to banks and other financial agencies which lend credit to exporters, and the other is furnishing export credit insurance (ECI) to exporters against default in payment by foreign buyers. In many countries, both these functions are performed by what are called as export credit agencies (ECA). ECAs can be government institutions or private companies operating on behalf of governments. The International Credit Insurance & Surety Association (ICISA), Berne Union and OECD are the principal international organizations of export credit agencies that provides forum for exchanging information on Members' export credits systems and business activities and for discussing and coordinating national export credits policies. Three major trade credit insurers Euler Hermes, Coface,

Atradius are the leading global players having service network spread across the globe.

In India, the key ECA is the wholly government- owned ECGC Limited. It was set up in 1957 with the objective of promoting exports from the country by providing credit risk insurance and related services for exports. Over the years it has designed different export credit risk insurance products to suit the requirements of Indian exporters with objective to improve the competitiveness of the Indian exports by providing them with credit insurance covers. Simultaneously with the broad objective to increase the availability of finance for trade and give fillip to the growth of credit insurance market, the Insurance Regulatory and Development Authority of India (IRDAI) had progressively liberalised norms for credit insurance sector vide guidelines on Trade credit insurance in 2010 and 2016. Latest IRDAI (Trade Credit Insurance) Guidelines, 2021 * set out the regulatory framework to facilitate general insurance companies to offer trade credit insurance covers to suppliers as well as licensed banks and other financial institutions and customised covers to improve businesses for the SMEs and MSMEs.

Presently India's thriving Credit Insurance sector consists of Public Sector companies (PSU's) and private sector companies, Reinsurers, Foreign Reinsurance Branches, Brokers, Corporate Agents, Web Aggregators, IMF (Insurance Marketing Firms) insurance which are registered and regulated by insurance regulatory of India, IRDAI. As per IRDAI report Non-Life Industry have underwritten GDP of Rs 812 Cr under Credit segment with a growth rate of 4.10% as compared to GDP of Rs 780 Cr with a growth rate of 20.88% upto September, 2022. In Non life insurance segment the share of niche insurance segment of Credit insurance in terms of Gross premium Underwritten in as given below:



(source-Irdai)

Within Credit insurance segment ECGC is the largest insurer with market share of 69.84% followed by New India (Market Share 6.52%) and HDFC Ergo (Market Share 6.30%). These top 3 insurers have combined market share of 82.65% with a growth rate of 4.49%. Under Credit segment, PSU General Insurers have combined market share of 7.15% as of September, 2023 and have registered growth rate of -18.56% as compared to market share of 9.13% September, 2022 with a growth rate of 19.93%.The share of the all the Insurers in credit insurance segment is as tabulated below:

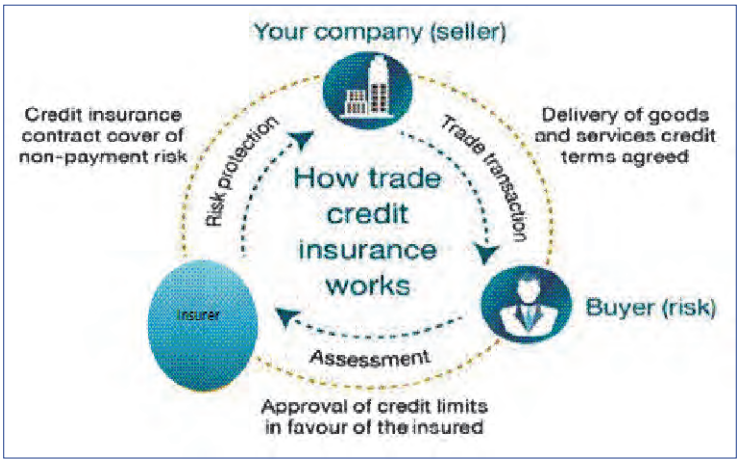
Insurance Company	GPU Upto Nov 23	GPU Upto Nov 22	Growth rate
ECGC limited	724.88	636.61	13.87%
New India Insurance	92.42	73.77	25.28%
Tata AIG	63.86	49.48	29.06%
HDFC Ergo	54.04	34.38	57.19%
ICICI	45.24	29.11	55.42%
IFFCO Tokio	26.33	20.49	28.48%
Sbi General	19.96	21.27	-6.19%
Bajaj	9.12	6.27	45.44%
Universal Sompo	4.61	1.13	308.30%
Oriental Insurance	0.42	6.51	-93.56%

Source-Gross premium underwritten by non-life insurers within India (segment wise) : For the month / upto the Month Of November, 2022 (Provisional & Unaudited)

Trade Credit Insurance

As Trade credit insurance is niche segment and awareness about the Insurance Cover is limited, it is crucial to understand the product and the features. The fundamental principle of insurance however remains intact in credit insurance also with underlying emphasis on mitigation of perceived risks and attainment of security.

Trade Credit Insurance also referred as credit insurance, business credit insurance or export credit insurance in common parlance means insurance of Company(suppliers) against the risk of non-payment of goods or services by their buyers who may be situated in the same country as the supplier (domestic risk) or a buyer situated in another country (export risk) against non-payment as a result of insolvency of the buyer or non-payment after an agreed number of months after due-date (protracted default) or non-payment following an event outside the control of the buyer or the seller. While trade credit insurance is mostly known for protecting foreign or export accounts receivable, there has been increasing demand for trade credit insurance for domestic accounts receivable protection also. The flowchart depicted below show he function and process flow of credit insurance:



Credit Insurance generally covers commercial risks (such as insolvency of the buyer, bankruptcy, or protracted defaults/slow payment) and certain political risks (such as war, terrorism, riots, and revolution) that could result in non-payment. Insurance Policy is offered either on a Whole turnover basis, single-buyer basis or on a portfolio multi-buyer basis for short-term (180 days) and medium-term (one to five years) repayment periods and are guided by the extant RBI guidelines on Export finance. Short-term policy, which generally provides 90 to 95 percent coverage against commercial and political risks that result in buyer payment defaults, typically covers (a) consumer goods, materials, and services up to 180 days, and (b) small capital goods, consumer durables, and bulk commodities up to 360 days. Medium-term Policy cover, which provides 85 percent coverage of the net contract value, usually covers large capital goods up to five years.

Trade credit insurers normally establish credit limits and terms of business (e.g. maximum invoicing period and maximum payment period) on all of a supplier's buyers, using their extensive credit and trading information data base. In addition, a trade credit insurer may grant automatic cover on buyer risks up to a discretionary limit, which may be a percentage of the overall policy limit or the credit limit on a particular buyer.

With reduced non-payment risk, credit insurance cover can help exporter in increase export sales, establish market share in emerging and developing countries, and compete more vigorously in the global market. When foreign accounts receivable is insured, credit lenders (Banks) are more willing to increase the exporter's borrowing capacity and offer more attractive financing terms. Credit insurance also provides guidance on export-related activities to exporters, including credit rating-based information on different countries and checking the creditworthiness of overseas customers. Along with credit management debt recovery is also facilitated by the insurer to recover the foregone losses.

Challenges and Way Ahead

Two important factors which will help in increasing the width and depth of the credit insurance segment across the globe will be prevailing

economic uncertainties and Market expansion in emerging economies. In its latest Global Trade Outlook, the WTO lowered its forecast for world merchandise trade growth in 2023 to 0.8% from the 1.7% it had forecast in April. The cut is no surprise given current economic slowdown, which is expected to continue into and through 2024. Adding to the uncertainty are ongoing geopolitical tensions due to Russai-Ukraine War, middle east turmoil. These are leading to fragmentation of existing trade relations, a consequence of which has been the signing of new regional, multilateral and bilateral trade agreements. Covid induced production shock and disruptions in the supply chain. The development of new trade arrangements as a new world order takes shape will make supply chains more complex, particularly for intermediate goods and exploring of new emerging markets in Africa and Asia will boost the demand of Credit insurance. In these times of global transition, credit insurance proves to be stabiliser of economic resilience.

In Indian credit insurance a closer look at the sheer size of Export volume of India along with the prevailing Gross Premium underwritten by the non-life insurer as collated in above paragraph will help to understand the huge void that is be filled by this niche insurance segment. The enormous scale and the diversified customer profile ranging from first time small exporter to Multinational Companies operating across the globe gives a unique character to the untapped Indian credit insurance that calls for two-pronged strategy of government role as a facilitator serving the market segment which are deemed unserviceable & unprofitable and creating conducive ecosystem for private credit insurance Companies to make inroads these untapped segments.

Indian Government has announced slew of measures and schemes to make export engine of Indian economic growth. Foreign Trade Policy envisions to increase India's total exports to $2 trillion by the end of 2030.The Trade policy which serves as blueprint for future course of actions envisages promoting e-commerce for exports, bringing in simplification and reforms for reducing compliance burden, turning districts into export hubs, strengthening domestic manufacturing & infrastructure and suitably adopting sector specific initiatives. Though the Government is playing the balancing act of supporting Insurance Public Sector ECA -ECGC limited by capital infusion which in turn will help the Company to increase its Risk-taking appetite. From 2019 to 2022 Government has infused investment of Rs. 6,000 crores to ECGC Limited to facilitate additional exports over the next five years. Further to facilitate growth of vibrant insurance landscape insurance regulator IRDAI with mission of 'Insurance for All' by 2047 has introduced series of regulatory developments to improve ease of doing business, facilitate the entry of small, specialised players, increase capital inflow from foreign entities, improve valuation of Insurance Companies to deepen the risk underwriting portfolio.

The landscape of this niche insurance segment has long been dominated by the Public sector which has duly filled the mandate of achieving the export promotion along with supporting the export ecosystem. The enormous volume of the international trade and the ambitious plan of expanding foreign trade focussing on areas such as MSMEs for exports, diversification of products and export markets, integration of women into trade along with the prevailing uncertainties due to unfolding of geopolitical realignment has presented the segment with huge opportunity. TJ

Sources:

- https://unctad.org/system/files/official-document/ditctab20131rev1_en.pdf
- ^UCTAD report-key trends in International merchandise trade
- https://www.wto.org/english/res_e/booksp_e/wtsr_2023_e.pdf
- https://www.niti.gov.in/sites/default/files/2023-07/Export-Preparedness-Index-2022_0.pdf
- @-https://www.statista.com/statistic
- (https://wdi.worldbank.org/table/4.9#)

Digital Disruption in Insurance: A tool for Better Customer Engagement

K. Murlidar
k.murlidar@gmail.com; k.murlidar@licindia.com

Mr. K Murlidar is working as Executive Director (Digital Marketing and Digital Transformation) of LIC of India. He is having an experience of over three decades in life insurance marketing, having worked as in-charge of Branches, Divisions and Regional Head of Marketing of Andhra Pradesh and Telangana. He also worked in Corporate Communications and Personnel as Regional Head. He has authored about 100 articles on varied subjects that include marketing, information technology and human resources development. Many of the article have been published in national magazines, corporate magazines and newspapers

The insurance landscape, be it life or general, has been undergoing rapid changes thanks to the strategic overhauling undertaken by the companies with cutting-edge technologies to conduct their business and engage with customers more efficiently. Post pandemic, the digital transformation has been on top gear as the companies started re-evaluating their existing strategies and going all out to reimagine traditional models to sync with the customer needs. Insurers invest significantly in technologies such as Artificial Intelligence, Machine learning, Internet of Things, Data Analytics and Block-chain as they play a critical role in remaining competitive in the market. The growing demands for online portals and web applications have forced the insurers to adopt newer ways of doing business digitally. We shall analyse the new digital means that have been adopted and how are they enabling the companies to engage customers in a more fruitful and mutually beneficial manner.

AI and ML in Insurance Landscape

Today, insurance companies have understood the immense value of digital technologies that can transform the whole facet of their operations. Data science is the one area that has the capacity to revolutionize the way insurers do their business. Companies are able to get actionable insights thru AI and ML and that help them to optimize a wide range of functionalities. Together with predictive analytics, these interventions enable companies to streamline and accelerate the way they process the data. Today, AI and ML can play dominant role in underwriting, risk assessment, risk mitigation, policy pricing, claim processing, customer segmentation, customer management, fraud detection and market trend analysis. This empowers insurers to make data-driven decisions, resulting in a win-win situation. AI has incredible potential across the entire insurance value chain, from marketing to underwriting and claims management. The industry is growing at a rapid clip, expected to cross $2.5 billion by 2025.

Engaging AI and ML open up new vistas for business development. This not only reduces the cost of operation significantly but cut the process time too. A well-designed and integrated virtual channel interaction will bridge the gap between customers and insurers and that will bring them closer, thereby, improving the turnaround time in all transactions. Customer interface with video calls, office work by sharing files thru Cloud computing, tele-consultations in Health insurance, video MR, online validation of reports are a few tech interventions in this direction.

In General insurance too, 'going virtual' is fast catching up with a variety of new digital initiatives. The IRDAI has introduced the Sandbox Regulations with a view to creating a conducive environment to experiment

with innovative fin-tech and insure-tech solutions. Novel proposals such as online automotive claims and collision estimation, health profile-based pricing, wearable fitness trackers, as well as AI-based claims estimation are becoming a reality today!

AI and ML algorithms for motor insurance companies help in providing recommendations to drivers about vehicle maintenance and it serves as a value addition to the policyholder. In-car analytics detect driver behaviour and offer valuable inputs that would reduce incidence of accidents. 'Pay as you drive' has been a recent innovative solution enabled through digital means. Marked increase in investment by insurance companies in AI & Machine Learning and rise in preference for personalized insurance services boost the growth of the global AI in insurance market. AI in insurance market was valued at USD 3.64 billion in 2022 and is expected to reach the value of USD 35.77 billion by 2030, at a CAGR of 33.06% according to "`databridgemaketresearch.com"

All the above are focusing on better customer interaction with ease of doing business as a core idea besides offering products at a lesser cost. The seamless engagement of customers would also reduce customer churn and enhanced satisfaction.

Online Presence and Customer Engagement

A number of digital solutions online are offering better experience to customers today and here are a few of them:

1. **Social Advertising:** Social advertising is the process of creating contents and deploying clickable advertisements to reach target audiences. This method is growing exponentially across the companies. Targeted audiences may be completely unfamiliar with the brand or product being advertised, but then the message has a good chance of resonating and getting an immediate response and this kind of engagement is catching up fast.

2. **Search Engine Optimization:** SEO is the science of persuading search engines such as Google, Bing and Yahoo, to recommend the companies' content to their users as the best solution to their problem. SEO is significant because it makes the website more visible and that means more traffic and more opportunities to convert prospects into customers. Beyond that, it is also a valuable tool for brand awareness, building relationships with prospects, and positioning as a trustworthy expert in the field. Companies engage with the prospects this way providing valuable information and contents.

3. **Social Media Marketing:** Social media presence in platforms like Facebook, LinkedIn, Twitter, Pinterest, Instagram and You Tube is an essential piece of business marketing strategy. This helps insurers connect with customers, increase awareness about the brand and boost leads and sales. Today, social media plays a crucial role in decision making as the digital savvy customers engage in diligent search of all the options before arriving at a decision. The number of social media users continues to grow ever since the pandemic and the shopping behaviour of consumers is increasingly impacted by the likes of Instagram, LinkedIn, Facebook, TikTok and X (formerly Twitter). Companies draw clear plans to take advantage of the power that these social media handles command for promoting their products. The ad spend of social media in the year 2023 stood at approximately 270 billion USD and it is expected to climb 300 billion USD mark by 2024. By leveraging social media, insurers can create engaging content that educates and informs customers about the value of insurance and addresses common doubts.

4. **Content Marketing:** Many companies resort to content marketing in an agile manner today. Content marketing is a powerful tool for insurers to showcase their expertise and provide valuable information to customers. By creating high-quality content, such as blog articles, info-graphics and educational videos, insurers can position themselves as trusted advisors thereby engaging

customers more closely. This not only helps in customer education but also strengthens brand reputation and credibility. Some of the essential advantages of content marketing are:

a. Conversion rate of customers is high

b. The quality content increases the click-through rate resulting in better visibility during searches by the customers

c. This is a much cheaper mode of advertising as it involves only the upfront cost for creating content. Further, studies have revealed that ROI of content marketing outpaces the traditional marketing. Companies with business blogs generate about 67% more leads and also earn 97% more inbound link, 55% more visitors to their sites and 434% more indexed pages in Google

d. Customers prefer contents rather than advertisement as the trend today is to get to know in depth. Customers today search many sites, compare and then take a considered view before deciding the best options

5. **Retargeting Customers:** Retargeting is a form of online advertising that will help companies keep their brands in front of bounced traffic after they leave the website. It works with multiple digital marketing channels, including paid search, display, email and social. For most websites, only 2% of web traffic converts on the first visit. Retargeting is a tool designed to help companies reach the 98% of users who do not convert right away and thus it assumes significance. According to a survey, engagement with a retargeted customers serves as a reinforcement and increases the brand value with a positive reaction from them. Serious marketers today use retargeting as a vital tool to connect with their customers and increase their sales. Connecting with the potential customers repeatedly, increased conversion rates and personalized marketing are some of the highlights of this marketing.

All the above enable insurers not only to tailor their messaging to specific customer segments but deliver personalized content that will resonate with their specific needs and interests. By understanding customer preferences and behaviors through data analysis, insurers can develop targeted content strategies driving engagement and ultimately leading to business growth.

Mobile Marketing

According to a research, 71% of the customers now use some form of online research before buying an insurance product. They need to have access to more information than ever before and leverage to social media and comparison sites to compare policies, prices and claims' experience. The research further states 34% of ecommerce sales happen on smart phones. As the nation continues to make significant leaps as a mobile-first economy, the insurance market through smart phones in India is expected to grow at a formidable rate in the coming days and especially in the aftermath of Covid -19 when people have started doing everything thru their smart phones. Today, insurers have developed effective E2E solutions to address the needs of their intermediaries and customers alike. Modern customers are already used to buying and managing everything with their smartphones – and insurance products are not different. Mobile Apps allow companies to collect information on each customer and this becomes handy when improving the quality of personalized offers. Providing the customers with a unique offer based on the data received can improve customer retention and loyalty to a significant extent. Engaging customers through a seamless digital experience with a real time service transforms them into loyal customers.

AI Powered Chatbots

Instantaneous communication and authentic information are the two main reasons why customers are increasingly relying on connecting through a chatbot. Understanding customers' sentiment dynamically using the AI algorithms, addresses various customer queries swiftly.

Easy communication, elimination of waiting time, 24><7 support and instant response can capture customers' attention quickly. Conversational AI can enhance the insurance customer's journey by providing seamless customer engagement, improving customer service, increasing customer self-service and accelerating claims processing as a whole. The global AI chatbot market is rapidly expanding due to the increasing demand for messaging bot applications and growing adoption of consumer analytics by the business firms. These AI assistants function as digital assistants, using AI and natural language processing to understand and respond to human needs. The Chatbot Market size is estimated at USD 7.01 billion in 2024, and is expected to reach USD 20.81 billion by 2029, growing at a CAGR of 24.32% during the forecast period (2024-2029).

Engagement thru Hybrid Model

A hybrid experience is a combination of human-centered design with online. While also giving customers the option of self-service, a hybrid approach brings in the human touch into every step of the journey. This is done through a live chat, phone call or video meeting—but the bottom line is that human interaction is accessible from a digital channel. This sort of customer engagement is used by many companies. According to a research report by Mckinsey, among consumers surveyed in the US, 84% use digital channels to engage with their insurers but 55% said they would not buy a policy online. Only by engaging the customer with hybrid approach, this gap can be minimized. Customers, though search on the web, expect a live chat before finalizing. The drive to increase market presence and the need to contain costs is one of the major reasons, companies prefer a robust hybrid model. In order to sustain growth, a company, in general, needs to reach new customers or segments. Along the way, it usually supplements existing channels and methods with new ones designed to attract and develop new customers. This addition of new channels and methods creates a hybrid marketing system. Thus, an hybrid approach helps is healthier customer engagement at a lesser cost.

Insurance and Omnichannel

As we are aware, rapid changes in customer behavior are causing a fundamental shift in the insurance distribution model. As customers these days are embracing digital channels and their experiences with digital channels have also hooked up their expectations of buying insurance both online and offline mode. A seamlessly customized and personalized experience is all they want or expect from the insurance industry. And the key driver behind the growth is the increase in the compounded annual growth rate of the global Insurtech market by **52.7%** from 2022-2030. Today, thanks to Insuretech, omnichannel insurance takes a more customer-centric approach, providing a cohesive and consistent experience across all channels, including the online experience. It refers to the capability of engaging with customers on both digital and offline mediums to ensure customer satisfaction. A well-designed channel interaction bridges the gap between customers and insurers and brings them closer, thereby, improving the customer acquisition and retention rate. From the customer's perspective, every interaction with business is a step towards building a new relationship and companies have rightly understood this and putting in place a robust omnichannel facility. Today's customers want a seamless buying experience from multiple touch-points and omnichannel proves to be an excellent way to engage them. It is imperative to provide real-time, on-demand experiences that allows customers to research, analyse, compare, evaluate and purchase. This includes allowing customers to decide when, where, and how they wish to participate in the Omnichannel network.

Digital-only Products

Insurtech is the new buzzword in the industry and it is making waves! Insuretech companies proliferate the market to streamline insurance processes digitally. They are using technology to make it easier for consumers to buy insurance online and are also using technology to deliver insurance products in new

ways, such as through mobile apps or wearable devices like fitness trackers and smart-watches. Insuretechs use data analytics to segment customers and offer them personalized insurance products and this way customers are more likely to get the coverage they need and at a price that they can afford. Innovative products according to the needs of the customers, make it a preferred choice and they are fast capturing the imagination of young customers. With 'digital only products', Insuretech solution provide 100% digital insurance services that cover end-to-end processes starting from onboarding to claims management.

Robust Customer Portal

Customer Portals are much more than an information platform providing basic services such as policy data and payment options. Today, Portals play an important role in ensuring a mutually beneficial relationship with the customers with a variety of interactive services. They are no longer static providing 'as is' information; rather they play an advisory role by taking a 360 degree view of the profile and offer suggestions based on their life cycle needs. By utilizing the data collected through self-service portals as well as interactions with customers, insurers are able to leverage personalization. Further, the data provides valuable insights into customer demographics, purchasing history and preferences. By combining self-service options with responsive customer support, insurance companies can deliver a seamless and comprehensive customer experience.

Way Forward

Thus, customer preferences for going digital have forced companies to reinvent, reorient and rewrite the ways they do business for ages. The sudden need to do everything remotely from buying groceries, shopping clothes, attending classes to handling financial matters has accelerated a paradigm-shift in insurance marketing too. One would agree that the customer today is 'always-on' and 'always-digital' and he expects nothing short of a seamless experience across the channels and devices at his doorsteps. Today, no wonder, customer experience is the battlefront upon which companies are intensely competing to outscore one another

Personalization, powered by effective data collection and analysis, thus leads to enhanced customer engagement. It helps transform the insurer's image from a transaction-oriented enterprise to a trusted partner, fostering a relationship that is based on understanding, trust and mutual value. The transition from a product-centric business model to one that emphasises customer experience may not be that smooth unless robust digital tools are put in place with 'customer in mind'! The ripple effect of a successful customer engagement would result in increased customer loyalty, retention, tailor-made products, better grievance redressal and ultimately growth in business.

References

1. "databridgemaketresearch.com"
2. Statista.com on Social media Advertising
3. Searchengineland.com on Content Marketing
4. Tech Trend Report in 'Research and markets.com' on Chatbot
5. Insurtech report by Grandview Research
6. Report on Digital Disruptions by McKinsey
7. Report on Tech trends by Insurance Thought Leadership
8. AI and ML in Insurance by Birlasoft

War Exclusion and Its Implication on Cyber Attack Claims

Suvajit Chandra
suvajitchandra92@gmail.com

Mr. Chandra is currently pursuing one year full time MBA from Indian Institute of Management, Calcutta. Prior to this, he worked as a Regional Underwriter in United India Insurance Co. Ltd, and has been in the insurance industry for the past seven years. During his tenure, he has served both in the corporate office and in the rural branch office. He also worked for a couple of years at Tech Mahindra, and got a B.Tech. degree in Information Technology. The author has also successfully completed a course on Cyber Risk & Insurance from the Chartered Insurance Institute, UK and is a Fellow of the Insurance Institute of India.

Abstract

War being a catastrophic event of unimaginable scale is generally kept as an exclusion in every property and casualty policy. However, with time the nature of warfare has also changed, and traditional wording may not be adequate. The cyber attack called the NotPetya attack was launched in 2017 and after investigation, various governments put the responsibility for the attack on Russia and its military. It was seen as an extension of the ongoing conflict between Ukraine and Russia. Two American corporations - Merck & Co. and Mondolez International suffered significant damages due to the cyber attack and raised claims in their respective policies. The claims were initially denied on the ground of war exclusion. The Court granted the claims and concluded cyberattacks can't be termed as war. One of the significant impacts of the NotPetya-related events was Lloyd's changed its wording for its cyber insurance.

Keywords

Cyber Insurance, Cyber-Attacks, Notpetya, War Exclusion, War.

Exclusions in an insurance contract are specified events whose operation or occurrence doesn't give rise to a claim when the said event proves to be the proximate cause of any damage or loss. While the list of exclusions may vary from one policy to the other, and from one insurer to the other, one of the most common and prevalent exclusion which is found in every property and casualty insurance policy is War Exclusion. Probably the only exception to this norm is Marine policy and Aviation policy.

War is not covered in insurance because the scale of war can't be judged beforehand and damages ensuing from it may well be beyond the cumulative capacity of all insurers and reinsurers. Also, it's believed that the war exclusion to some extent may act as a deterrent to any conflict or aggression and incentivizes peace efforts. If war is covered by insurance, not only it will no longer disincentivize conflicts but may also encourage them.

A typical war exclusion specifies that no loss is payable if it's attributable (directly or indirectly) to a consequence of war, invasion, acts of foreign enemies, hostilities, civil war, rebellion, revolution, insurrection, military, or usurped power.

Both cyber insurance policies and all-risk property insurance policies are no exception to this, and war exclusion can be found in any such policy. However, recent legal judgments show that circumstances involving cyber attacks or cyber-warfare are unique, dynamic, and still under development and existing wordings of war exclusions may not fully serve the purpose.

The judgments in the case involving pharmaceutical firm Merck and a separate case involving multinational food and beverage company Mondelez International are a case in point.

The Attack

The genesis of the cases is a cyber attack which is generally referred to as the Not Petya cyber attack. The attack was launched in June 2017 on the eve of Ukrainian Constitution Day. The report of the attack first came

from Ukrainian companies, but soon spread across the world. The cyber attack impacted various business organizations and government entities spread across more than sixty-four nations around the world **[1]**. Among those affected were the US pharmaceutical company Merck & Co, with an estimated damage of $870,000,000; multinational food and beverage company Mondelez International, with an estimated damage of $188,000,000; Danish shipping conglomerate Maersk, with an estimated damage of $300,000,000 and even Russia's state-owned oil giant Rosneft. The total damage from the NotPetya attack, as estimated by the White House stood at $10 billion. **[2]**

The American government blamed the attack on the Russian military **[3]**. A cyber warfare group by the name of Sandworm, working under the Russian military intelligence service, was identified as the main perpetrator of the attack **[4]**. The Federal Bureau of Investigation, USA even named 6 GRU (Russian Military) officials as the hackers involved in the said attack.

The United Kingdom and Australian governments also put the responsibility for this attack on the Russian Military and Government. Many experts considered the attack an extension of the armed conflict between Ukraine and Russia.

The Cases

As per court documents Merck's computer system got infected which included more than 40,000 machines integrated with its global network and reported damage to the tune of $1.4 billion **[5]**. Merck preferred a claim in its global property insurance which had a consortium of insurers led by subsidiaries of Chubb. Following the claim while some insurers admitted to some liability, the majority of the participants of the insurance program led by Chubb (ACE American Insurance Company) denied the claim on the grounds of exclusion of war, as the perpetrators of the attack were linked to the sovereign nation-state of Russia.

Mondelez International incurred damage of 100 million USD when the attack infected 24,000 laptops and 1,700 servers. Mondelez's policy covered "physical loss or damage to electronic data, programs, software, including physical loss or damage caused by the malicious introduction of machine code or instruction" and thus considering the circumstance of the attack they also raised a claim in their policy. Mondelez also confirmed in the court filings that the policy was updated in 2016 to include losses caused by "malicious introduction of machine code or instruction". However, the insurer Zurich American Insurance distanced itself from the claim raised by Mondelez International. Like in the case of Merck, here too the exclusion of war in Mondelez's insurance was used as the ground for the denial of the claim (exclusion B.2(a) in the concerned policy).

The claim repudiation letter, dated June 1, 2018, defined war as : "Hostile or warlike action in time of peace or war including action in hindering, combating, or defending against an actual, impending, or expected attack by any

i) Government or sovereign power (de jure or de facto)

ii) Military, naval, or air force; or

iii) Agent or authority of any party specified in i or ii above." **[6]**

Both the insured reached court to seek remedy which started a lengthy litigation process.

The Verdict

In January 2022 the Superior Court of New Jersey awarded Merck the victory, disallowing the insurer's application of war exclusion. The court in its wisdom didn't even get into the question of whether a sovereign nation-state was behind the attack but instead focused on interpreting the term war in its most obvious and literal sense. The Court decided that the cyber attack can't be termed as a hostile act or war even if it originated from a foreign sovereign-backed entity. The judges were of the opinion that describing the cyber attack as war meant stretching the term to its 'outer limit'. The fact that Mercer itself is a non-military company further went in its favor and was considered collateral damage. The judgment hinged on the apparent differentiation between physical war and cyber warfare.

Here it's pertinent to note that as per federal statute 18 U.S. Code 2331, the legal definition of an act of war is "any act occurring in the course of—

(A) Declared war;

(B) Armed conflict, whether or not war has been declared, between two or more nations; or

C) Armed conflict between military forces of any origin;"**[7]**

So even though many experts considered the NotPetya cyber attack as an extension of the armed conflict between Ukraine & Russia, the cyber attack in its own merit doesn't qualify to be a 'war' and the court also confirmed the same.

In the verdict, the Court further observed that the language used for the said exclusion wordings are the same for a long time and the plain meaning of it warrants cyber attack not to be considered under the purview of the term "war". Further, the court also observed that the event of cyberattack is common knowledge and, there has been no action from the side of the insurer to change the exclusion wordings to accommodate it. The insurer having failed to change the wording of the war exclusion to explicitly include a cyber attack or cyberwarfare, has given the insured reasonable grounds to assume that cyber attack is not an exclusion. Merck also said in its defense that their understanding was that the war exclusion applied only to traditional forms of warfare.

The court also relied on testimony from domain experts who confirmed that the term 'war' refers to the use of armed forces between rival states. **[8]**

In the other similar case involving Mondolez and Zurich American Insurance, in 2022 the insurer decided to settle the ongoing litigation (which lasted close to four years), after initially denying to pay the claim.

Here it is also important to note, that although the American government put responsibility for the attack on Russia and its military, it never used the term cyberwar. In the past also, American officials did not use the term war to describe cyber-attacks, fearing such usage may escalate any ongoing conflict. In 2014 when Sony Pictures Entertainment was the target of a North Korea-backed cyber-attack, the US govt. condemned the attack but stopped short of describing it as cyberwar. Rather the US govt. described it as an act of "cybervandalism". **[9]**

In the case of the NotPetya attack also, the US govt. never officially used the term cyberwar. The Press Release from the White House described it as the "most destructive and costly cyber-attack in history". **[10]**

The Impact

The uniqueness of the cases, the landmark verdict, the huge settlements, and their implications had significant impacts both on the insured and insurers.

Predictably the court verdict and settlement were welcomed by the community of the insured. It was also perceived as positive for the cyber insurance market in general. There is a general sentiment that had the court upheld the application of war exclusion, cyber insurance policies would have been rendered purposeless as the majority of the cyber attacks can be linked to a sovereign nation-state. But the NotPetya events also hardened the reinsurance market.

The cases also brought to the fore the issue of silent cyber exposure. Pre-2018 many underwriters were not sure how cyber-related events would play out in property all-risk policies. The Not Petya attack made it evident, if not underwritten properly, cyber-related events will trigger claims, even if the policy were not designed to respond to cyber-related events. In 2020 Lloyds also released a market bulletin (Ref: Y5258) requiring all policies to specify the status of cyber-related events' coverage through explicit affirmative cover or by stated exclusion.

Possibly the most significant impact of these events was the fact that Lloyds was forced to change its wording related to war exclusion. On 16th August 2022 Lloyds through its market bulletin vide Y5381, titled "state-backed cyber-attack exclusion" introduced changes in its war exclusion wordings for cyber insurance. It required all stand-alone cyber insurances to have suitable clauses to explicitly exclude any loss attributable to state-backed cyber insurance attacks, in addition to standard war exclusion. The changes came into effect on 31st March 2023.

An excerpt of the said bulletin is as follows:

"At a minimum, the state backed cyber-attack exclusion must:

1. exclude losses arising from a war (whether declared or not), where the policy does not have a separate war exclusion.
2. (subject to 3) exclude losses arising from state backed cyber-attacks that (a) significantly impair the ability of a state to function or (b) that significantly impair the security capabilities of a state.

3. be clear as to whether cover excludes computer systems that are located outside any state which is affected in the manner outlined in 2(a) & (b) above, by the state backed cyber-attack.
4. set out a robust basis by which the parties agree on how any state backed cyber-attack will be attributed to one or more states.
5. ensure all key terms are clearly defined."**[11]**

This decision of Lloyds also put the ball right back into the court of the industrial asset owners, who now have to invest more in their cyber defense infrastructure in order to safeguard themselves from probable cyber attacks.

Conclusion

Considering the current precarious geo-political situation the matter of cyber attack and war exclusion is far from resolved. The continuous evolution of various forms of hostile acts, especially through the use of advanced digital technologies, is making things more complicated. Questions are arising, if a cyber attack is used to deliberately cripple the critical infrastructure of a nation or a company, in furtherance of a particular political agenda, will it not be considered an act of war? Is it, not the time to change the very definition of 'war'? Now that all vital infrastructures are indeed controlled through some sort of digital system, these question appears to be of great importance.

The Not Petya attack undoubtedly had some paradigm-shifting impact and made it clear that coverage, exclusions, and conditions need to evolve with time. An insurance policy can't stand in isolation from the surrounding circumstance and anything otherwise will always create confusion and disturbance. The entire episode once again shows, the insured needs to check the suitability of the product considering its requirements and the insurer needs to specify with utmost clarity what it intends to cover and what not. TJ

References

[1] Merchant, Z. (2022, March 4). *NotPetya: the cyberattack that shook the world*. The Economic Times. https://economictimes.indiatimes.com/tech/newsletters/ettech-unwrapped/notpetya-the-cyberattack-that-shook-the-world/articleshow/89997076.cms?from=mdr

[2], [4] Greenberg, A. (2019). *Sandworm: A New Era of Cyberwar and the Hunt for the Kremlin's Most Dangerous Hackers*. Doubleday.

[3], [10] Sanders, S. (2018, February 15). *Statement from the Press Secretary, White House, USA Govt.* Statement from the Press Secretary. https://trumpwhitehouse.archives.gov/briefings-statements/statement-press-secretary-25/

[5] [8] MERCK & CO., INC. and INTERNATIONAL INDEMNITY LTD., Vs ACE AMERICAN INSURANCE COMPANY and OTHERS, SUPERIOR COURT OF NEW JERSEY, APPELLATE DIVISION, DOCKET NO. A-1879-21, DOCKET NO. A-1879-21

[6] MONDELEZ INTERNATIONAL INC Vs ZURICH AMERICAN INSURANCE COMPANY NO. IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS COUNTY DEPARTMENT, LAW DIVISION No. 2018L011008

[7] Cornell Law School, Legal Information Institute U.S. Code Title 18 PART I CHAPTER 113B NO 2231 https://www.law.cornell.edu/uscode/text/18/2331#4

[9] Perlroth, Nicole. "Big Companies Thought Insurance Covered a Cyberattack. They May Be Wrong. (Published 2019)." *The New York Times*, 15 April 2019, https://www.nytimes.com/2019/04/15/technology/cyberinsurance-notpetya-attack.html.

[11] LLYOD'S MARKET BULLETIN (2022, August 16) Ref No: Y5381 https://assets.lloyds.com/media/35926dc8-c885-497b-aed8-6d2f87c1415d/Y5381%20Market%20Bulletin%20-%20Cyber-attack%20exclusions.pdf

Insurtech and Innovation in India – Examining the Business Models

Dr. P. Kalyani
kalyani@ipeindia.org

Dr. P. Kalyani has a PhD in the area of Reinsurance awarded by Osmania University. She holds an MBA in Finance and MCom. from Osmania University. She is also an associate fellow of the Insurance Institute of India. Kalyani comes with over 13 years of teaching experience and is a recipient of ICSSR Doctoral Fellowship.

Prof. S. Sreenivasa Murthy
ssmurthy@ipeindia.org

Dr. S. Sreenivasa Murthy is currently Professor of Finance and Director at IPE. He holds a Doctorate degree from University of Madras and has got around two decades of experience in teaching, research, training and consultancy. He is a Visiting Faculty to IIM Kozhikode, IIM Indore, NIT Warangal, IIIF, JNTU, ANGRAU and many Universities. He has done consultancy assignments for World Bank, ADB, Ministry of Rural Development GOI and many State level enterprises.

Abstract

Technology and innovation have the power to totally transform the insurance business by providing novel possibilities of insuring risks. Insurtech which is a combination of insurance and technology is expanding rapidly in the Indian insurance industry. The current study aims to identify the insurtech business models in India and examine the dimensions of these business models. The study used four dimensions 'Who-What-How-Why' of the popular model 'business model innovation' to analyse each of these business models. The study revealed that the Indian insurtech startups are basically supplementing the traditional industry models with ecommerce or digitization patterns. Any real path breaking business model innovations are scarcely observed. The study contributes to the literature by providing a comprehensive analysis of the target customers, value proposition, value chain and profit mechanism of the insurtech business models. It also provides valuable implications to both incumbent insurers and insurtech companies in India.

Key words:

Insurtech, Innovation, Technology, Business models, Peer2Peer, On Demand

1. Introduction

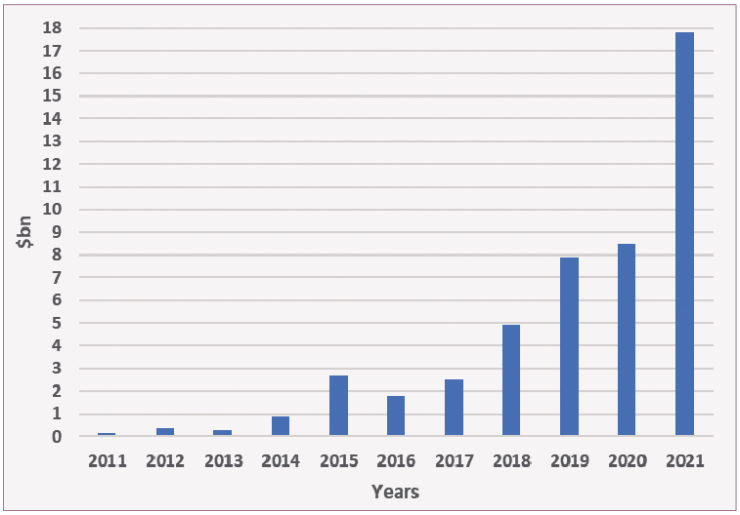
In today's world, technology and innovation continue to be two significant differentiators for businesses across all industries. Particularly in the financial sector, innovation driven by new technologies has resulted in tremendous gains in terms of efficiency even if these changes may initially be surrounded by scepticism and uncertainty. Such phenomenon of innovation in the financial services sector which is backed by technology is popularly known as fintech. The insurance industry is not an exception to such changes. Like fintech, insurtech in simple terms can be understood as an insurance company, insurance intermediary, or a specialist in any segment of the insurance value chain that uses technology to provide value added solutions to the insurance industry

(Rossar, 2016). Startups in the insurtech industry that are pursuing tech driven business models are expanding rapidly transiting from a mere software solutions provider to activities that can challenge traditional insurance players (Cappiello, 2020). While many insurtechs have sprung up in the Indian insurance industry in the last few years bringing tech led innovation across the insurance value chain, analysts predict that there is plenty of room for it to grow further creating disruptive innovation. In the above context, the current study proposes the following questions. What attributes make up an innovative business model? Are the current insurtech business models really disrupting the insurance ecosystem in India?

1.1 Evolution of Insurtech

As banking institutions started redefining the customer experience through fintech innovations, especially by offering self-service functionality through mobile phones, similar expectations were set for all the other financial services including insurance to develop user centric solutions. Insurtech refers to a broad range of cutting-edge technologies, including artificial intelligence (AI), machine learning, data analytics, automation, digital marketing and so on to provide more efficient and customised products and services to the customers. Though the insurance industry has been using technology in general for many years, the term insurtech came into usage only in the year 2010. A berlinbased insurtech startup called Friendsurance which started in 2010 is considered to be one of the first players in the world to create a peer to peer (P2P) insurance model. Price comparison web aggregator, Coverhound and Trov an on-demand property insurer were among the other early participants in the global insurtech market space. Since then, the number of firms identifying themselves as insurtechs has skyrocketed evolving an ecosystem of interconnected product and service offerings. As of the year 2021 there were 3,475 insurtech companies across the world which was around 1,000 in the year 2015 (Porch, 2021). The insurtech funding (figure 1) also has seen tremendous growth from over $0.14bn in 2011 to $17.8bn in the year 2021 with greater momentum from 2015. Further, the size of the worldwide insurtech market was estimated at USD5.45 billion in 2022 and is anticipated to increase at a CAGR of 52.7% from 2023 to 2030 (Grandview research, 2023).

Figure 1: Global annual investments in Insurtechs over the last decade



Source: CB Insights 2016, 2022 reports

1.2 Growth of Insurtech in India

During the last few years, akin to other financial services, there has been a significant change in the way how Indians buy insurance, with online and insurtech increasingly becoming the go to option. Following the global trend, The Indian insurtech industry too has exhibited a strong momentum with insurtech funding almost doubling over the past two years (Fig 2). Particularly, the year 2021 was a breakthrough year for insurtech startups, with thirty-four firms raising over $800 million in funding. It is anticipated that by the year 2025, the insurtech market in India will generate $339 billion in revenue at a CAGR of 57% (INC42 Report, 2022). It is a figurative measure describing the pace of growth of an investment over a specified time frame and is considered to be

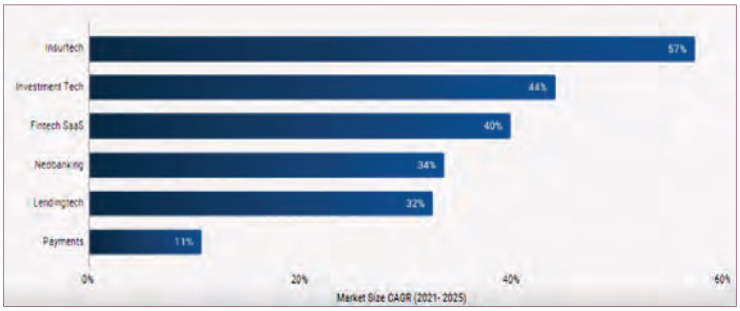
the fastest growing Fintech Segment in India.

Figure 2: Equity Funding in Insurtech in India (in $Mns)

Source: India Insurtech Annual Report 2022

reinvent the business model by using technology to increase their service capability, profits, and also lower risks. The financial ecosystem, which includes insurance, is drastically being changed by insurtech and its significance has inevitably grown (Guo et al., 2020). The very nature of products and infrastructure have changed greatly due to the increasing integration of digital technology into products, services as well as processes (Koch and Windsperger, 2017). The key application domains of insurtech include ecommerce, pay

Figure 3: Growth Projections of Fintech Segment in India



Source: INC42 Report 2022

2. Review of Literature

Artificial intelligence, blockchain and big data are the emerging technologies that are permeating different insurance business scenarios and processes thereby rationally restructuring the insurance ecosystem (Eling, Nuessle, and Staubli, 2021). A specific subset of fintech, insurtech is an integration of traditional insurance and cutting-edge technology (Lynn et al., 2019). According to Wang (2021), insurtech refers to a method by which each player in the insurance market tries to per view, point to point, supporting marketing and so on (Frick and Barsan, 2020). Ecommerce enables insurers to identify, underwrite and price different risks with greater efficiency and also quicker and effective claims settlement process (Garven, 2002). The manner in which transactions are enabled can create new value in e-businesses and it is the business model of a company which plays a key role in innovation and value creation for the company as well as its partners, suppliers, and clients (Amit and Zott, 2001). While there are several approaches for studying business models, the most frequently discussed elements are value creation, value proposition and value appropriation (Foss and Saebi, 2017; Gassmann et al., 2020).

While the earlier research mainly focused on the impact of insurtech on insurance industry, the role of digitisation in the rise of fintech and insurtech, there were some studies which focused on business models in insurtech. However, these studies were confined to US and UK markets or studied a particular type of business model. It was observed that there is little academic research on insurtech in India and comprehensive study on business models in particular. In the current study we try to address this gap by (1) identifying the insurtech Business models in India and (2) examining the dimensions of existing business models.

3. Material and Methods

The present study is descriptive in nature. The scope of the study is limited to the Indian insurtech market. The study is based on secondary data obtained by reviewing empirical studies, and reports published by standard organizations. For the purpose of the study, the prominent insurtech business models currently prevailing in India are divided into six categories viz. Web aggregator, Full carrier insurtech, On demand, Health and wellness, P2P and Community and Micro insurtech models. Initially a conceptual explanation of each

business model is presented followed by the examination of various dimensions of each business model. To examine the dimensions of different insurtech business models, the study uses 'Business model innovation' model proposed by Gassmann et al., (2014). The motivation to use this model is, it depicts a holistic approach in defining the concept of business model and this model was earlier used in studies related to digital transformation (Gassmann et al., 2014) and on demand insurance models (Zeier Roschmann et al., 2022). The 'business model innovation' model (Figure 4) is based on four dimensions viz., 'Who-What-How-Why' presented in a magic triangle form. While who represents the *target customer*, what represents the *value proposition*, how represents the *value chain,* and why represents the *Profit mechanism* of a particular business model. The current study tries to address these four dimensions with reference to each business model.

Figure 4: 'Business Model Innovation' Model

Source: Gassmann et. al., 2014

4. Discussion

A detailed discussion of the insurtech business models operating in India and the four dimensions of each business model is presented below.

4.1 Insurtech Business Models Currently Operating in India

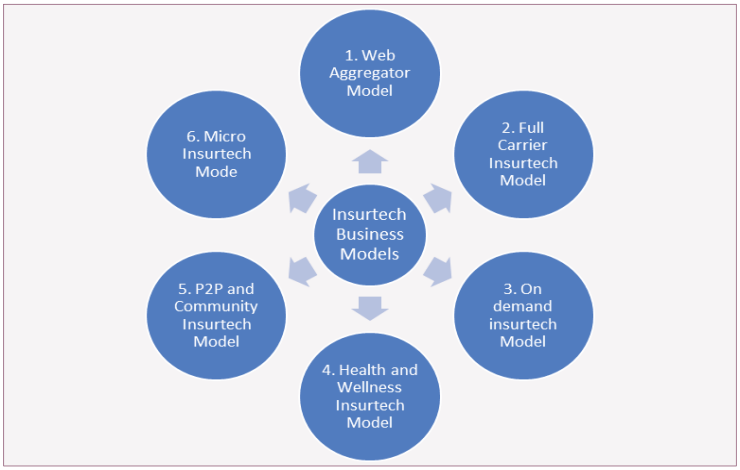
Numerous players across the insurance value chain have emerged in the Indian insurtech market resulting in different business models. While earlier research shows that (Braun and Schreiber, 2017) classified insurtech models into 9 categories, (Beinsure, 2023; Mueller, 2018) classified in 3 categories the present study classifies the Insurtech business models currently operating in India into six categories (Figure-5). The four dimensions of Business model innovation developed by Gassmann et al. (2014) lead to four different questions focused on each dimension which are as follows:

- The *who* dimension focuses on the target customers leading to a question, 'Who are the target customers of a business model?' – This dimension stresses the fact that customers are the key focus point of any business model, and it is important to understand the target customer segments.
- The *what* dimension focuses on the value chain leading to a question. 'What value proposition does the business model offer to their customers?' – This dimension stresses having a clear understanding of what products and services does a business model provide to its customers to address their needs.
- The *how* dimension focuses on the value chain leading to a question, 'How does the business model create value proposition to its customers?' – This dimension stresses having an overview of the activities and processes that your business model is incorporating to deliver the value proposition to the customers.
- The *why* dimension focuses on the profit mechanism leading to a question 'Why the business model is commercially viable?' - This dimension stresses analyzing the revenue sources and cost structures involved in the business model to check the financial viability of it.

A real business model innovation is said to be achieved when at least 2 out of these 4 dimensions are modified (Gassmann et al 2014). The following section conceptually explains the different insurtech

business models and also answers the questions related to the four dimensions of each business model innovation triangle.

Figure 5: Insurtech Business Models in India



Source: Authors' own depiction based on review of literature

4.1.1 Web Aggregator Model

According to IRDAI, Web aggregators are intermediaries in the insurance industry who maintain a website with detailed information on the insurance policies that are offered by various insurers. These platforms function by partnering with different insurance companies. Web aggregators gather, compile, and provide comparative information about the benefits, prices and terms & conditions of various policies offered by different insurance companies. The buyers can then select the one that meets their requirements. The web aggregators in India are subject to IRDAI (insurance web aggregators) regulation of 2017. The web aggregator insurtech models have gained popularity in India due to their cost effectiveness and convenience. Policy bazaar was the pioneer in the web aggregator model in India. However, it has now attained the insurance broker license from IRDAI and provides both brokerage and aggregator services. Some of the other popular web aggregator insurtech platforms in India are turtlemint, insurefirst, policyX, coverfox and so on. While some of these have obtained the license of insurance broker from IRDAI, currently there are 28 insurtech firms having the web aggregator license of IRDAI.

Table 1: Who – What – How – Why of Web Aggregator Business Model

Who - Customer Segments	Tech savvy millennials and Gen Z who wish to take informed decisions and ease of doing things
What - Value Proposition	Free price comparison of different insurance products, Free Product comparison of different insurers covering a particular risk, Free robo advisory services (chat bots)
How – Value Chain	Assimilating and assembling data from various sources, Creating a centralized repository or interface for users using digital platforms, Using AI and ML to answer user queries
Why - Profit Mechanism	Annual fee paid by insurance companies for displaying their products, Commission paid by insurers on policy sales

Source: Authors own analysis based on various media reports and empirical studies

4.1.2. Full carrier Insurtech Model

Insurtechs that are recognized as full-fledged insurers that are into both development and distribution of insurance products are considered as full carrier insurtech companies (Mueller, 2018). These companies also have the backing of IRDAI's license as insurer. Two of the top performing insurtech full carriers in India are Acko and Go Digit. The full carriers are the most funded and fast-growing category among all the insurtechs. Both Acko and Go digit were founded in the year 2016 and licensed by IRDAI in the year 2017. Acko offers motor and health insurance policies in a digital way and customized products like passenger cover, screen insurance and so on by partnering with leading companies in India like Amazon, Zomato, Redbus, Ola and others. On the other hand, Go digit backed by Fairfax offers insurance plans in all major lines of insurance with core business happening in motor, health

Table 2: Who – What – How – Why of Full Carrier Insurtech Business Model

Who - Customer Segments	The millennials and Gen Z who like to work at ease and do it in DOI (Do it yourself) mode
What - Value Proposition	Simplified products, Offer products at relatively cheaper prices than traditional insurers, customized products, seamless customer experience
How – Value Chain	Applying data analytics and artificial intelligence across the insurance value chain viz., Product development, promotion and distribution, underwriting and claims management
Why - Profit Mechanism	A complete online mode eliminates brick and mortar locations there by reducing operational costs and increasing profits, Underwriting profits

Source: Authors own analysis based on various media reports and empirical studies

and travel insurance in digital mode. Like Acko, it also offers several customized plans to the users. Since their inception, these full carrier insurtech startups are outperforming the traditional insurers in India and are expected to continue the trend in future.

4.1.3. On Demand Insurtech Model

The needs of modern consumers who desire more control over their insurance coverage are being served by on demand insurtech companies. On demand insurtechs allow consumers to purchase insurance coverage on their smartphone whenever and wherever they want, usually when the asset requiring coverage is in use and at risk (Zeier Roschmann et al., 2022). These insurance policies are designed to provide coverage for a shorter duration of time, usually on an hourly, daily, or weekly basis as opposed to the traditional long term insurance policies. Several insurtech startups in India have emerged in recent years, offering on demand insurance solutions to customers. Along with Acko and Go digit, some of the popular on demand insurtech startups in India include Ria, Mypolicynow, Autowiz and so on. Example of on demand insurance plans are travel insurance plans that can be purchased on demand for a single trip or multiple trips, on demand insurance plan to cover a specific event or occasion such as wedding, concert, or festival. It covers cancellation, or injury to guests and so on. On demand insurtech models are anticipated to grow in popularity in India as more consumers adopt to digital platforms and look for flexible insurance coverage.

4.1.4. Health and Wellness Insurtech Model

In simple terms, the health and wellness insurtech model can be understood as the usage of technology led innovation in the field of health and wellness insurance. This model not only is aiding in launching innovative health and wellness insurance products and solutions but also enhancing the operational and administrative efficiency of the companies engaged in this (Patri, 2021). Health and

Table 3: Who – What – How – Why of On Demand Insurtech Business Model

Who - Customer Segments	Freelancers, Occasional travelers, Recreationists, Self-employed workers
What - Value Proposition	Pay when required, Flexibility (anytime on and off), Simplicity (instant and digital)
How – Value Chain	Embedded mobile technology, Data driven customized underwriting based on Blockchain technology and sensors installed on vehicles in case of travel insurance
Why - Profit Mechanism	Underwriting profit for insurance companies, Income from up and cross selling for both insurance companies and distributors, Income from commission for distributors of on demand insurtech model

Source: Authors own analysis based on various media reports and empirical studies

Table 4: Who – What – How – Why of Health and Wellness Insurtech Business Model

Who - Customer Segments	Urban Millennials, Proactive health-conscious individuals, Tech savvy individuals, SMEs for group health insurance plans
What - Value Proposition	Personalized, affordable, and accessible health care services and health insurance products, Holistic wellness programs and counselling sessions, Discounted medicines as add ons.
How – Value Chain	Automated collection of risk data by tracking stress levels, physical activity, nutrition levels etc. through mobile apps or wearable devices enabling prediction of potential health risks and personalized health insurance
Why - Profit Mechanism	Commission paid by insurance companies, Revenue by upselling and cross selling via Hospitals, diagnostic centers, wellness centers and so on

Source: Authors own analysis based on various media reports and empirical studies

wellness insurtech model is gaining momentum in India due to the growing demand for customized, affordable and accessible health care services. These insurtechs are facilitating a gradual shift in the health insurance sector from providing reactive care solutions to proactive care solutions. There are several health and wellness insurtech startups operating in India that provide divergent services. For example, BeatO is an insurtech startup in India that provides app-based diabetes management solutions and health insurance plans by partnering with care health insurance company. Plum is an example of insurtech which offers group health insurance plans, Telehealth services, discounted medicines, and wellness sessions through their app. Bima garage provides health insurance claims support services to insurance agents, hospitals, and policy holders.

4.1.5. P2P and Community Insurtech Model

Drawing inspiration from the global disruption caused by peer to peer (P2P) business models in banking and other financial services, Peer to Peer (P2P) insurance is now garnering attention in the insurtech ecosystem. Peer to Peer (P2P) insurance is a risk sharing network of like-minded individuals whose premiums are pooled to cover themselves against a risk. In contrast to the traditional insurance model which involves centralized premium collection and claims processing by the insurer, P2P insurance allows individuals to choose their insurance pool members. The pool may consist of friends, family members or just individuals who share common interests. At the end of a coverage period, the P2P insurers return the

Table 5: Who – What – How – Why of P2P and Community Insurtech Business Model

Who - Customer Segments	Tech savvy customers who seek transparency, Small businesses like SMEs
What - Value Proposition	Polling of premiums among group of individuals, flexibility in group size and choosing insurance pool members, Decentralized premium collection and processing, Low premium charges, Return back of unused premium to pool members, Convenience
How – Value Chain	Introducing a sense of control, transparency and trust which motivates the pool members to maintain low individual risk there by reducing the premium charges, Leverages technological advances in social networking
Why - Profit Mechanism	Commission fees from insurance companies for policy sales in case the insurtech facilitates distribution through online platform, in case of direct P2P sales by insurers underwriting profit

Source: Authors own analysis based on various media reports and empirical studies

unused premium amount to the pool members which is unlike the traditional model where the excess funds after claims settlement are retained by an insurer (Levantesi and Piscopo, 2022). In case of claims exceeding the pooled premiums, a reinsurer would provide coverage to the extent of risk shared to them. Globally Friendsurance which is a German based startup company was the pioneer in P2P insurtech model followed by US based P2P insurtech company called Lemonade. Though there hasn't yet been a full-fledged P2P insurance player in India, it was observed that there are companies like gobuddy and onsurity which offer group insurance plans to their customers allowing them to join a shared pool for insurance coverage.

4.1.6. Micro Insurtech Model

The micro Insurtech model refers to the insurtech companies that integrate technology and innovation to offer micro insurance products and services. Micro insurance was primarily created to provide economically vulnerable people with access to low-cost insurance solutions to support them in managing and recovering from financial losses. The most vital component of the insurance value chain is distribution, and this is even more critical when it comes to micro insurance where the customers are largely semi-literate or illiterates with low income and who often tend to be inaccessible (IRDAI). The micro insurtech model seeks to address this gap by emphasizing on improving the affordability, accessibility, and relevance of insurance for this segment of customers. Leveraging alternative data sources, mobile technology, and digital platforms, micro insurtech firms provide simple policy management through user friendly interfaces via smart phones and other digital gadgets. While several insurtech companies in India provide micro insurance products and services, some of the popular companies are toffee insurance, Bimaplan, Digisafe, Gramcover, Acko and Godigit. Toffee insurance is specialized in offering bite sized insurance solutions in different lines of insurance that are more affordable and easily accessible in online mode. Gramcover, Digisafe provide micro insurance products to rural population particularly tailored to the needs of farmers. Bimaplan is an insurtech company serving the insurance needs of low- and middle-income individuals.

Table 6: Who – What – How – Why of Micro Insurtech Business Model

Who - Customer Segments	Low-income groups, Agricultural and rural communities, Vulnerable communities, SMEs
What - Value Proposition	Bite sized products that are affordable, Product customization, Simplified claims process, Convenience, More accessibility
How – Value Chain	Leveraging alternative data sources, mobile technology, and digital platforms, creating user friendly interface via smart phones, using data analytics and AI to understand the specific needs of the low-income groups and vulnerable sections of the society
Why - Profit Mechanism	Increase reach and sales by including the unincluded and thereby increasing revenues. Underwriting profit, Commission fee in case of intermediaries working on this model

Source: Authors own analysis based on various media reports and empirical studies

5. Conclusion and Implications of the Study

Given the dearth of academic research on the insurtech ecosystem in India, the current study aims at identifying various insurtech business models currently operating in India and examining the dimensions of these business models. Initially a conceptual understanding of various insurtech business models was provided. Later, the four dimensions of business model innovation model namely "Who-What-How-Why" were examined for each of the insurtech business models. The study revealed that Innovation fueled by technology is profoundly changing the insurance sector. Emerging technologies like telematics, artificial intelligence, machine learning and automation have completely changed the insurance value chain and are still going strong day by day, offering

new and enhanced omnichannel experiences to the customer. However, it was observed that the existing insurtech startups in India are basically supplementing the traditional industry models with ecommerce or digitization patterns. Further any real path breaking business model innovations are scarcely observed. The current paper contributes to the literature by studying the expeditious progress in the Indian insurtech industry and providing a comprehensive analysis of the target customers, value proposition, value chain and profit mechanism of the insurtech business models viz. Web aggregator, Full carrier insurtech, On demand, Health and wellness, P2P and Community and Micro insurtech models in the Indian context.

The paper provides valuable implications to the insurtech companies in understanding the dimensions of business model innovations and thereby explore the possibilities for designing real innovative business models in India. Further the study also provides implications to the traditional insurers by highlighting the fact that, the incumbents cannot shun the business model innovation to continue their current market position as well as sustainable presence at the customer interface. As the current paper lays foundation for the dimensions of insurtech business models in India, it gives ample scope for further research to provide empirical evidence on the dimensions of business model innovation and also explore the role of partnerships between the incumbents and insurtech companies on value creation for the customers. TJ

References

Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic management journal*, *22*(6-7), 493-520.

Beinsure (2023). Insurtech's evolution and investment landscape: Categories, startups, and VCs. retrieved from https://beinsure.com/insurtechs-evolution-investment-startups/

Braun, A., & Schreiber, F. (2017). *The current InsurTech landscape: Business models and disruptive potential* (No. 62). I. VW HSG Schriftenreihe.

Cappiello, A. (2020). The digital (r) evolution of insurance business models. *American Journal of Economics and Business Administration*, *12*(1), 1-13.

CB Insights 2016. Insurtech startups raise $1.76 B across 176 deals in 2016. https://www.cbinsights.com/research/2016-insurance-tech-funding/

CB Insights 2022. State of Insurtech. https://www.cbinsights.com/research/report/insurance-tech-q3-2021/

Eling, M., Nuessle, D., & Staubli, J. (2021). The impact of artificial intelligence along the insurance value chain and on the insurability of risks. *The Geneva Papers on Risk and Insurance-Issues and Practice*, 1-37.

Foss, N. J., & Saebi, T. (2017). Fifteen years of research on business model innovation: How far have we come, and where should we go?. *Journal of management*, *43*(1), 200-227.

Frick, J., & Barsan, I. M. (2020). InsurTech-Opportunities and Legal Challenges for the Insurance Industry. *Revue Trimestrielle de Droit Financier*.

Garven, J. R. (2002). On the implications of the internet for insurance markets and institutions. *Risk Management and Insurance Review*, *5*(2), 105-116.

Gassmann, O., Frankenberger, K., & Choudury, M. (2020). The Business Model Navigator: The strategies behind the most successful companies (2nd ed.). Upper Saddle River, NJ: FT Press.

Gassmann, O., Frankenberger, K., & Csik, M. (2014). *The business model navigator: 55 models that will revolutionise your business*. Pearson UK.

Grandview research, 2023. Retrieved from https://www.grandviewresearch.com/industry-analysis/insurtech-market

Guo, F., Wang, J., Wang, F., Kong, T., Zhang, X., & Cheng, Z. Measuring the development of digital inclusive finance in China: index compilation and spatial characteristics, Econ. Q., 19 (2020), 1401–1418.

INC42 report 2022. State of Indian Fintech Report, Q2 2022. https://inc42.com/reports/state-of-indian-fintech-report-q2-2022/?login=1

India Insurtech Annual Report 2022. India Insurtech landscape and trends. https://indiainsurtech.com/wp-content/uploads/2022/04/IIA-BCG-Annual-Insurtech-Landscape-and-Trends-Report.pdf

Koch, T., & Windsperger, J. (2017). Seeing through the network: Competitive advantage in the digital economy. *Journal of Organization Design*, *6*, 1-30.

Levantesi, S., & Piscopo, G. (2022). Mutual peer-to-peer insurance: the allocation of risk. *Journal of Co-operative Organization and Management*, *10*(1), 100154.

Lynn, T., Mooney, J. G., Rosati, P., & Cummins, M. (2019). *Disrupting finance: FinTech and strategy in the 21st century* (p. 175). Springer Nature.

Mueller, J (2018). Insurtech Rising: A profile of the insurtech landscape. Milken institute. Retrieved from https://milkeninstitute.org/sites/default/files/reports-pdf/InsurTech-Rising-12.4.18_2.pdf

Patri, V. K., (2021). Awareness of Wellness insurance models: Technology shows the way. Retrieved from https://www.tcs.com/insights/blogs/influencing-lifestyles-insurance-models

Porch, 2021. What is the state of Insurtech in 2021? Retrieved from https://porch.com/advice/report-state-insurtech-2021

Rossar, R. (2016). Will insurtech have a major impact on the insurance market? Retrieved from https://insly.com/en/2016/03/24/will-insurtech-have-a-major-impact-on-the-insurance-market/

Wang, Q. (2021). The Impact of insurtech on Chinese insurance industry. *Procedia Computer Science*, *187*, 30-35.

Zeier Röschmann, A., Erny, M., & Wagner, J. (2022). On the (future) role of on-demand insurance: market landscape, business model and customer perception. *The Geneva Papers on Risk and Insurance-Issues and Practice*, *47*(3), 603-642.

Involving the youth in optimizing Life Insurance Coverage

Vineet Saxena
vneet91@gmail.com

Vineet Saxena is insurance management consultant, working in Strategy & Innovation team of Capgemini Invent and responsible for capability development, offering ideation & cultivating CxO level relationships. His interest lies in reading & writing about insurance.

Scenario- *Sunita is 24 years old and works as an Anganwadi Sevika (worker) in a primary school in Rampur village of Uttar Pradesh. Sunita's family includes her handicapped father and a 19-year-old brother. Sunita is just 10th standard passed but wanted to make sure that her brother attends college education. However, with her limited income, she is struggling to arrange funds for her brother's education.*

One day, the principal of primary school advised her to become a life insurance agent to add another source of income. Then Sunita approached to local office of the insurance company and showcased her interest to enrol as an insurance agent. She went through training, passed the agent exam, and successfully became an insurance agent.

Now Sunita is spreading insurance awareness in Rampur village and earning extra income through insurance commissions by selling insurance policies. As a result, she is now able to support her brother's college education.

The above example highlights how young lady Sunita is helping in enhancing insurance awareness in her village and assisting her brother's dream of a college education. The involvement of youth in optimizing life insurance coverage is the need of the hour.

Life is highly uncertain. It can be devastated or cut short by disease or death. No amount of money can replace the loss of life; however, the death of the sole earning member of the family brings the utmost misery to the loved ones. Here, Life insurance comes to rescue your family when they can't support themselves in this tough time.

Youth plays a great role in nation-building. It possesses great strength to help the nation in development and achieve new heights of success. Therefore, preserving the lives of youth is very crucial for the nation. It is essential to foster awareness of life insurance among the youth because according to a recent study by the Life Insurance Marketing and Research Association (LIMRA), only 2/3rd of Generation Y called millennials (born between 1981 and 1996) have any kind of life insurance.

Further, the study also highlighted the lack of interest of the young generation in buying insurance because current insurance products are unable to meet the dynamic needs of this generation. Insurers need to design more personalized insurance solutions and simplify the insurance buying journey.

As per the IRDAI report, India's insurance penetration is just 4.2% far behind the global average. India has the largest youth population in the world around 66% of the total population (more than 808 million) is below the age of 35. Proper channelizing this young force in life insurance distribution can become a game changer for this life insurance industry and the vision of Insurance for All by 2047 can become highly achievable.

Promoting Life Insurance Awareness amongst Youth

As per the study of Standard & Poor's financial services (S&P), less than 25% of adults in South Asian

countries are financially literate. This lack of proper guidance and awareness by financial institutions is one of the roadblocks to spreading the knowledge of life insurance among the youth. Several steps should be taken by insurers-

Utilizing Social Media for Life Insurance Education Outreach - the younger generation differs a lot from the older generation in terms of learning about insurance. Young people are most likely to approach social media platforms such as YouTube, Facebook, and Instagram rather than browsing insurance company websites to gather financial advice and information. According to a LIMRA 2023 study, 81% of Generation Z (born between 1996 and 2010) and 75% of millennials (born between 1981 and 1996) surf social media for discussion, advice, and information regarding financial topics. However, just 48% of Generation X (born from 1965 to 1980) and 25% of baby boomers (born from 1946 to 1964) use social media to learn about financial topics.

- **Life Insurance Corporation (LIC),** the India-based largest life insurance company aims to target the untapped middle class and millennials. The organization has joined the popular online insurance marketplace Policybazaar to promote its key life insurance products digitally.

Integrating Insurance Education into School Curriculum - many times our education system overlooks the pivotal role played by insurance. Present-day knowledge of insurance among students is worrisome. Many students lack a basic understanding of insurance. It is great that students are graduating with extreme knowledge in areas like science, technology, mathematics, and literature but when it comes to practical knowledge of understanding topics like insurance, taxation, and investment there is a big gap exist. It is high time to adopt insurance in the school curriculum so that children learn about insurance benefits and understand its needs in the very early stages of life.

- **Labour Party** in New Zealand has adopted the agenda of making financial literacy education compulsory to address the low levels of money, taxation, and insurance skills among recent graduates and young adults.

Creating Interactive Tools and Apps Catered to the Younger Generation - The young generation perceives the insurance industry as old fashioned and insurance products are highly complex to understand compared to other financial products. Other sectors like technology, manufacturing, and aviation have been able to keep up their appeal compared to the insurance sector. Insurance firms should design interactive tools and apps to educate the youth about insurance. Insurers should embrace designing user-friendly resources that engage and inform the young generation about the various of life insurance.

- **AXA,** a French multinational insurance company has launched a game in Indonesia where insurance penetration is less than 2% because of a lack of understanding about insurance products and their importance. AXA created a game, CrazyCash, to enhance insurance education. The game became a huge success generating more than 2, 00,000 Tweets and over 55,000 plays.

Simplifying the Insurance Purchase Journey for Young Adults

According to the survey of Insuranks (an online insurance comparison marketplace & educational platform), 55% are confused by the overall process of getting insurance. Insurance organizations need to take various moves to streamline the insurance buying journey-

Optimizing Application Procedures Through Innovative Digital Tools - As per IRDAI Handbook (2018), in terms of premium more than 99% of life insurance policies are sold through face-to-face distribution, and the remaining 1% of the premium is paid through web aggregators and online channels. Buying insurance digitally is considered a herculean task by young people. A less digital-friendly platform, multiple navigation, and innumerable forms make the application journey very tough. Insurers should bring ease to the buying journey by prioritizing user experience, providing transparency

and accessibility, and making it convenient & straightforward for users to purchase insurance policies.

- **Bestow,** an online insurtech firm came into partnership with financial services firm Equitable Advisor to extend a digital term-life insurance solution called Term-in-10. This platform provides a new customer's life insurance purchase experience that takes about 10 minutes.

Focused Solution to Engage Younger Demographics- insurance carriers should develop innovative strategies and solutions. The aim should be to bridge the gap between traditional insurance offerings and the expectations of younger demographics by fostering greater engagement and participation in the insurance market.

- **Progressive Insurance,** an American insurance company partnered with Fidelity Life to launch a one-year term-life insurance product for first-time life insurance buyers and those seeking protection without long-term commitment. This solution provides young customers flexibility and purchase convenience.

Improve Young Customer Experience- there is a strong need to improve and innovate customer engagement practices. Here, the metaverse can play a very big role. Metaverse offers the opportunity to engage with customers (VR glasses) in a much more intimate way, allowing them to curate their own experiences by providing customers with all the tools they need to do so.

- **PNB MetLife**, one of India's top life insurers recently launched conVRse, a first-of-its-kind virtual reality (VR) based customer services platform. This platform offers the opportunity for customers to interact with virtual avatars and ask queries and gain more information about plans.

Developing Specialized Insurance Solutions for the Next Generation

As per the 2019 Global Financial Services Consumers study of Accenture, 88% of insurance consumers demand more personalization from providers. Therefore, insurance firms need to revamp their product development process and align it to meet the ever-changing needs of young customers. Life insurance companies should gear up and come up with creative solutions-

Flexible Life Insurance – insurers must come up with such products that adapt flexibly to young policyholders' personal & professional situations and cover specific life phases such as changing employment situations health issues or securing the future of their children.

- **Ladder Life,** a US-based insurtech, has entered in life industry with a term product that includes digital underwriting. Ladder Life offers a subscription model (like Netflix) where the premium is adjusted according to the changing requirements of the policyholder.
- ***Vlot,*** Zurich-based insurtech, through its platform provides life risks analysis & coverage solutions that smoothly adjust to your changing life situations like moving to a new city, getting married, or loss of a job. So, you will pay only for what you need in your current life situation.

Preventive Life Insurance- Today insurers can embed the wellness program into their products and reward policyholders for achieving their health goals.

- **AIA Australia** has linked life & health insurance with its wellness program AIA Vitality. The wellness program rewards customers taking proactive action to understand & improve their health through discounted insurance premiums.

Products for New Customer Segments-

Insurers should provide customized solutions by understanding the needs, expectations, and risk exposure of emerging segments-

I. **Gig Workers-** such workers are often exposed to dynamic risks. Insurers should recognize the significant coverage gap and offer tailored solutions to gig workers.
   - Uber Eats in collaboration with **Chubb Life Insurance** of Canada, provides insurance coverage to bike couriers.

II. **Millennials**-Insurers should identify the specific needs of millennials and modify plans accordingly.

- **Prudential**, a US-based insurer in collaboration with the baby registry (Babylist) offers life insurance solutions to millennial parents. A custom platform allows expectant parents to receive an estimate of their new coverage requirements seamlessly.

Engaging and Attracting Young Talent to Life Insurance Distribution

A study by ACORD found that millennials (born between 1981 and 1996) are forecasted to make up 75% of the global workforce by 2025, but less than 4% of them would consider working in insurance. Similarly, a Forbes survey found that 80% of insurers aspire to attract talent under the age of 30, but half of them struggle to do so.

The lack of new talent implies that the insurance industry is facing a skills crisis, with an aging workforce and only a few young people coming to replace them.

If the industry is to attract more young talent, it needs to address issues and make itself more appealing to young people-

Rebranding Insurance Industry - the insurance industry has a positive impact on society, the economy, and the environment. As a sector, insurance has been quite conservative in promoting its impact. It needs to be changed. Insurance professionals need to share their passion and show how the sector has a positive impact.

- **Metlife,** in 2022 held a virtual hackathon in Malaysia to attract technology talent from one the fastest growing markets.

Digital Awareness - the younger generation is more comfortable with technology than the older generation. Insurance companies need to integrate technology into insurance process to attract youth-

- **Max Life Insurance** has digitalized its entire recruitment process and targeted the hiring of nearly 40,000 agents. This new recruitment approach was designed and implemented to digitally enable quick, seamless identification, verification, and onboarding of prospects.

Invest in Skill Development - The Labour Economics & Statistics Dept. of the US government has forecasted the loss of some 400,000 skilled insurance industry jobs from US markets by 2026. Insurance companies should invest in the skill development of employees and agents.

- **AIA,** Asia's leading insurance company has established the AIA Leadership Centre, a start of art learning facility designed to advance the knowledge of AIA's top talent employees and agents.

Offer Work-life balance - as per a survey by Vertafore (insurance software developing company) of independent agents more than half (54%) of insurance professionals would leave the industry for better work-life balance. Insurers should tweak their current working model and make it more youth friendly.

- **PNB MetLife** has implemented a hybrid work model. This setup allows employees to work from home for two days each week, providing flexibility based on their preferences.

Conclusion

Today's generation of young people holds more power than any generation and capable to make a more positive impact on the world. Hence, the right, and planned involvement of youth in life insurance coverage optimization can bring glory for the insurance industry. Insurance firms need to work as a team to bring more awareness about insurance among young people, design innovative products, and build a positive environment for attracting young talent. Fortunately, the Indian insurance industry is taking the right steps and according to Life Insurance Council data in FY 2022-23, more than 2.22 lakh new agents have joined the life insurance industry. However, there is still room further improvement.

"He alone, who owns the youth, gains the future." – Adolf Hitler

TJ

References

- Kamenjarska, Tanja & Spremic, Mario & Miloloža, Ivan. (2022). The Impact of Innovative Capabilities and Innovation Types on the Financial Performances of Insurance Companies. International Journal of E-Services and Mobile Applications. 14. 1-23. 10.4018/IJESMA.289634.
- Deloitte. (2019). *Accelerating insurance innovation in the age of InsurTech Insurers of the future will need to evolve and transform.* Available at https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-accelerating-insurance-innovation.pdf
- Daly, M. (2020). Detected Insurance Fraud – new data shows that every five minutes a fraudulent claim is discovered. InsurTech World. Retrieved from HTTPS:// www.insurtechworld.org/ post/102glfp/detected-insurance-fraud-new-data-shows-that-everyfive-minutes-a-fraudulent-cl
- Boffey, G., Fischer, D., McCorry, M., Pigg, D., & Thomas, T. (2020). COVID-19: customer and digitization in insurance. KPMG. Retrieved from https://home.kpmg/ xx/en/home/insights/2020/05/ covid-19-customer-and-digitization-in-insurance.html
- Baltensperger, E. and Bodmer, F. (2012) The Social and Economic Value of Insurance—a Primer, Zurich: Zurich Insurance Group, http://www.zurich.com/internet/main/SiteCollectionDocuments/insight/social-and-economic value.pdf
- Bernheim, B.D., Carman, L.G., Gokhale,, J. and Kotlikoff, L.J. (2001) The Mismatch between Life Insurance Holdings and Financial Vulnerabilities: Evidence from the Survey of Consumer Finances, NBER Working Paper No. 8544, Cambridge, MA: National Bureau of Economic Research, http://www.nber.org/papers/w8544
- AXA Wealth (2014) 'Are Budget reforms under threat from a lack of 'pensions literacy'?' Perspectives, 28 August, http://www. axawealth.co.uk/adviser/perspectives/your-business-and- your-clients/Are-Budget-reforms-under-threat-from-a-lack-ofpensions-literacy/
- Ernst & Young (2014), Effectiveness of Australia's Regulatory Setting, Report for the Financial Services Council for Submission to the Financial System Inquiry, Ernst & Young. Australia, http://www.aviva.com/media/upload/Mind_the_gap_regional_ uk2010.pdf
- Klein, K.S. (2011) 'When enough is not enough: Correcting market inefficiencies in the purchase and sale of residential property insurance', Virginia Journal of Social Policy and the Law 18 (3): 345–394, http://papers.ssrn.com/sol3/papers. cfm?abstract_id=1707687

Insurance company operations in the Indian context

Amitava Banik
amitava_banik@yahoo.co.in

The author is BE (E&C), PGDM (Insurance Business), FIII, Certificate in Disaster Preparedness and Safety (Jadavpur University). He is working as Assistant Vice President - Commercial Underwriting at Reliance General Insurance Co Ltd, Kolkata.

Abstract

The insurance sector is a colossal one and is growing at about of 13.46% annually in 2021. Together with banking, insurance services (Financial, Real Estate & Professional Services) contribute to about 21% share of various sectors in the Gross Value Added in the Indian economy at current prices in 2021-22. The insurance like any other financial services has got its own science. It works on a risk pooling mechanism. The risk is assumed on an appropriate risk rating.

The operation of the insurance company involves interactions between various functions inside the company – sales, underwriting, distribution, claims, operations, HR, Finance, etc as well as with external stakeholders like rating agencies, investment bankers, other insurers, reinsurers, regulators, etc. The use of disruptive technologies in various forms is also becoming an important part in the operation of insurance companies.

This paper is intended to discuss the operations of the company and study about the role of the broad functions in an insurance company keeping in view primarily the Indian context and try to bring out the interconnections and understand the insurance company ecosystem and industry environment as a whole.

Keywords

Operation, Insuretech, Functions, Stakeholders, Standards.

Insurance Industry in India

The insurance sector is a colossal one and is growing at about of 13.46% annually in 2021. Together with banking, insurance services (Financial, Real Estate & Professional Services) contribute to about 21% share of various sectors in the Gross Value Added in the Indian economy at current prices in 2021-22. A well-developed and evolved insurance sector is a boon for economic development as it provides long- term funds for infrastructure development at the same time strengthening the risk taking ability of the country.

At the end of March 2022, there are 67 insurers operating in India of which 24 are life insurers, 26 are general insurers, five are stand-alone health insurers and 12 are re-insurers including foreign reinsurers' branches and Lloyd's India. Of the 67 insurers presently in operation, eight are in the public sector and the remaining 59 are in the private sector. Two specialized insurers, namely ECGC and AIC, one life insurer namely LIC of India (LIC), four in general insurance and one in reinsurance namely GIC Re are in public sector. In private sector, there are 23 life insurers, 20 general insurers, five stand-alone health insurers and 11 reinsurers including foreign reinsurers' branches and Lloyd's India.

Type of Insurer	Public Sector	Sector	Total
Life	1	23	24
General	6	20	26
Stand-alone Health	–	5	S
Re-insuiers	1	11	12
Total	**8**	**59**	**67**

Out of 23 private life insurers, 12 insurers have completed more than 20 years of their operations in life insurance market in India. Out of 20 private general insurers, six private insurers have completed more than 20 years of their operations in general insurance market in India.

Life insurance industry recorded a premium income of ₹6.93 lakh crore during 2021-22 as against ₹6.29 lakh crore in the previous financial year, registering growth of 10.16 per cent. While private sector insurers posted 17.36 per cent growth in premium.

The general insurance industry underwrote total direct premium of ₹2.21 lakh Crore The health business reported a growth of 26.27 per cent in 2021-22 making it the largest general insurance segment in India with a market share of about 36 per cent.

Comparison of insurance penetration levels in India

Year	Life	Non-Life	Total
2000-01	2.15	0.56	2.71
2021-22	3.2	1	4.2

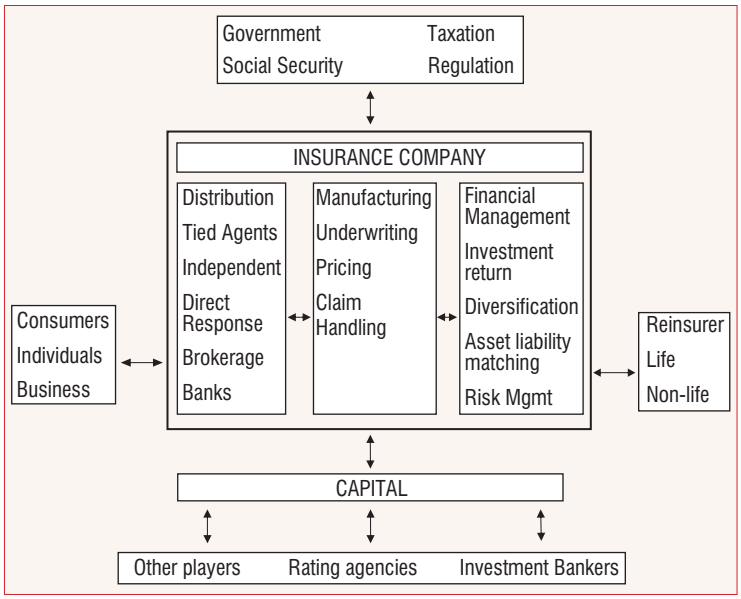
Source: Swiss Re, Sigma, Various Issues.

With the increased competition in the industry, it is very important to work out strategies for efficient and profitable operations.

Insurance Company Operations – Various Stakeholders

There are core functions in insurance company are Distribution, Underwriting and Pricing, Claim handling and Financial Management. Also the company needs to interface with several players-the Consumers, the Government, the other players like Rating agencies, investment bankers, etc and also the other insurers, Reinsurers, etc.

The structure of an insurance company can be analysed under the following broad heads



1. Marketing
2. Underwriting
3. Claims and Customer service
4. Operations
5. Human Resources
6. Financial Management
7. MIS and IT
8. External stakeholders

1. Marketing

Marketing is the heart of any organization and particularly the Insurance organization which is considered to be a Sales organization. Marketing is to understand the needs of the Customer and to make appropriate value offering to the customer.

Thus, on one hand there is the need to have a formidable distribution system consisting of efficient Agency force, Brokers, Corporate Agents, Banc assurance channels, Tied agents and also direct sales force. On the other hand, the company wishing to make a permanent mark in this sector should work considerably on the intangible areas of Brand building and brand management, Public relations, advertising and innovative product development delivering value to the Customer.

Intellectual property, software investments, staff and managerial expertise, Marketing research, advertising, business processes, organizational structures are the real stuff out of which 21st Century companies are made and Insurance companies are no alien to the system.

2. Underwriting

Underwriting is the gate keeping function in an insurance company. It is the crucial stage where the client's risk is analyzed and a particular decision is taken regarding the acceptance and decline of the risk. Hence a proper process of selection and classification of risk and an appropriate pricing of the risk is necessary to earn underwriting profit which goes to the Profit Centre.

3. Claims and customer services

An equally important point is the Claim administration. Operational efficiency should be increased by prompt settlement and which also is an important indices for Customer Satisfaction thus adding to Profitability of the profit centre.

4. Operations

Operational efficiency is an important factor to productivity and that should be a prime concern in the operation of Insurance Company.

Labor productivity=No of policies processed/no of employees X hrs of work/employee

Total Quality Management standards and procedures should be included in the system in the processes should also be carried out.

5. Human Resources

Human Resources can contribute significantly as a profit centre by implementing proper recruitment processes, innovative human resources strategies and tactics, reward and appraisal systems, fair practices, etc. Motivating the huge agency force is a prime factor in Business development in this sector.

All these can lead to lower attrition, increased employee moral contributing to profit.

HR lacks the same kind of standard widely accepted and process methodologies that finance and marketing enjoys and hence there is a large scope of innovation in this area.

6. Financial Management

The most important reason for a company to exist is to earn profit for the shareholder, owner and promoters. The different dimensions of Financial Management in an Insurance company include- accounting functions to prepare financial and cost accounting information that aids the running of the company as well as the management of cash flow, capital investments, decision on diversification and expansion strategies, asset liability matching, risk management, etc., also the other aspects such as Investment return, Diversification, Asset liability matching, Risk Management, expansion strategies, etc. The company's operations must also generate social capital in the form of CSR (Corporate Social Responsibility).

7. MIS & IT

This is concerned with the development of information systems and decision support systems. It forms the backbone of an Insurance company and contributes significantly to the profit of the company and earning revenues for the company.

The Data warehousing (Insurance Statistics), web-based tools on Risk management are the possible value additions. The insurance companies are now a days turning to disruptive technologies such as Internet of Things, Artificial intelligence, insurtech for customer services, risk management, etc.

Reduction of operational costs by establishing modern cloud infrastructure, embracing a comprehensive technology stack and harnessing remote sensing capabilities are some of the ongoing areas of activities in the insurance companies IT operations.

8. External stakeholders

The insurance company has to continuously interact with various other stake holders –

i. Regulatory bodies – IRDA, IIB, RBI, Tax authorities

ii. Industry, Market bodies and think tanks like General Insurance Council, FICCI, CII,etc

iii. Reinsurer – General Insurance Corporation of India and many reinsurers in India and abroad

iv. Other insurers

v. Legal bodies – Consumer courts, Courts, etc

Recent Developments in Regulatory and Accounting Models

The IRDAI in June 2022 recognized development and implementation of a 'Risk Based Supervision' (RBS) framework for insurance sector in India which aims at mitigating risks, safeguarding the interests of policyholders, and ultimately maintaining the stability of the insurance sector by enhancing supervisory focus on the manner in which risks are identified, measured and managed.

The IRDA also initiated the Risk Based Capital and its implementation which would serve as a pivotal mechanism to enable insurers & reinsurers to maintain an appropriate level of capital commensurate with the risks inherent in insurance and reinsurance

business. Ind-RBC (Indian Risk based Capital) Framework aims at identifying various risks faced by insurance & Reinsurance companies and quantifying each risk following probabilistic approach.

In June 2022, IRDAI formed a dedicated mission mode team, comprising of officials from Accounting and Actuarial background, to work on effective implementation of International Financial Reporting Standards (IFRS). IRDAI has been continuously engaged with insurers and stakeholders to nudge the industry towards smooth implementation of IFRS. An Expert Committee (EC) has also been constituted by IRDAI which has representation from ICAI, IAI, Insurance industry and the IRDAI to address the concerns involved in IFRS/Ind AS implementation.

The Insurance Company Operating Environment in India

The financial services industry forms the backbone of a country's economy. It serves the industry and the common people. The people's money is parked with them and this calls for a great discipline. Fortunately, the conservative and vigilant nature of our regulator RBI has helped to make the banking industry a highly regulated and disciplined industry.

The same is deserved of other industries such as the Insurance industry. The mis-selling of insurance products is a common problem across the industry particularly in the Life Insurance industry, especially while selling to retail customers. The products such as ULIP might be suitable for a section of the customer but not for every one. The risk profile of the customer should be judged prudently before offering such products. But, unfortunately, that is not done and many companies use these products as a means for siphoning common men's wealth with false promises of high return while bypassing the very essence of Insurance as a means of risk coverage.

Similarly in the general insurance business, high discounting in the de-tariff regime and unhealthy competition among the insurers to mop up more premium from the market is resulting in the ignorance of underwriting and proper risk assessment. This is resulting in burgeoning losses for the insurers, taking all general insurers to red especially the private ones as they don't have the adequate reserves like the Government ones to take care of the huge losses. Thus looking at the deteriorating health of the insurers it is necessary for the policy makers and regulators to take a re-look at the need to put a cap on the rates and discounts being offered by the insurers. Ignoring this may affect the health of the sector further and the companies may not see profitability in the near future, which will in the long run affect the insured, both the retail and the commercial customers as the insurers may resort to unfair claim practices and may even move to insolvency. This may even lead to the failure of insurance companies in India.

Insurance company has two types of profit – Investment profit and underwriting profit. The investment profit is earned by virtue of the cash rich nature of insurance business which is the profit earned out of the readily available cash premium money in their books invested in the market as the claim liability arises later. The other profit is the underwriting profit which is nothing but the profit earned out of the core operation of an insurance company. This the real concern as almost none of the insurance companies in India are making underwriting profit. For any industry or company not making profits from core operations in the long run may make the business unviable.

Here there is tremendous need for the sharing of industry wide data. For major risks such as large manufacturing plants, etc the insurance company does a risk inspection to understand the good and bad points about a particular asset (risk) prior to underwriting it. It may be a good industry practice to share the data through a common platform so that the data about a particular risk is available to all the companies who may be approached with proposal for insurance of the particular risk. Similarly the companies should share the data on past claims, cause of the losses and the loss ratios of the accounts. Also it may be a good idea to improve the nature of the risks and make the industry viable by way of the insurance companies carrying out value addition measures in terms of recommending and helping the clients implement risk control measures.

Also there is a need to devise a benchmarking mechanism for the insurance companies in terms of their performance parameters. The premium and claim figures may not be the only parameters to benchmark insurance companies. Being in the service industry it is required to benchmark companies on the basis of their ability to provide better service. The customer service quality benchmarks should be set up. This is true for both the retail and commercial line of products.

When these aspects will be looked into, obviously the rating will be more comprehensive and scientific. The risk features, claim history, the service quality, cost aspects to provide the benchmark service quality and mitigation and control cost will help to arrive at the cost at which the insurance should be sold after retaining the margin.

This will help in both better servicing to the client as well as increasing the profitability of the companies. These will also create the background for more liberalized regime and help in creating the atmosphere for attracting greater FDI in the insurance space when the sector is opened up more.

Disrupting Technologies and Their Effect on Insurance Industry

The level of investment in technology within the insurance sector has historically lagged behind the banking sector. However, as the banking sector matures, innovators are seeking to disrupt other financial services – insurance is viewed by many as the next great opportunity for investment.

The number of new companies ("start-ups") targeting the insurance sector has significantly increased in recent years. These start-ups are targeting all areas of the insurance value chain – from marketing & distribution, through to underwriting & pricing of risks, and ultimately to settlement of claims. In most cases individual start-ups are focusing on improving specific aspects of the value chain and collaborating with incumbents, but there have also been limited examples where start-ups are looking at ways to remove the need for an insurer - using peer-to-peer type business models.

InsurTech across the business lines

One approach to categorize the new market entrants is by classifying the start-ups according to its main line of business:

1. Life/annuity: Private start-ups providing distribution of life insurance products including term life and annuities
2. Auto insurance (split into distribution, usage-based insurance/telematics, and claims): Start-ups ranging like insurance aggregators.
3. P2P insurance: Private peer-to-peer insurance and mutual-based start-ups
4. Small business insurance: Private tech companies serving as commercial insurance brokers and managing general agents
5. Insurance industry software/ analytics/IaaS: Insurance-specific software across the value chain providers range from data-warehousing start-up insurance fraud detection firms to re-insurance SaaS analytics start-ups to claims inspection start-ups.
6. Mobile insurance management: Start-ups focusing on allowing consumers to manage and purchase insurance policies via their mobile device.
7. Product insurance: Companies insuring or tracking products — i.e. smartphones, laptops — for insurance applications.
8. Renters/homeowners: Start-ups providing distribution of renter's insurance and homeowner's insurance as well as lease default insurance programs.

	Insurance	
	Life	**Non Life**
Largest Insurer	Life Insurance Corporation of India Ltd	New India Assurance Co Ltd
National Reinsurer	General Insurance Corporation of India (GIC) Ltd	
Regulator	Insurance Regulatory and Development Authority (IRDA)	
India's GDP	Rs. 236.65 Lac Crs	

Source – IRDA Report 2021-22

9. Sharing economy: Start-ups working on new insurance products in coverage areas including short-term rental marketplaces.
10. Health insurance: Across new carriers as well as healthcare insurance start-ups targeted at individuals and employers.

The Influence of New Technologies on Insurance Industry

1. **Improve underwriting, pricing efficiency and accuracy -** AI can increase the efficiency of underwriting by reducing error rates, incorporating new datasets and automating risk modeling
2. **Increase the capabilities of sales agents and advisers -** AI can be used to support complex decision-making (e.g., quotes for commercial clients), supplementing sales team capabilities
3. **Develop modern, mobile-first insurance offerings -** AI can use a variety of data sources (e.g., images, location data, sensor data) to enable real-time provisioning of insurance policies and instant claims handling
4. **Use proxy data to insure new risk categories -** Introduce insurance for new risk categories (e.g. cyber security, product-specific insurance) by moving past the exclusive use of historical data to price policies

Conclusion

The Insurance companies are mammoth organizations which need sophisticated methods to run into profits thereby fulfilling its commitment to society and the shareholders. Hence the need to revamp the underlying processes in all the centers of activities (Profit Centers).

With increasing competition in the Indian Insurance space, there is the need to do things differently and innovatively for firms to achieve the competitive edge thus paving the growth path for the Insurance sector.

We must understand that Insurance like several other sectors being opened up does not have any readily available resource that the companies of the world will readily jump into cornering right away. No one will be willing to invest in an unknown market reeling under heavy losses from pricing pressure and adverse experiences. The atmosphere should be conducive to doing profitable and enriching business.

Technological innovations and the changing expectation of customers have promoted InsurTech developments which are reshaping the insurance industry. Some innovations are being used throughout the insurance value chain, while others, like DLT, are still in a nascent phase in which it remains unclear to be seen how widespread will they be applied in the insurance sector. InsurTech innovations have the potential to deliver a wide range of benefits, in particular efficiency improvements, cost reductions, improved risk assessment, superior customer experience and greater financial inclusion.

Insurance, worldwide is a huge area with a lot of sophistication. It is about 23 years that the market had been opened up in India. Further liberalization has been done by increasing the FDI cap to 74%. It is high time for the consolidation of the industry on all aspects, be it profitability, rating mechanism, customer services, systems and processes as well as human resources. The industry needs to mature on all areas to turn into a viable value adding proposition for the investor as well as all the stake holders of the industry. IJ

Bibliography

1. IRDA Annual report 2021-22 and 2022-23
2. Global Insurance trends analysis 2018 – Ernst & Young
3. Global insurance industry insights, 2014 – McKinsey & Company
4. Insurance industry – Road Ahead – KPMG and Bengal Chamber of Commerce
5. Principles of risk management and insurance – George E Rejda (Pearson Education)
6. Report on “FinTech Developments in the Insurance Industry” by International Association of Insurance Supervisors; Feb 2017
7. Startups in Insurance and Fintech: Redefining the Indian Insurance Market - George Pascal Osta – Bimaquest
8. Application of Artificial Intelligence in Claim Management and Fire Surveying in the

Trust Perception for Insurance Intermediaries–Bancassurance and Individual Agents With Reference to Individual Health Insurance Business - A Study of Mumbai City

Dr. N. Lakshmi Kavitha
lakshmi.kavitha@vsit.edu.in

Dr. N. Lakshmi Kavitha is currently working as Chief Academic Officer for Commerce and Management at Vidyalankar School of Information Technology (Affiliated to University of Mumbai). The author has 13 years of teaching experience and 10 years of research/industrial experience. The author has administrative and managerial experience of one year. The author has published 14 technical papers and authored 5 books.

Mikhail Chopra
mikhailchopra9@gmail.com

Mikhail Chopra is currently working as Assistant Professor in Commerce and Management at Vidyalankar School of Information Technology (Affiliated to University of Mumbai). The author has total insurance industry experience of 8.5 years. The author has worked in both General and Life Insurance sector. The author is a Fellow of Insurance Institute of India. The author has completed his graduation from USA with honors of summa cum laude. The author has completed his Master of Commerce from Vidyalankar School of Information Technology. The author is UGC NET qualified in commerce subject.

Abstract

Trust is still an issue in the insurance sector as the insurance product sold is intangible. This study focuses on two major intermediaries, namely individual agents, and corporate agent-banks, selling individual health insurance policies based on whether they are trusted by policyholders. The research design used in this study was descriptive. The findings indicate that there is no significance difference in the mean rank of policyholders towards strong work ethics, competency, pricing transparency, claim process transparency, and privacy of shared information among agency channel and bancassurance channel. However, there exists a significant difference in the mean rank of policyholders towards ease of access. It can be concluded that Corporate Agent-Banks are available with more ease of access in comparison to Individual Agents. Since, the opinion of policyholders towards bancassurance channel and agency channel are almost similar towards agreement, it is recommended that General Insurers can invest in both these channels in Mumbai.

Keywords

Trust, Agents, Bancassurance, Intermediaries.

1. Introduction

Health Insurance offered by insurers is known as commercial health insurance or private health insurance. It is to be noted that even if the health insurance is offered by public sector insurers, it comes under private health insurance because such insurance is funded by private individuals. Commercial or Private health insurance provides health coverage to an individual under contractual agreement which is health insurance policy. **Agents** are the intermediaries in health insurance business. They find health insurance customers and mediate in selling transactions. No agent has

sole selling rights for any territory. Most health insurance agents are free-lancers. An insurance agent must obtain license from Insurance Regulatory and Development Authority. This is license is only granted based on insurer's recommendation after passing examinations. **Bancassurance** is the term coined for arrangements between banks and insurance companies to achieve synergy of two similar businesses. The large client base of bank need banking as well as health insurance products. When banks work with insurance companies their reach will be greater which will result in economies of scale as there will be sharing of infrastructure and staff among them. Trust is still an issue in the insurance sector as the insurance product sold is intangible (except some literature that is shown). The real product of insurance exists at the time when policyholders make a claim. It is the responsibility of insurance's intermediaries to built trust as customers buy the insurance product of the insurer using the services of the agents, banks, brokers etc.

2. Research Objectives

2.1 Broad Objective

To examine the policyholder's view regarding trust perception for major individual health insurance intermediaries with reference to individual agent and corporate agent-bank

2.2 Specific objectives

A. To study the business trend of major health insurance intermediaries with reference to Individual Agents and Banks.

B. To identify the trust components in intermediaries in individual health insurance industry.

C. To compare the major health insurance intermediaries (Individual Agents Vs Banks) based on the trust perception of their policyholders.

3. Literature Review

Greg Osborne (2021)[1] in his online article," The key to building trust in the insurance industry" published in Insurance Innovation Reporter had mentioned that new ways and tools are required for insurers to stay relevant and compete with InsurTechs mainly for the young policyholders. The author mentions about a survey held in U.S. of over 4,000 customers belonging to auto and homeowners in which 80 percent of customers said that they trust their insurance providers. However, it was observed in the survey that customers aged 65 years and above are more likely to trust their insurance company in comparison to customers aged under 25 years. The author further mentions about the survey in which younger customers nearly are twice as likely to say that they plan to switch their insurance company within next three years.

Venkatesh Ganapathy (2020)[2] in his online article, "Trust Deficit in Insurance Sector" published in Deccan Herald is of the opinion that trust deficit is substantially high due to rampant mis-selling in the insurance sector. The author mentions that most of the efforts are directed to solicit customers to buy insurance policy but during claim management from nowhere, a slew of performance measures emerges. The author is of the opinion that disillusionment has been growing with the insurance sector and insurance penetration rates are not satisfactory. This means that opening of insurance sector has only resulted in shifting the business from nationalized companies to private companies. The author concluded that private banks and private insurers are acquiring customers at any cost and lot needs to be done from regulatory perspective.

Simoney Kyriakou (2021)[3] in his online article, "Trust is still an issue in insurance" published on website FT Adviser, is of the opinion that consumers still don't trust insurance despite there were efforts over several decades to improve transparency and communication. The author cited Protection Review 2021 Conference held at Landmark Hotel in London that there was a huge gap between reality and perception of insurance, which insurance providers and advisers need to address. The author further cited Sue Helmont, marketing director of AIG Life, who told that trust was so subjective and personal and not easy to translate to insurance space. Finally, the author again cited Sue Helmont, which mentioned that insurance companies should inject humanness into insurance by focusing on improving competency, reliability, empathy, and integrity.

Tapan Singhel (2023)[4] in his online article, "If you don't have trust in insurance, then what must you do?"

published in the Economic Times mentions that since the earliest forms of civilization, insurance has existed with both humans and animals to form groups for protecting and supporting each other. The author is of the opinion that insurance industry began selling insurance based on fear instead of the underlying principle of collective well-being. The author mentions that insurance is essentially a mechanism to extend support to people beyond immediate circles. Finally, the author concludes that insurance brings individuals and communities together to mitigate risk and to build a well-protected society.

Patricia Moore (2019)[5] in the online blog "Building Trust in the Insurance Industry Through Transparency" is of the opinion that consumers don't have a clear understanding of insurance product which are offered to them and so trust will continue to be an issue in the insurance industry. The author mentioned that there is not a quick fix to this problem. The author is of the opinion that as insurers expand their digital capabilities, technology will allow them to become more transparent. This will improve the consumer experience and foster trust with prospects and policyholders. Finally, the author mentioned of providing easier access to policy documents, providing as seamless self-serve user experience, providing flexibility in product customization, and safeguarding consumer data are the examples of transparency which can help to build trust.

Caitlin Bronson (2016)[6] in the online article, "7 reasons the insurance agent is a dead profession walking, according to startups" has given reasons for the decline in the agent profession in the United States. First reason given by the author is aging agent workforce. The second reason is growth of e-commerce and changing consumer demographics. The third reason is improvement in front end and back-end tech which can help to price and fulfil policies online. Fourth reason is increasing consumer responsibility where companies shift purchase burden to consumers. Fifth reason is proof points in other markets where there has been a transition from travel agents to online sites. Sixth reason is direct marketing and consumer education will supplant agents. Seventh reason is customer service which can be facilitated through customer interactions online with the help of sophisticated CRMs and expansion of mobile.

Dr. S. Ramamoorthy (2014)[7] in the article, "Bancassurance -The emerging channel for selling insurance products" published in Shanlax International Journal of Economics mentioned that insurance companies are going beyond the traditional channel of agents for selling insurance products. The author mentioned that agents are still the major distribution channel but new unconventional channels like bancassurance, brokers, internet, and direct marketing are now being used to reach consumers. The author mentioned that the concept of bancassurance originated in France and besides France, it has been successful in countries such as Portugal and Greece. However, the author mentioned that due to several restrictions on banks selling insurance in the UK, its success is limited there. Finally, the author is of the opinion that bancassurance will be a huge success in India too.

Lilah Raynor (2021)[8] in her article, "Building Financial Brand Trust In A New Era: Three Customer Expectations And How To Meet Them," published in Forbes business council is of the opinion that winning and building customer trust is a key aspect for long-term success of financial brand in the marketplace. The author mentioned that financial brands need to deeply understand the macro-segment and micro-segment of the customer base to give them a highly personalized financial experience. Financial customer along with personalization want their experience to be fully integrated with their day-to-day technological habits. The author mentions that financial companies should work to identify emotional drivers of customer behaviour to keep a personal touch with the customer. This will help to keep financial communication relevant. Finally, the author concluded that to build trust, financial brands should know their customers which will help to deepen customer engagement and loyalty.

Hayden Harrison (2022)[9] in the online article, "Building customer trust in business: 9 tips from experts" mentions that trust is the currency of innovation and those company investing in trust are in real sense investing in innovation. The author mentions nine tips to build trust

such as understanding customers, leaning into purpose to deliver a positive impact, being transparent, building trust at every layer of the organization, not underestimating the softer components of trust like integrity and empathy, diagnosing broken trust accurately before trying to rebuild it, positioning yourself as a partner and not a vendor, treating building or rebuilding trust like any other operational challenge, and never taking trust for granted.

Tom (2023)[10] in his article, "The Importance of Transparency in Insurance" is of the opinion that transparency is an essential aspect of the insurance industry. The author mentions that fostering trust and facilitating clear and open communication is a necessity in insurance industry that plays a vital role in benefitting both consumers and insurance providers. The author mentions that insurance companies can forge robust relationship with policyholders by giving priority to clear and open communication, transparent pricing, and comprehensive policy terms. Furthermore, the author mentioned that by harnessing innovations like Blockchain and AI, insurers can make insurance processes more efficient and customer centric. The author concluded that insurance companies can create a positive and trustworthy image through a steadfast commitment to transparency.

Based on the Literature Review, it is found that no study in Mumbai is carried out in individual health insurance industry regarding the trust perception of policyholders towards their intermediaries, namely Individual Agent and Banks.

4. Research Methodology

The researchers have gone through primary and secondary data.
The primary data will consist of information collected through survey from 200 respondents (100 from Agency Channel and 100 from Bancassurance channel) in Mumbai city to compare the responses received from both policyholders of agency channel and bancassurance channel to find out if there are any significant differences in the responses received from them.
The secondary data consist of data collected from IRDAI's latest handbook on Indian Insurance Statistics 2021-22.

4.1 Research Design:

The research design used for this study was descriptive and various components which can contribute to trust are taken into account for understanding trust of policyholders on banks and insurance agents involved in the business of individual health insurance.

4.2 Research Instrument:

Keeping in mind the objective of the study, a survey was prepared to understand policyholder's trust perception on bancassurance channel and insurance agents involved in the business of individual health insurance. Questions related to demography and components which can influence trust were asked to know the opinion of policyholders of agency and bancassurance channel in Mumbai city. The survey was prepared on a 5-point Likert scale of importance from strongly disagree to strongly agree, where 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree and 5=Strongly Agree.

4.3 Sample and Data Collection

The proposed study was conducted in Mumbai city with a sample size of 200 policyholders (100 from Agency Channel and 100 from Bancassurance Channel) using non-probabilistic convenience sampling method. The data was collected from policyholders of below Insurance Companies as seen in Table 3. The data was analysed using SPSS and excel.

Table 1: Policyholder's Insurer's Name

Insurance Company Name	Agency	Banc-assurance
Aditya Birla Health	6	0
Bajaj Allianz	10	0
Care Health Insurance	15	0
Future Generali Health Insurance	1	0
HDFC Ergo	4	24
ICICI Lombard	3	19
IFFCO Tokio	2	0
Kotak General Insurance	1	13
Liberty General Insurance	1	0
New India Assurance	29	0
Niva Bupa	12	0
Royal Sundaram	4	0
SBI General	3	18
Star Health	7	0

Insurance Company Name	Agency	Banc-assurance
Tata AIG	0	19
Universal Sompo	2	7
Grand Total	**100**	**100**

Source: Primary Data

5. Business Trend of Major Health Insurance Intermediaries with Reference to Individual Agents and Banks

Below is the business performance of major health insurance intermediaries. On average 64% of the policies are issued through agency channel and on average 12% are issued through bancassurance channel as seen in Table 1. For gross premium, on average 72% of the gross premium is reported through agency channel and 7% of the gross premium on average is reported through bancassurance channel as seen in Table 2.

Table 2: Number of Policies issued from 2014-15 to 2021-22

Number of policies Issued for Individual Health Insurance Business								
Name of the Channel	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Corporate Agent - Banks	1552686	1433492	1676892	2219115	902358	2407894	2852405	2597280
Individual Agents	7295723	7874217	8632386	8698624	10517585	11605507	14752755	14289324
Others	1744848	2076927	2377315	3165906	8171362	3158146	5225031	5038763
Total	10593257	11384636	12686593	14083645	19591305	17171547	22830191	21925367
Number of policies Issued as Percentage of Total								
Name of the Channel	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Corporate Agent - Banks	15%	13%	13%	16%	5%	14%	12%	12%
Individual Agents	69%	69%	68%	62%	54%	68%	65%	65%
Others	16%	18%	19%	22%	42%	18%	23%	23%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Adapted from Handbook on Indian Insurance Statistics 2021-22

Table 3: Gross Premium from 2014-15 to 2021-22

Gross Premium for Individual Health Insurance Business (lakhs)								
Name of the Channel	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Corporate Agent - Banks	101075	110746	135070	166210	46357	160904	202699	206188
Individual Agents	613554	722446	881025	1018713	1282575	1500917	1909592	2140162
Others	162611	203705	242252	344200	423532	333842	471685	662156
Total	**877240**	**1036897**	**1258347**	**1529123**	**1752464**	**1995663**	**2583977**	**3008507**
Gross Premium as Percentage of Total								
Name of the Channel	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**
Corporate Agent - Banks	12%	11%	11%	11%	3%	8%	8%	7%
Individual Agents	70%	70%	70%	67%	73%	75%	74%	71%
Others	19%	20%	19%	23%	24%	17%	18%	22%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Adapted from Handbook on Indian Insurance Statistics 2021-22

6. Trust Components in Intermediaries in Individual Health Insurance Industry

The following can be policyholder's trust component in intermediaries in individual health insurance industry.

6.1 Character (Strong Work Ethics)- Good character shows that the insurance intermediary is reliable, dependent, and has a strong work ethic. Policyholders want intermediaries on whom they can count on especially during the time of claim. This is the moment of truth and superior customer service during the claim settlement process can help the intermediary to win customer loyalty. Thus, showing good character will make health insurance intermediary among the trusted in their field.

6.2 Competency- The health insurance intermediaries should have technical expertise to offer comprehensive solution to the meet the needs of their clients. The good insurance intermediary should also know about the tax and legal aspects of the product besides knowing how to sell the policy. Insurance intermediaries should read, understand, analyse, and interpret complex language in insurance contracts so that they can advise their customers wisely. Thus, being competent will make health insurance intermediary among the trusted in their field.

6.3 Ease of Access- Location, smart phones, and hours of operation make for ease of access. If there is long wait or queue, access becomes difficult. Access becomes easier when intermediaries are available on call easily. Thus, being easily available can make health insurance intermediary among the trusted in their field.

6.4 Pricing Transparency: Prospects should be clearly explained the process of calculation of health insurance premiums by intermediaries Further the prospects should also be explained the factors that influence the costs and pricing decisions. Policyholders should be made fully aware of any administrative or services charges associated with their policies. Thus, keeping pricing transparency with the clients can make health insurance intermediary among the trusted in their field.

6.5 Claims Process Transparency: Insurance Intermediaries should help policyholder fill relevant claim forms. Policyholders should be informed about the status and progress of their claims by insurance intermediaries. If there is a repudiation of claim, insurance intermediaries must provide transparent explanation of this decision and also provide mechanism to take such claims to the next level for dispute resolution. Thus, keeping claims process transparency can make health insurance intermediary among the trusted in their field.

6.6 Privacy of Health Information: Insurance intermediaries should not share customer's information with any third party. Access to this data should only be given to the authorized persons. Further, the insurance intermediaries should have appropriate mechanisms in place that will prevent unauthorized access to this data. Thus, ensuring privacy of customer's health information, can make health insurance intermediary among the trusted in their field.

7. Comparison of Major Health Insurance Intermediaries (Individual Agents Vs Banks) Based on The Trust Perception of Their Policyholders

As seen in Table 4, 52% of the policyholders agreed that insurance agents have strong work ethics. 54% of the policyholders agreed that insurance agents are competent. 43% of the policyholders agreed that insurance agents are approachable with ease of access. 44% of the policyholders agreed that insurance agents keep pricing transparency. 49% of the policyholders agreed that insurance agents keep claim process transparency. 51% of the policyholders agreed that insurance agents keep privacy of shared information.

As seen in below table 5, 59% of the policyholders agreed that corporate agent-bank have strong work ethics. 54% of the policyholders agreed that corporate agent-bank are competent. 53% of the policyholders agreed that corporate agent-bank are approachable with ease of access. 54% of the policyholders agreed that corporate agent-bank keep pricing transparency. 56% of the policyholders agreed that corporate agent-bank keep claim process transparency. 52% of the policyholders agreed that corporate agent-bank keep privacy of shared information.

Table 4: Policyholder's Perception of Trust (Agency)

Agency Channel						
Likert Scale	**Strong Work Ethics**	**Competent**	**Ease of access**	**Pricing transparency**	**Claim process transparency**	**Privacy of shared information**
Strongly Disagree	4	5	6	5	4	5
Disagree	10	13	20	16	17	11
Neutral	22	16	23	18	15	17
Agree	52	54	43	44	49	51
Strongly Agree	12	12	8	17	15	16
Grand Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Primary Data

Table 5: Policyholder's Perception of Trust (Bancassurance)

Bancassurance Channel						
Likert Scale	**Strong Work Ethics**	**Competent**	**Ease of access**	**Pricing transparency**	**Claim process transparency**	**Privacy of shared information**
Strongly Disagree	5	5	5	6	4	4
Disagree	13	11	13	12	13	12
Neutral	10	12	15	12	9	11
Agree	59	54	53	54	56	52
Strongly Agree	13	18	14	16	18	21
Grand Total	**100**	**100**	**100**	**100**	**100**	**100**

Source: Primary Data

Following were the hypothesis formed based on trust factors among agency and bancassurance channel.

H0: There is no significance difference in the mean rank of policyholders towards strong work ethics, competency, ease of access, pricing transparency, claim process transparency, and privacy of shared information among agency channel and bancassurance channel.

H1: There is a significance difference in the mean rank of policyholders towards strong work ethics, competency, ease of access, pricing transparency, claim process transparency, and privacy of shared information among agency channel and bancassurance channel.

To test whether the data is normally distributed, One-Sample Kolmogorov-Smirnov Test was used as seen in Table 6. Kolmogorov-Smirnov test indicated that the trust related factors related to strong work ethic, competent, ease of access, pricing transparency, claim process transparency, and privacy of shared information do not follow a normal distribution because the p-value in all the cases is less than 0.05. Hence, non-parametric test of Mann-Whitney U Test will be used to compare between agency channel and bancassurance channel with each of the variable strong work ethics, competent, ease of access, pricing transparency, claim process transparency, and privacy of shared information.

Table 6 Test of Normality for Trust Perception

One-Sample Kolmogorov-Smirnov Test							
		Strong work ethics	Competent	Ease of access	Pricing Transparency	Claim Process Transparency	Privacy of Shared information
N		200	200	200	200	200	200
Normal Parameters[a,b]	Mean	3.6	3.62	3.43	3.57	3.63	3.68
	Std. Deviation	0.997	1.04	1.063	1.091	1.054	1.045
Most Extreme Differences	Absolute	0.336	0.333	0.296	0.308	0.329	0.32
	Positive	0.219	0.207	0.184	0.182	0.196	0.195
	Negative	-0.336	-0.333	-0.296	-0.308	-0.329	-0.32
Test Statistic		0.336	0.333	0.296	0.308	0.329	0.32
Asymp. Sig. (2-tailed)		.000[c]	.000[c]	.000[c]	.000[c]	.000[c]	.000[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source: Primary Data Computation from SPSS Computation

As seen in the Table 7, it can be said that there is no significance difference in the mean rank of policyholders towards strong work ethics, competency, pricing transparency, claim process transparency, and privacy of shared information among agency channel and bancassurance channel. However, there exists a significant difference in the mean rank of policyholders towards ease of access among agency channel and bancassurance channel. It can be concluded that Corporate Agent-Banks are available with more ease of access in comparison to Individual Agents.

Table 7: Testing of Hypothesis through Mann-Whitney U Test

Ranks							
Insurance Channel		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Accept or Reject Hypothesis
Strong work ethics	Individual Agent	100	97.93	9793	4743	0.488	Fail to reject Null Hypothesis since p-value greater than 0.05
	Corporate Agent-Bank	100	103.07	10307			
	Total	200					
Competent	Individual Agent	100	96.13	9613	4563	0.242	Fail to reject Null Hypothesis since p-value greater than 0.05
	Corporate Agent-Bank	100	104.87	10487			
	Total	200					
Ease of access	Individual Agent	100	91.84	9184	4134	0.024	Accept the Alternate Hypothesis since p-value is less than 0.05
	Corporate Agent-Bank	100	109.16	10916			
	Total	200					

Ranks							
Insurance Channel		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Asymp. Sig. (2-tailed)	Accept or Reject Hypothesis
Pricing Transparency	Individual Agent	100	97.61	9761	4711	0.449	Fail to reject Null Hypothesis since p-value greater than 0.05
	Corporate Agent-Bank	100	103.39	10339			
	Total	200					
Claim Process Transparency	Individual Agent	100	95.7	9570	4520	0.202	Fail to reject Null Hypothesis since p-value greater than 0.05
	Corporate Agent-Bank	100	105.3	10530			
	Total	200					
Privacy of Shared information	Individual Agent	100	96.71	9670.5	4620.5	0.315	Fail to reject Null Hypothesis since p-value greater than 0.05
	Corporate Agent-Bank	100	104.3	10429.5			
	Total	200					

Source: Primary Data SPSS Computation

8. Summary, Conclusion, and Recommendations

On comparing Individual Agents with Corporate Agent-Banks, it was found that on average 64% of the policies are issued through agency channel and on average 12% are issued through bancassurance channel. For gross premium, on average 72% of the gross premium is reported through agency channel and 7% of the gross premium on average is reported through bancassurance channel. The findings of the Likert scale survey showed that the highest category was "agreed" for policholders for both the agency channel and the bancassurance channel on strong work ethics, competency, ease of access, pricing transparency, claim process transparency, and privacy of shared information. As the data was not normally distributed, a non-parametric test of Mann-Whitney U Test was used to compare agency channel with bancassurance channel. The findings indicate that there is no significance difference in the mean rank of policyholders towards strong work ethics, competency, pricing transparency, claim process transparency, and privacy of shared information among agency channel and bancassurance channel. However, there exists a significant difference in the mean rank of policyholders towards ease of access among agency channel and bancassurance channel. It can be concluded that Corporate Agent-Banks are available with more ease of access in comparison to Individual Agents.

First recommendation of this study, after comparing agency channel with bancassurance channel, is that insurance agents should be available for their customers with ease of access in Mumbai city. Second recommendation of this study is that General Insurers can invest in both the agency and bancassurance channel for selling individual health insurance policy in Mumbai City as the opinion of both their policyholders are similar towards agreement as seen in Table 4 and Table 5 respectively.

9. Limitations of the Study and Further Research

This study does not include other intermediaries of insurers such as brokers, corporate agent-other than banks, direct sale-online, direct sale-other than online, micro-insurance agents, web aggregators, insurance marketing firms, point of sales, and common service centres selling

individual health insurance. The result of this study is based on survey conducted from 200 respondents (100 from agency channel and 100 from bancassurance channel), as compared to population, sample size is limited. Further research can be carried out to include the remaining intermediaries and find out how policyholders who took policy from these remaining intermediaries rate them on Likert scale on trust components such as strong work ethics, competency, ease of access, pricing transparency, claim process transparency, and privacy of shared information. TJ

References

1. Osborne, G. (2021, May 17). *The Key to Building Trust in the Insurance Industry* | Insurance Innovation Reporter. Retrieved October 20, 2023, from https://iireporter.com/the-key-to-building-trust-in-the-insurance-industry/
2. Venkatesh Ganapathy. (2020, December 17). *Trust deficit in insurance sector*. Deccan Herald. Retrieved October 21, 2023, from https://www.deccanherald.com/opinion/trust-deficit-in-insurance-sector-928166.html
3. Kyriakou, S. (2021, December 9). *Trust is still an issue in insurance*. FTAdviser. Retrieved October 24, 2023, from https://www.ftadviser.com/protection/2021/12/09/trust-is-still-an-issue-in-insurance/?page=1
4. Singhel, T. (2023, October 2). *If you don't have trust in insurance, then what must you do?* The Economic Times. Retrieved October 26, 2023, from https://economictimes.indiatimes.com/markets/bonds/if-you-dont-have-trust-in-insurance-then-what-must-you-do/articleshow/104098808.cms
5. Moore, P. (2019, January 25). *Building Trust in the Insurance Industry Through Transparency*. OneInc Public Site. Retrieved October 19, 2023, from https://www.oneinc.com/resources/blog/building-trust-in-the-insurance-industry-through-transparency
6. Bronson, C. (2016, May 3). *7 reasons the insurance agent is a dead profession walking, according to startups.* Insurance Business America. Retrieved October 18, 2023, from https://www.insurancebusinessmag.com/us/news/breaking-news/7-reasons-the-insurance-agent-is-a-dead-profession-walking-according-to-startups-31297.aspx
7. Ramamoorthy, Dr. (2014). BANCASSURANCE - THE EMERGING CHANNEL FOR SELLING INSURANCE PRODUCTS. *Shanlax International Journal of Economics*, *3*(1). Retrieved October 26, 2023, from https://www.shanlaxjournals.in/pdf/ECO/V3N1/ECO_V3_N1_002.pdf
8. Raynor, L. (2021, October 12). *Building Financial Brand Trust In A New Era: Three Customer Expectations And How To Meet Them*. Forbes. Retrieved October 20, 2023, from https://www.forbes.com/sites/forbesbusinesscouncil/2021/10/12/building-financial-brand-trust-in-a-new-era-three-customer-expectations-and-how-to-meet-them/?sh=5ec60c6695c1
9. Harrison, H. (2022, September 26). *Building customer trust in business: 9 tips from experts*. Mastercard Newsroom. Retrieved October 23, 2023, from https://www.mastercard.com/news/perspectives/2022/building-customer-trust-in-business-9-tips-from-experts/
10. Tom. (2023, July 15). *The Importance of Transparency in Insurance - Insurance Pro Finder*. Insurance Pro Finder. Retrieved October 21, 2023, from https://www.insuranceprofinder.com/the-importance-of-transparency-in-insurance/

An Analysis of Underwriting Performance of Non-Life Insurance Sector in India

Dr. Madan Mohan Dutta
mmdjdbi@gmail.com

Dr. Dutta is Assistant Professor at J.D. Birla Institute, Department of Management. He is PhD in Buyers perception study in Motor Insurance sector, MBA(Finance), M.Com, PG Diploma in International Business & Fellow Insurance Institute of India. He worked in Industry for 16 Years including 3 years in the Insurance sector and working with the Education institute for the last 14 years.

Abstract

The article is a quantitative study of non-life insurance industry in India. It is based on secondary data collected from the insurance regulatory and development authority of India site for the period of 2000-01 to 2021-22.

The growth of this sector is very important from the India's social and economic perspective. The premium income of this sector is growing at the rate of 14.54% CAGR. Although this sector is growing at a reasonably good rate but its problems with respect to high claims incurred and commission and operating expenses is hindering its underwriting performances which is the objective of the study.

Methodology applied in the study is to find out the impact of the premium earned (independent variable) on the underwriting profit or loss (dependent variable) by the use of simple linear regression.

Findings suggests that the premium earned is significantly impacting the underwriting loss incurred by this industry.

Keywords

General Insurance, Claims, Commission, Management expenses, Underwriting Loss.

1. Introduction

1.1 Meaning

Insurance is a legal agreement between the insurer one who is selling the insurance policy and the insured one who is buying the insurance policy. Under, the contract in consideration of premium paid by the insured the insurer agrees to compensate the insured the monetary losses due to happening of an uncertain future event.

Insurance is transfer of risk by the insured to the insurer and is used as an effective risk management tool by the insured. The basic principle of insurance is to spread the risk of a few insured over many individuals or businesses exposed to similar risk. Insurance can be of two types life and non-life insurance.

This research is aimed at finding out the underwriting performance of non-life insurance sector in India.

It is to study the impact of earned premium on the underwriting profit or loss incurred for a period of 22 years between the years 2000-01 to 2021-22.

1.2 Evolution of Non-life Insurance

The non-life insurance came to India as a part of the Eeast India Ccompany trade policy. The establishment of non-life insurance company in India happened when triton insurance company limited came into existence in Kolkata, in the year 1850. The underwriting business in India started from the year 1907 after the establishment of Indian mercantile insurance limited.

The non-life insurance sector was nationalized by the passing of the nationalization Act in 1972. The Act became operational from 1st January, 1973. Thus 107 private companies were amalgamated to form four nationalized non-life insurance companies.

The objectives of the nationalization were the following:

- The retentive capacity within the country is to be maximized.

- Benefit the rural and poor masses of India.
- Develop insurance expertise with in the country.

The insurance sector for the first time was opened up in the year 1999 and private companies were allowed to operate with foreign joint venture. In the beginning the foreign companies were allowed to have maximum 26% share.

To protect the interest of the policy holder's various rules and regulations were framed by the insurance regulatory and development authority of India (IRDAI). Subsequently foreign investment was increased from 26% to 49% from 23rd March, 2016. With the passing of insurance amendment bill 2021 at present foreign direct investment is increased from 49% to 74%.

At present there are about 34 non-life insurance companies are doing business in our country. This sector initially was being operated by the private entities then it was nationalized and again it is opened up for joint venture between the Indian and foreign private entities.

The different phases of the development of the sector have been stated below:

Phase I: 1850-1973 – Private insurance companies of about 107 companies were operating during this period under perfect competitive market.

Phase II: 1973-2000 – Nationalized 4 public sector companies operating under oligopoly market structure.

Phase III: 2000 onwards – Private joint venture between domestic and foreign companies of about 34 companies and 4 public sector companies are operating under perfect competitive market.

A developed insurance sector is good for the economy of the country as it provides funds for the development of infrastructure and helps in mitigating and protecting insured against various risks.

1.3 Need of Insurance

The need of non-life insurance can be traced based on the benefits the policy holders derive from its products.

Insurance is a social device where the insured transfer risks to the insurer under an insurance contract. It provides a sense of financial security to the policy holders. In the event of loss or damage to the insured the insured is indemnified to the extent of sum assured so that financial condition is not affected. This loss or damage can happen due to any natural calamities like fire, earthquake, flood etc. It protects businesses against statutory liabilities and loss of profit to a business. It provides health and personal accident covers. It also covers Motor own damage and third- party risks and marine hull and transit risks.

1.4 Distribution Channels of General Insurance Companies

General insurer products are distributed through various channels like agent, broker, banc-assurance, direct to customer, internet marketing, affinity partner's etc.

Insurance agents and brokers are the intermediaries approved and licensed by the IRDAI. The agents and brokers are entrusted with the job of bringing the insurance company and the insured into contract. Mostly the brokers provide infrastructure facilities to underwrite policies and settle the claims on behalf of the insurance companies. The banc-assurance is the tie up between the insurance company and bank to sale insurance policies in return for a commission. Under direct to customer channel of distribution the company sell their policies by directly approaching the customer. Internet marketing uses the company website to sale their products. Lastly affinity partners are the trade bodies which ties up with the insurance companies to distribute their policies in the retail segment.

1.5 Non-life Insurance Companies provide following Products

Automobile insurance policy covers third-party losses and own damage to the vehicle.

Standard fire and special perils policy covers property damage caused by various riskslike fire, earth quake, flood etc.

Engineering insurance policy includes operational and project policies.

Marine policy covers the risk of loss or damage to the marine hull and damage during transit.

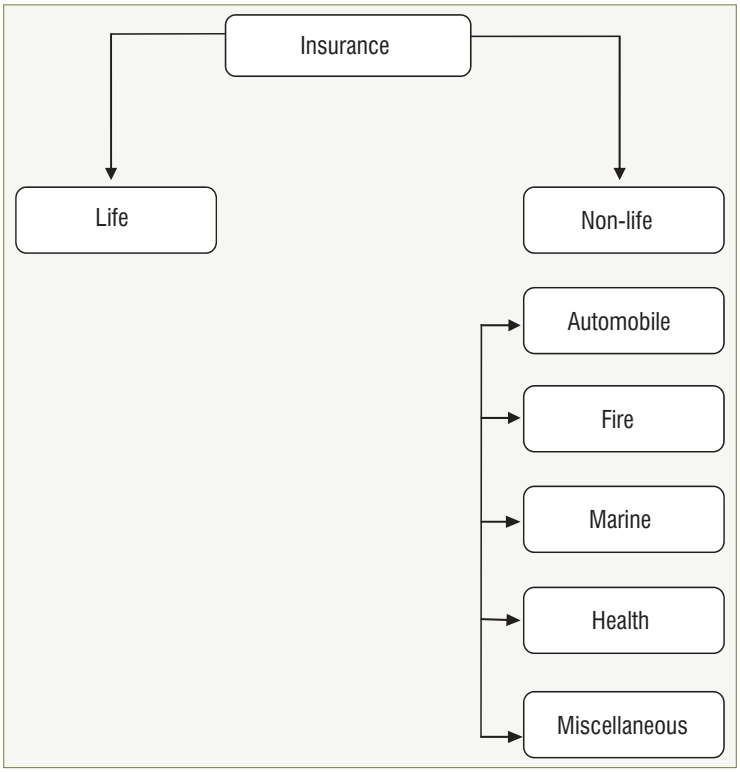
Liability policy constitutes product liability, public liability and professional indemnity.

Health insurance policy covers medical expenses due to hospitalization.

Miscellaneous policies are of different types like theft and burglary insurance, cash insurance, fidelity guarantee insurance, accidental insurance and overseas medical insurance etc.

Segment wise division of non-life insurance industry is shown below:

Figure 1: Segment wise division of Insurance sector in India



Source: Author's Compilation

1.6 Underwriting Guidelines

The underwriting process is used by the insurance companies to either accept or decline an insurance proposal. This applies to a new proposal as well as for the existing proposal for the renewal of the policy. Every insurance company have their own underwriting guidelines to take these decisions.

For non-life insurance companies underwriting policy is the main activity. The other activities start after the underwriting activity is completed. Under the nationalized setup underwriting had no significance as premium rates were determined by the tariff. Subsequently with the liberalization of the insurance sector tariff was also being withdrawn gradually. Due to these changes insurance environment became very competitive as a result underwriting activity gained importance. The insurance companies are now forced to revise their underwriting guidelines due to Profit concern.

The segments of insurance de-tariffed in different years are stated below.

1994 - Personal accident, Marine cargo, Health, Banker's liability and Aviation.

2005 –Full segment of Marine insurance.

2007 –Engineering, Fire and allied perils and Damage to Motor vehicle.

2. Review of Literature

Non-life insurance sector in recent years have become very competitive and its underwriting performance has not been that good and the researchers are looking to probe this problem.

(Ray *et al.,*2020) Studied challenges and opportunities faced by the India's insurance sector and identified low investment in insurance covers, low density and penetration rates, the public sector domination and their worsening financial condition are few of the opportunities and challenges being faced by this sector. (Kumari, 2018) analysed underwriting efficiency of general insurance sector in India and have successfully developed underwriting model for the insurance companies. (Meena, 2018) have compared customer satisfaction in non-life insurance in private and public sectors and found that the overall experience in dealing with public sector was better than that of private sector. (Ertugrul, et al., 2016) have determined efficient and inefficient general insurance companies by the use of Data Envelopment approach. (Dar and Thaku, 2015) the study reveal, that premium earned is being spent in

the form of Commission, operating expense and claims mainly by the private insurance companies. (Sinha et al., 2015) have studied technical efficiency of general insurance companies and the result revealed that the public sector companies are better than the private sector companies. (Subramani, 2013) have studied about the features and prospects of general insurance business in India and the result revealed that the public sector market share is declining but those of private sector insurance companies are improving. (Bhattacharya, 2012) here the study revealed that the private sector non-life insurance companies are posing a challenge to the public sector companies in terms of their financial performance. (Rao, 2010) has done a case study of performance of National Insurance company Limited. The study found that there is increase in the operating revenue correspondingly operating expenses have also increased thereby leading to losses in six years out of total eight years of study period. (Kumar, 2010) studied performance of general insurance companies post reform period and found that the public sector has incurred higher underwriting losses compared to private sector companies.

There have been numerous studies on the various aspects of non-life insurance companies. But there is no research work on the underwriting performance of non-life insurance industry in India.

3. Objectives

The objectives of the study are the following:

- Review health of Indian non-life insurance sector and
- Analyse the underwriting performance of non-life insurance sector of India.

4. Research Methodology

The data used in the study is secondary data obtained from the hand book on Indian insurance statistics obtained from the IRDAI site and from various journals, research articles, websites and books. The data is tabulated and analysed in order to evaluate the underwriting performance of the non-life insurance sector in India.

The data is collected for the period of 22 years starting from 2000-01 to 2021-22.

Linear regression is done in the following form:

$Z = c + dY$

The research paper used Microsoft Excel for making various graphs and SPSS 21 software for doing regression analysis.

Formula of calculating CAGR:

$$CAGR = \left(\frac{FV}{PV}\right)^{\left(\frac{1}{Years}\right)} - 1$$

$CAGR =$ Compound Annual Growth Rate

$FV =$ Final Value

$PV =$ Beginning Value

4.1 The Problem Statement:

It is assumed that when the income in the form of premium increases the underwriting profit of the company will also increase. This means that the underwriting profit depends on the premium income.

The objective of the study is to estimate the underwriting performance of the non-life insurance sector.

The simple linear regression analysis is conducted between the earned premiums and the underwriting profit or loss made by the non-life insurance sector. It can be stated that the alternative hypothesis will be accepted when the underwriting profit will increase along with the increase of the premium income. On the contrary the null hypothesis will be accepted when this dependability pattern can't be found meaning that there is no relationship between the premium income and the underwriting profit or underwriting loss being made. But the data analysis has revealed that the premium has negative impact on the underwriting profit i.e., incurring underwriting losses. This phenomenon normally is not found in any sector. This is the heart of the problem the insurers must look into and rectify for the better performance of this sector.

Underwriting Profit or Loss = Earned Premium – (ClaimsPaid + Operating

Expenses and Commission Paid)

The Underwriting Profit is the excess of earned premium over the commission, operating expenses and claims incurred. It excludes income generated through investment.

4.2 Analysis of Data

Table-1: Non-Life Insurance Premium earned & Claims paid, Commission & Operating Expenses paid

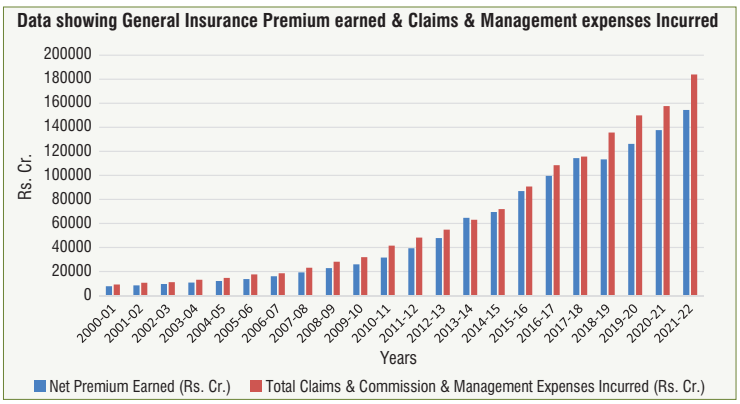
Years	Earned Premium (Rs. Cr.)	Claims Paid (Rs. Cr.)	Commission and Operating Expenses Paid (Rs. Cr.)	Total of Claims, Commission & Operating Expenses paid (Rs. Cr.)
2000-01	7787.53	7020.38	2190.03	9210.41
2001-02	8511.3	7931.24	2718.92	10650.16
2002-03	9620.09	7983.39	3172.26	11155.65
2003-04	10862.16	8796.66	4347.71	13144.37
2004-05	12118.23	9987.12	4707.99	14695.11
2005-06	13710.09	12118.07	5478.53	17596.6
2006-07	16046.52	13041.64	5562.43	18604.07
2007-08	19287.48	16371.12	6815.84	23186.96
2008-09	22847	19716.95	8453.82	28170.77
2009-10	26000.17	22274.48	9669.34	31943.82
2010-11	31634.73	29514.04	12064.21	41578.25
2011-12	39387.61	35014.85	13200.15	48215
2012-13	47861.16	39623.61	15221.82	54845.43
2013-14	64680.3	45692.07	17392.79	63084.86
2014-15	69572.2	50998.21	20928.14	71926.35
2015-16	86977.82	64502.39	26193.41	90695.8
2016-17	99630.24	80662.17	27799.1	108461.27
2017-18	114368.64	85651.36	30014.08	115665.44
2018-19	113333.78	101051.01	34602.26	135653.27
2019-20	126178.99	108390.26	41508.61	149898.87
2020-21	137621.22	111549.84	46110.22	157660.06
2021-22	154424.69	137558.78	49399.74	186958.52

(Source: IRDAI web site)

The Table-1 shows that the Claims, Commission and operating expenses paid together is greater than the Non-Life insurance premium income. This sector is incurring underwriting losses because the Premium income is less than the claims, commission and operating expenses taken together.

From chart-1 it can be revealed that claims, commission and operating expenses together is higher than the net premium earned for the years considered in the study.

Chart-1: Chart on Non-Life Insurance Premium earned, Claims, Commission and Operating Expenses Paid



(Source: Author's compilation.)

Table-2: Data on Performance of India's Non-Life Insurance Sector

Years	Earned Premium (Rs. Cr.)	Claims Paid (Rs. Cr.)	Operating Expenses and Commission Paid (Rs. Cr.)	Underwriting Profit or Loss (Rs. Cr.)
2000-01	7787.53	7020.38	2190.03	-1422.88
2001-02	8511.3	7931.24	2718.92	-2138.86
2002-03	9620.09	7983.39	3172.26	-1535.56
2003-04	10862.16	8796.66	4347.71	-2282.21
2004-05	12118.23	9987.12	4707.99	-2576.88
2005-06	13710.09	12118.07	5478.53	-3886.51
2006-07	16046.52	13041.64	5562.43	-2557.55
2007-08	19287.48	16371.12	6815.84	-3899.48
2008-09	22847	19716.95	8453.82	-5323.77
2009-10	26000.17	22274.48	9669.34	-5943.65
2010-11	31634.73	29514.04	12064.21	-9943.52
2011-12	39387.61	35014.85	13200.15	-8827.39
2012-13	47861.16	39623.61	15221.82	-6984.27
2013-14	64680.3	45692.07	17392.79	1595.44
2014-15	69572.2	50998.21	20928.14	-2354.15
2015-16	86977.82	64502.39	26193.41	-3717.98
2016-17	99630.24	80662.17	27799.1	-8831.03
2017-18	114368.64	85651.36	30014.08	-1296.8
2018-19	113333.78	101051.01	34602.26	-22319.49
2019-20	126178.99	108390.26	41508.61	-23719.88
2020-21	137621.22	111549.84	46110.22	-20038.84
2021-22	154424.69	137558.78	46399.74	-29533.83

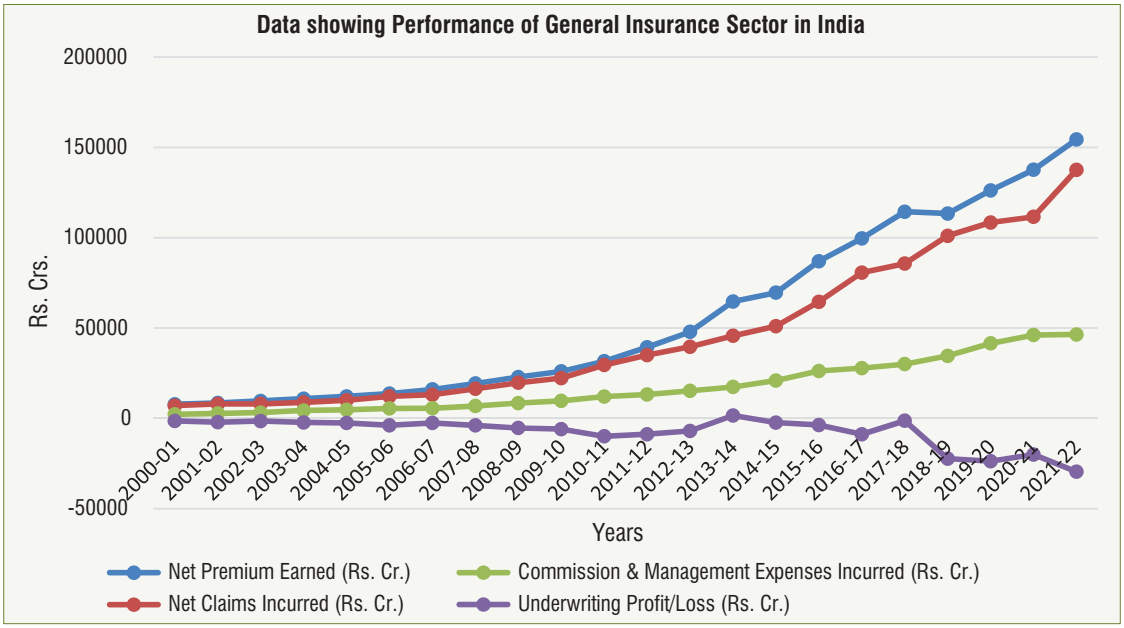
(Source: IRDAI web site)

The insurance premium has grown from Rs.7787.53crores to Rs.154424.69crores during the period 2000-01 to 2021-22. The Compound Annual Growth Rate (CAGR) comes to 14.54%. Claims, Commission and operating expenditure paid taken together have grown from Rs. 9210.41 crores to Rs. 183958.52 crores. CAGR comes to 14.58%

The Non life insurance sector is incurring underwriting loss in all the financial years except for the year 2013-14 that are being studied. Investment income is not considered while calculating the underwriting loss. It is calculated by deducting claims, commission and operating expenses paid from the Non life insurance premium earned.

The claims, commission and operating expenses paid together have increased at a high rate. Thus, earning higher premium is not enough to earn underwriting profit. It requires better management of claims, commission and operating expenses, so that underwriting loss can be checked and reduced.

Chart-2: Chart showing Performance of India's Non-Life Insurance Sector



(Source: Author's compilation.)

It can be inferred from the above chart that there is high rise in the premium earned over the years. But claims, commission and operating expenses paid have also increased and surpassed net premium earned in all the years. This resulted in the underwriting loss incurred by this sector. This can also be observed from the chart.

4.3 Interpretation of Regression analysis

Model of Regression

$Z = c + dY$

Where Z = Dependent variable

Y = Independent variable

c = Intercept

d = Slope

Regression Fit

Table 3: Coefficients of Regression

Model		Coefficients Un-standardized	
		B	Standard Error
1	(Constant)	-354.318	1919.268
	Premium Earned	-.130	.026

a. Dependent Variable: Underwriting Profit or Loss

Predictions are to be based on the known independent variable Y (Non-life insurance premium earned), Z is the unknown dependent variable which is to be predicted (Underwriting profit or loss) and c and d are intercept and slope, whose values are to be determined.

Z= -354.318-0.130Y

Model Predictive ability

Table 4: Summary of the Model

Model	R-Correlation	R^2 Coefficient of determination	Adjusted R^2	Standard Error of the Estimate
1	.742[a]	.551	.529	5815.52804
a. Predictors: Non life Insurance Premium Earned				

R squared shows how well the data fit the regression model i.e., representing the goodness of fit. The R squared value of the model is equal to 0.529. It means 52.9% of the relationship between non-life insurance premium earned and underwriting loss incurred is being explained.

Testing of Hypothesis

Coefficients of Regression

Table 5: Analysis of Variance

Model		Addition of Squares	Degrees of Freedom	Square of Means	F-value	Significance
1	Regression	830791396.245	1	830791396.245	24.565	.000[b]
	Residual	676407328.136	20	33820366.407		
	Total	1507198724.380	21			

a. Dependent Variable: Underwriting Profit or Loss made

b. Predictors: Earned Non life Insurance Premium

Alternative Hypothesis:

H_1^1: $\beta \neq 0$ (Non-life insurance premium earned explains the phenomenon of underwriting profit)

Null Hypothesis:

H_0^1: $\beta = 0$ (Non-life insurance premium earned does not explain the phenomenon of underwriting profit or explains the phenomenon of underwriting loss)

At 95% confidence level the *P*-value computed is.000 which is less than.05. The growth of earned premium is leading to incurring higher underwriting loss. Thus, null hypothesis is accepted and the alternative hypothesis is rejected. So, it proves that the relationship between the non-life insurance premium earned and the underwriting loss incurred by this sector is significant.

A regression analysis was performed on the data using SPSS Statistics 21 software package.

5. Results

5.1 Findings

The findings are listed below:

- The CAGR of the earned premium of this sector is 14.54%. In spite of the growth of premium income this sector is making underwriting losses.
- Although there is huge growth of premium income, the claims, commission and operating expenses paid have also grown at a high pace of CAGR 14.58%.
- The result of the regression analysis shows that non-life insurance premium received influences underwriting loss incurred by the sector. That means as the non-life insurance premium is growing and revenue is increasing it is leading to higher underwriting losses.

5.2 Recommendations

- Companies in this sector are incurring Underwriting losses, since claims incurred is high which include fraudulent claims. So, the companies must appoint investigator immediately on happening of the incidence. This will help these companies not only to curb but also to reduce these claims.
- Health insurance and third-party motor insurance categories are claim prone areas of non-life insurance sector. So premium charges are required to be revised so that the sector becomes profitable.
- Non-life insurance sector must penetrate in the rural sector in order to avail the benefit of economies of scale.
- Non-life insurance companies must look into their underwriting policies. It can be observed from the study that for every new business income the underwriting expenses incurred is more. Due to high competition insurance companies are giving out more commission and discount to acquire new business there by ending up by incurring underwriting losses.

5.3 Conclusion

- The health and motor insurance segments are prone to claims thereby putting tremendous pressure on the bottom line of this sector. IRDAI has taken a right decision and increased the

premium rate of third-party motor insurance and health insurance policies. This will help this sector to recover part of its underwriting losses.

- The category of health and motor insurance contributes maximum to the premium earnings of this sector. But at the same time commission and management expenses and claims paid are even more thereby off setting underwriting profit of the non-life insurance business in India.
- Corona virus pandemic has disturbed the growth of both manufacturing and service sectors throughout the world. Insurance sector is no exception. Due to pandemic non-life insurance sector is impacted with lower growth of premium income mainly in the motor insurance category as well as with higher claims specially in the health insurance category.
- Normal course of life is being disrupted and threatened every single day due to happening of the pandemic and perennial natural disasters caused by climate change. As a result, the general public and businesses are seeking protection through insurance policies. For better service to the customers the insurance companies should make increasing use of latest technologies like Artificial Intelligence, Robotics etc.

TJ

References

Bhattacharya, M. (2012). A study on Financial Performance of General Insurance Companies in India in the Post Reform period. PhD Thesis. University of Kalyani, Nadia, available at Shodgganga.inflibnet.ac.in

Dar, S.A. and Thaku, I.A. (2015). A comparative analysis of Financial Performance of Public and Private Non-life Insurers in India. *International Journal of Management.* 6(1), 507-526.

Dutta, M.M. (2020). Health Insurance Sector in India: An analysis of its Performance. *Vilakshan - XIMB Journal of Management.* 17(1/2), 97-109

Dutta, M.M. (2020). Perception of Buyers of Comprehensive Passenger Carrying Vehicle Insurance in the state of West Bengal. *BIMAQUEST.* 23(1), 75-92

Ertagrul, I., Oztas, G.Z., Ozal, A. and Oztas, T. (2016). Efficiency analysis of Non-life Insurance Companies in terms of Underwriting Process with Data Envelopment Analysis. *European Scientific Journal, Special edition,* 71-83.

Kumar, R. (2010). Performance evaluation of General Insurance Companies: A study of Post reform period. PhD Thesis. Punjab University, Patiala, available at Shodgganga.inflibnet.ac.in

Kumari, N. (2018). Underwriting efficiency of Non-life insurance industry in India. *International Journal of Economic Research,* 15(2), 1-10.

Meena, S. (2018). A Comparative study of Customer satisfaction in General Insurance in Public and Private sector. PhD Thesis. Mohanlal Sukhadia University, Udaipur, available at Shodgganga.inflibnet.ac.in

Rao, M.S. (2010). Performance of evaluation of General Insurance Companies: A case study of National Insurance Company Limited. PhD Thesis. Sri Krishna Devaraya University, Anantapur, available at Shodgganga.inflibnet.ac.in

Ray, S., Thakur, V. and Bandopadhyay, K. (2020). India's Insurance Sector: Challenges and Opportunities. (Working Paper No. 394). Indian Council of Research on International Economic Relations.

Sinha, A. and Bandopadhyay, K. (2015). An analysis of Efficiency of General Insurance Industry in India. *Malaysian Management Journal,* 19, 51-64.

Sethi, J., and Bhatia, N. (2007). *Elements of Banking and Insurance*. Prentice Hall of India Private Limited. New Delhi, ND.

Subramani, M. (2013). General Insurance Business in India: Features and Prospects. PhD Thesis. Madurai Kamraj University, Madurai, available at Shodgganga.inflibnet.ac.in

Vaughan, J.E., and Vaughan, M.T. (2003). *Fundamentals of Risk and Insurance*. John Wiley & Sons Inc. New York, NY.

Retrieved August 10, 2023, from https://www.irdai.gov.in/ADMINCMS/cms/Uploadedfiles/Hand%20Book%202019-20.pdf

Sum Insured and Non-life Insurance

Deepak Sangal
dsangal@iii.org.in

Shri. Deepak Sangal joined the College of Insurance as Faculty on 01 March 2023. He is a Graduate in Engineering and an Associate of Insurance Institute of India (III). He joined United India Insurance Co. Ltd. in 1988 as Risk Engineer. He has worked for 32 Years in various operational and controlling offices in the Western and Northern regions. Conducted extensive risk inspections ranging from Engineering Units, Steel Plants, Thermal Power Plants, Hydro Power Plants, Nuclear Power Plants, Petrochemical / Fertilizer Plants etc. Conducted training programs for various Corporates. Handled Underwriting & Claims of Mega Risks. He was on deputation to National Insurance Academy for a period of 3 years. He took VRS in the position of Regional Manager in 2020.

Insurance is an instrument of protection. Protection against the adverse consequences of unfortunate events. This protection comes in the form of financial relief. Effective protection needs to be timely, hassle-free and adequate. There are two important elements that decide the effectiveness. First, whether the loss is covered, and second, if so the extent of indemnity. The adequacy of protection offered by the insurance policy depends on a policy attribute, which goes by the name "**Sum Insured". "Indemnity"** referred above is another term that is closely associated with this adequacy of the protection, and hence with the term sum insured. Therefore deciding the correct sum insured at the time of purchasing an insurance policy is of utmost importance. Though the idea of insurance is several centuries old, for the common man, the concepts associated with it are still alien. In most of the policies, the sum insured forms the basis of deciding the premium. Therefore a tendency to reduce the premium burden by choosing the low sum insured is normal practice. The following paras attempt to present in brief the elementary ideas on different dimensions of the sum insured in non-life insurance with the hope that it might generate some seriousness on the issue.

Non-life insurance deals with insurance of property, person, liability, and income. The subject matters of non-life insurance are so vast and diverse that it becomes difficult to comprehend the ideas easily in a simple manner. The different dimensions of the sum insured with reference to each of the above subject matters of insurance are presented below separately.

Sum Insured and the Property Insurance

Insurance of property has been the most popular segment of non-life insurance. Traditionally it was called fire (and allied perils) insurance, and burglary insurance. Marine insurance also deals with the insurance of property. Insurance of a car or other vehicle, or an aircraft also represents insurance of property. The cattle, the pets, and the crops too are also considered as property. The worth of all these properties to their owners is their "**market value"**, the value which the property can fetch in the market of a large number of buyers and sellers in a transaction at arm's length. And this market value has to be and in the past, has been used as the sum insured. Over the years it was observed that the market value is not sufficient to replace the lost property. Hence "**replacement value"** is emerging as the most appropriate value for deciding the sum insured. The world is slowly switching over to sum insured based on replacement value.

As stated earlier, the sum insured forms the basis for arriving at the premium payable for the insurance. Therefore, the insured tries to keep the sum insured as low as possible, without realising it**s under-insurance** consequences in the event of a claim. The bankers who advance money on properties, insure such properties for a sum insured which equals the loan amount without realising the hidden inadequacy of the protection in such practice.

There are a few variations to this basic idea (market/replacement value) of the sum insured in the form of agreed value policies (marine insurance, insurance of artwork, artefacts, vintage cars,

etc.), insured declared value (IDV) in case of vehicle insurance and also in the form of the sum insured for first loss policies. Similarly, in the case of crop/horticulture insurance, the sum insured is based on the cost of cultivation rather than the market value. These variations / special treatments were necessary to deal with special features and circumstances relating to risks covered in these different kinds of insurance.

It must always be remembered that the sum insured sets an upper limit and subject to this limit, indemnification will be only to the extent of actual / exact loss. In certain category of insurances, the limit (sum insured) is reinstated after payment of the appropriate additional premium. However the following are exceptions to such practice.

a) Automatic reinstatement of the sum insured without additional premium charge, after payment of partial claim/s in vehicle insurance, and

b) In the case of marine insurance multiple claims in the same transit may result in the claim amount being more than the sum insured.

Sum Insured and the Insurance of Person

Personal Accident and Health Insurance policies deal with the insurance of a person. It is extremely difficult to assign a monetary value to the life of an individual. Hence a practical approach has been to link worth of an individual to his earning capacity. The sum insured for a personal accident policy is normally limited to 72 months of earnings of that person.

For a health insurance policy, it is difficult to guess the adequacy of the sum insured. Based on the prevailing trend of medical expenditures and inflationary conditions one can only arrive at some reasonable figure which can be used as the sum insured.

Sum Insured and the Insurance of Liability

"Limit of liability" is the term used to describe the sum insured under liability insurance policies. The landscape of liability insurance presents two scenarios. First, the concept of unlimited liability (which was in vogue in Motor Third Party Insurance) and second the concept of limited liability, which is more common in all statutory liability policies including motor third party liability in many countries. In the case of policies covering statutory liability, the amount of liability prescribed in the law has to be the minimum sum insured. For non-statutory liability i.e. liability under common law and for unlimited liability risks, where there is an option to choose the limit of liability, the sum insured can only be the best estimate, based on the legal trends, risk features, stage of social-economic development, etc. An important feature of the sum insured in the liability segment is that the coverage for expenses can either be part of the basic limit of liability (sum insured) or maybe in addition to such limit of liability. Both practices are prevailing. It is a common practice in liability insurance to express the limits of liability per person per event and per year separately. Thus multiple values for the sum insured is a distinct feature of liability insurance.

Sum Insured and the Insurance of Income

Loss of profit, advance loss of profit, and employment guarantee insurance are examples of insurance of income. The past performance of relevant income, adjusted to the trend and to the effect of extraordinary items forms the basis for deciding the sum insured. The indemnity period is an additional element in insurance of income which along with the amount of profit/income decides the adequacy or otherwise of the insurance coverage. Hence the indemnity period too has to be chosen carefully.

Sum Insured and Reinsurance

Proper understanding of the concept of sum insured is not only important for direct insured, it is also important for insurers, who for their own protection purchase various types of reinsurance covers. The sum insured and the number of reinstatements are important in shaping the adequacy of re-insurance protection offered by a re-insurance policy. The portfolio composition of the primary insurer forms the basis for deciding these essential elements of protection.

Since the adequacy of protection depends on the accuracy of the amount (including indemnity period and number of reinstatements wherever relevant) of sum insured, the task of deciding the sum insured should not be carried out casually, mechanically, and in a routine manner. It has to be a serious exercise requiring the application of the mind. Wherever there are sub-limits in the sum insured, each of such limits has to be carefully thought of.

The ideas presented above should help in getting some basic understanding of factors that have a material bearing on the determination of the sum insured for non-life insurance policies. IJ

Booming Petrochemical Industries – Their Safety Aspects, Insurance Requirements & Various Underwriting Considerations

Anabil Bhattacharya
anabil.bhatt1@gmail.com

Mr. Bhattacharya is Risk Inspecting Engineer & Insurance Consultant. He is Former Chief Manager at National Insurance Company Ltd. He is Fellow of Insurance Institute of India.

Abstract

The importance of Petrochemical Industries in India is immense. Petrochemical products are very much the part and parcel of our everyday lives. It is one of the fastest growing industries. Reliance Industries is the leader in Indian petrochemical sector with a total market share of 70 percent. The passage is a bit different for the downstream petrochemical sector, which is highly fragmented in nature with around 50 companies existing in Indian market.

Important safety features of Hydrocarbon Processing Plants like careful design, proper plant layout, adequate spacing of process/storage units, tank farms, loading/unloading facilities& adopting relevant Risk Management Techniques– to protect the hazards involved in hydrocarbon processing industry.

Hydrocarbon Processing Industry wants to make its products safely and economically and also pay as low a premium for insurance as possible to commensurate with the appropriate cover.

Insurance coverage of the Refinery or Hydrocarbon Processing Industry, relates to protect fire and explosion hazards, the physical and consequential loss of production and profits. The underwriter needs to focus on Design, Layout, Size, Process, Maintenance & Operating Procedures, Identification of Risk Exposures, available Safety Aspects, implementation of Fire Prevention &Fire Protection Methods & Techniques available and of course the most appropriate & adequate insurance coverage to be sorted out.

Petrochemical tariff/current guidelines in place must be abided in India for premium rating under Fire Policy with adequate Reinsurance Support.

Keyword

Petrochemical, Hydrocarbon, Refinery, Safety, Underwriting, Insurance.

Prologue

The word 'Petrochemical' is derived from the realm of Petro-chemistry (which itself is a science) that can be applied to fundamental human needs, such as health, hygiene, housing and food. Petrochemicals are the essential part of the chemical industry today. It all begins with crude oil and natural gas (mixtures of hydrocarbons and small amounts of impurities found in many areas of the world in varying quantities and compositions). They were formed millions of years ago as a result of slow and long processes from decayed plants and animals, buried deep in the earth's crust under tremendous pressure. Crude oil and natural gas are extracted from the ground or under the oceans, by sinking an oil well. They are then transported to refineries, by ship and/or by pipeline, a line equipped with pumps, valves and various other control devices especially adapted for moving liquids and gases. The purpose of refining and then Petro-chemistry is to convert

these natural raw materials into daily life products with applications going from drugs to computer, ships, telecommunications, textiles, cosmetics, transport and construction.

1st phase/Refinery: For production of physical and chemical changes in crude oil and natural gas, through an arrangement of extremely specialized manufacturing processes. One of these processes is distillation, i.e., the separation of heavy crude oil into lighter groups of hydrocarbons called "fractions". Two of these fractions are familiar to consumers. One, fuel oil, is used for heating or for diesel fuel in automotive applications. Another one is naphtha, used in gasoline and also as the primary source from which petrochemicals are derived.

2nd phase/Petro-chemistry: That aim at converting some of the distillation fractions (raw materials known as feed stocks) into marketable petroleum products. It is made up of three different types of "downstream" processes which change the molecular structure of hydrocarbons:

1. Cracking (by breaking down heavy oil molecules into lighter, more valuable fractions),
2. Combining (by joining them to form larger molecules),
3. Reshaping fractions (by reshaping them into higher quality molecules).

Once these operations are concluded, following new products are obtained, the building blocks of the petrochemical industry:

- Olefins (mainly ethylene, propylene, C4 derivatives), and
- Aromatics (benzene, toluene, xylems).

These products are finally processed into other, more specialized products that will be present at the end in plastics, soaps, detergents, healthcare products, synthetic fibers, rubbers, paints, etc.

The importance of Petrochemical Industries in India is simply immense. Although we might not realize that but our lives are absolutely reliant on to quite a large extent on petrochemical products. Petrochemicals are very much a part and parcel of our everyday lives - the carpets that we use to decorate our homes, plastic bottles, clothes that we wear, fertilizers that we use to grow crops, tires, paints, pharmaceuticals, cosmetics etc. are all made up of some kind of petrochemicals.

The petrochemical industry in India has been one of the fastest growing industries in the country. Since beginning, the Indian petrochemical industry has shown an enviable growth rate. This industry also contributes largely to the economy of the country and the growth and development of manufacturing industry as well. It provides the foundation for manufacturing industries like construction, packaging, pharmaceuticals, agriculture, textiles etc.

As India progresses towards becoming a $5 trillion economy by 2024-25, the share of the petrochemical and its derivatives sector shall become even more prominent, considering that it is the backbone of agriculture, infrastructure, and manufacturing.

The Indian petrochemical industry is a highly concentrated one and is oligopolistic in nature. Even till a few days back, only four major companies viz. Reliance Industries Ltd (RIL), Indian Petrochemicals Corporation Ltd. (IPCL), Gas Authority of India Ltd. (GAIL) and Haldia Petrochemicals Ltd. (HPL) used to dominate the industry to a large extent. The recent amalgamation of IPCL with RIL has made the industry more concentrated further, as they jointly account for over 70% of country's total petrochemical capacity. However, the passage is a bit different for the downstream petrochemical sector, which is highly fragmented in nature with around 50 companies existing in Indian market.

Characteristics of Petrochemical Industry

The Petrochemical Industry in India is a cyclical industry. This industry, not only in India but also across the world, is dominated by volatile feedstock prices and sulky demand.

Facts about Petrochemical Industry in India:

Market size –Around US$ 800 million

Growth Rare – Around 12 percent per year

Key features:

1. According to the research conducted by Tata Strategic Management Group, the petrochemical and chemicals sector in India is expected to grow at the rate of 12 to 15 percent in the next five to seven years. According to industry experts this is a phenomenal growth rate as compared to current rate of 12 percent. The petrochemical industry in India came into existence during 1970s. The 1980s and 1990s saw some rapid growths for Indian petrochemical industry. The biggest reason for this growth was the high demand for petrochemicals in India, which grew at an annual rate of 13 to 14% since the late 90s. It also called for rapid expansion of capacity at present. Presently India has three gas-based and three naphtha-based cracker complexes with a combined annual capacity of 2.9 MMT of ethylene. Besides this, there are also 4 aromatic complexes with a capacity of 2.9 MMT of Xylenes. Surge of production of 5.06 MMT polymers during FY09 accounted for around 62% of the total production of key petrochemicals. It also achieved 88.5% capacity utilization. The industry also produced 2.52 MMT of synthetic fibers during FY09 with a 73% of capacity utilization. This direct impact of this growth rate resulted in investments of around $12 billion to $15 billion.
2. As per the Petroleum Ministry in India the refining capacity of India will rise from 135 million tons per annum, which was about 2.8 million barrels per day in 2006-07 to 210 to 225 million tons per annum which is about 4.6 million barrels per day by the year 2011-12 and now the present refining capacity of Indian refineries is 253.92 Million Metric Tons Per Annum (MMTPA). Domestic refining capacity currently stands at present at 254 MMTPA. Five years earlier, an oil ministry panel had prepared a detailed report on refining capacity and had projected the capacity to rise to 259 million tons by 2020, 415 million tons by 2025, and 439 million tons per annum by 2030. This rapid expansion will be creating huge amount of surplus being strong source for exports.

Key Segments

Petrochemical industry in India is constituted of the following key segments:

a. **Polymers:** According to the prediction of Chemicals and Petrochemicals Manufacturers' Association (CPMA), the demand growth for polymer would further be augmented to over 15% in the coming years.

b. **Polyester Intermediates:** The combined production of 5 fiber intermediates (CAN, DMT, Caprolactam, MEG and PTA were 3,417 KT during 2007 now being almost doubled. Among those, PTA and MEG accounted for 69% and 27% respectively, while the rest were DMT, Caprolactam and CAN.

c. **Aromatics (Paraxylene):** The demand for Paraxylene (PX) saw a growth of 15% during 2021. According to the prediction of CPMA, it is expected to grow at the same rate in the coming year as well.

d. **Benzene, Toluene, MX and OX:** The demands for Toluene and OX saw a contraction rate of 4% and 10% respectively during 2021. However, Benzene and MX saw a positive growth though.

Top Companies in India

Though the Indian petrochemical industry is highly dominated by only a few players, however, there are a number of petrochemical companies in India, doing their share of business.

India's top companies can be named as below:

1) Reliance Industries Ltd.
2) Haldia Petrochemicals Ltd.
3) Indian Oil Corporation
4) Gas Authority of India Limited
5) National Organic Chemical Industry Ltd.
6) Bongaigaon Refinery and Petrochemicals Ltd.
7) Manali Petrochemical Limited
8) I G Petrochemicals Limited
9) The Andhra Petrochemicals Limited
10) Tamilnadu Petroproducts Limited.

From Insurance Viewpoint

Entire insurance industry knows that the Hydrocarbon Processing Industry by its very nature also has high frequency of relatively small and average fires which are normally extinguished by the operators or the Plant's fire brigade within the first 10 to 15 minutes. The smaller the fire, the easier it is to control. The need to deal with a fire at a very early stage was appreciated by William Shakespeare and he is needed to be quoted as "A little fire is quickly trodden out, which being suffered, rivers cannot quench". This remains a model for clarity of expression, vividness of image and economy of words.

Let us now look briefly at the background of the Hydrocarbon Processing Industry. During the last 30 years or so almost the entire world has experienced what can only be described as an incredible progress in industrial and scientific matters. To a large extent this industrial progress is largely connected with the Hydrocarbon Processing Industry. In India alone there are at present more than 45 refineries and petrochemical complexes. Without oil there would be no plastic, probably no "Jumbo" aircraft and for that matter no need to have "Jumbo" tankers. Certainly, without oil we should not be in a position to feed the world's population because of a lack of artificial fertilizers and we may not be able to cure the sick providing drugs. Over the past 20 years the oil and petrochemical industry has been the fastest growing industry in the world. Even today with economic recession of the developed world, the Hydrocarbon Processing Industry is still growing with, according to the global records, something like 275 new refining and some 450 petrochemical projects planned or under consideration during the period of 2019-23.

The Petro-chemical industry can often appear to give an impression of remoteness perhaps through the magnitude of its operations and its international ramifications. If, however one word has to be used to describe the Hydrocarbon Processing Industry, I suppose it might be "complication/complexity" although other words which readily come to mind are "size", "change", "growth" and "diversity" in downstream organizations. Certainly, most people equate the Hydrocarbon Processing Industry with "size". The assets of major oil companies always seem to be in thousands of millions of pounds or dollars. Petroleum statistics show the same "size" factor. In this connection, it might be of interest to the readers to note that in 1938 somewhat less than 1.9 million tons of crude oil was refined in India. In 1974, the figure was 26.2 million tons and in 1975 the available capacity was 28.32 million tons that was increased to 259 million tons by 2020. Certainly, the Hydrocarbon Processing Industry has been and will continue to be a growth industry even though the production pattern is changing.

Classical examples of the Hydrocarbon Processing Industry's willingness to "change" and venture into the relative unknown are the current offshore exploration, drilling and production activities in virtually all parts of the world. Virtually everything used in the Hydrocarbon Processing Industry will burn or explode and the potential fire/explosion hazards are probably greater than in any other industry. It is impossible to separate fire and explosion. They are inter-linked. High temperatures and pressures are used in most processes; exothermic reactions are commonplace and the inventories of flammable liquids and gases are large. Look at the disastrous results in Belgium where an explosion seriously damaged a high-pressure polyethylene plant and thereafter the catastrophe in Holland involving an ethylene plant - all happened during 70s. In all these incidents people were killed and they are the timely reminder to us all of the enormous fire/explosions potential associated with the Petrochemical Industry. It is just that we always hear about the catastrophes and never hear of the Plants which have operated for many years without a major incident. I would like to stress that we should keep the major catastrophic or near catastrophic incidents always in perspective.

Insurance industry recognizes that the Hydrocarbon Processing Industry wants to make its products safely and economically and also pay as low a premium for insurance as possible commensurate with the appropriate

cover. The Hydrocarbon Processing Industry has always obtained special consideration from the insurance market because of size, technical know-how, expertise and premium income generation. But the fire and explosion potential associated with the Hydrocarbon Processing Industry is enormous. The 'Flixborough' disaster in 1974 in which 29 people were killed and more than 60 injured is only one example of a number of impactful disasters which have demonstrated this catastrophe potential.

The Hydrocarbon Processing Industry with particular reference to the problems associated with the underwriting of these risks where emphasis that fire insurers place is a sound loss preventions policy. Usually, fire and explosions are the outcome of a combination of circumstances very often quite normal and commonplace which through not independently dangerous will inevitably lead to an outbreak of fire and/or explosions, if they occur together. The human element, by some act or omission, is usually present and it is true to say that a high proportion of fires and explosions in the Hydrocarbon Processing Industries are the result of human errors rather than faults of the actual processes.

What are the factors which concern with the fire underwriter when considering insurance cover for the Refinery/Hydrocarbon Processing Industry? We need to bear in mind of course that the fire underwriter's attitude towards these risks is influenced by the various world-wide catastrophes that I have already referred. After analyzing the various loss reports on these incidents, the underwriter may be well aware of the causes of these fires/explosions and the contributory factors which have led by the catastrophes.

So, the features that underwriter needs to focus are:

1. Design & layout;
2. Size;
3. Process;
4. Maintenance & Operating Procedures;
5. Risk Exposure;
6. Fire Prevention Plans;
7. Fire Protection Provisions/ Availability of Mutual Aid Facility with the neighboring industries,
8. Tremendous Concentration/ Accumulation of Property Values involved therein.

Safety Aspects

Due to the processing of flammable and explosive hydrocarbons at high pressure and temperatures considerable hazards will be created which require particular safety measures. Important safety features of Hydrocarbon Processing Plants are the careful design, proper plant layout and spacing of process units, storage facilities, tank farms, loading and unloading facilities, etc.

Definitely large distance between units, tanks, buildings, etc. reduce the risk of fire spread and the effect of violent explosions. Our Indian Petrochemical Erstwhile Tariff/Current Guidelines suggest the distance stipulation as below:

Sl. No.	Plants / Storages / Utilities	Distance stipulation (in Meters)
1.	Between plants / process units	
	A. High hazard to high hazard	35
	B. High hazard to low hazard	30
	C. Low hazard to low hazard	20
2.	Between Plant and tanks/gas holders	25
3.	Between Plant and liquefied/pressurized hydrocarbon /substituted hydrocarbon/ hydrogen spheres or bullets	50
4.	Between Plant and utilities, auxiliaries, miscellaneous buildings and stocks in open	15
5.	Between tanks /gasholders and liquefied / pressurized hydrocarbon/substituted hydrocarbon/ hydrogen spheres or bullets	25
6.	Between tanks/gasholders and utilities, auxiliaries, miscellaneous buildings and stocks in open	15

Sl. No.	Plants / Storages / Utilities	Distance stipulation (in Meters)
7.	Between liquefied/pressurized hydrocarbon/ substituted hydrocarbon/ hydrogen spheres/ bullets and utilities, auxiliaries, miscellaneous buildings and stocks in open	50
8.	Between two tanks/gas holders	15 or diameter of largest tank whichever is more.

Worldwide, the Minimum Spacing Standard for Refineries, Petrochemical Plants, etc., was initially recommended by the Oil Insurance Association, Chicago. The internationally recognized Standards of the American Petroleum Institute, the British Institute of Petroleum and the National Fire Protection Association of the United States are Codes used by contractors and oil companies which do not have their own codes of practice for their global tender. The proper layout of process furnaces with open burners and pressurized plant units such as compressors, pumps, distillation facilities, etc. for instance in olefins plants is of special importance for the reduction of explosions hazards and prevention of losses. The distance should be as large as possible and care should be taken as to the prevailing wind direction in order to prevent vapour and gas clouds to be drifted towards the fired heaters. The destructive force of explosions must also be taken into consideration when designing the location, and constriction type of the control buildings which must be considered to be the heart of the plant. Due to the location usually close to process units this control buildings must be constructed explosion-proof that is without windows to withstand the explosion waves and to guarantee safe shutdown of the plant in case of emergency. One of the afore-mentioned losses revealed that it is necessary to provide control rooms with a slightly controlled overpressure to avoid explosive gases from entering into it. Safe operation of the plant requires underground cabling from the control room to the process units, instead of laying unprotected cables above ground onto cable racks/trenches. The fireproofing of important necessary above ground electrical cables and instrument cabling in high-risk areas can prevent involvement of other plant.

Fireproofing of critical strictures and equipment is a valuable tool in helping to prevent escalation of fires ranging from all structural steel and vessels in the process area to selected items which are in the high-risk areas and/or could cause serious escalation by collapse or rupture in a fire situation such as load bearing constructional members of pipe racks, supports of spherical tanks and process units. The best way of protecting entire buildings or rooms facing to the outside of a building from the destructive force of explosions is to use pressure venting elements such as light windows, doors, walls or ceiling. By means of such systems, the pressure waves can be released into the open without doing any serious damage. This so-called venting principle is found quite often in plants where explosions may be expected. It is of course better to avoid the accumulation of explosive gases or vapours by providing open air plants or properly designed ventilation systems for instance in reactor buildings. The design of Hydrocarbon Processing Plants should provide the installation of plant security and emergency systems such as properly designed pressure relieving devices at pressurized items such as distillation columns, vessels and tanks which discharge over-pressure directly into the open or into flare systems.

Safety devices should be checked and overhauled regularly to protect equipment from over-pressurizing. It may also be necessary in certain cases to depressurize process equipment and remove hydrocarbon under emergency conditions. Therefore, one should provide remotely controlled quick operating depressurizing valves. Thus, it is possible to stop, or instance, a vessel heated by a fire from cracking due to rapid internal pressure build-up. The depressurizing valves should also discharge into a pipelines system which conducts gases to a vent or flare or in case of liquids into knock-out drums situated at a sage location. The blow down or flare

system is designed as to lead off the discharging gases of the safety valves in a collecting pipeline.

Numerous losses have shown that explosions will occur in petrochemical plants more often than pure remarkable fires. Usually, such explosions are attributable to leaky apparatus and pipes and to the consequent formation of gaseous or vapour clouds which then ignite in contact with hot parts or open flames such as those in adjacent process furnaces. In order to avoid such hazards, definitely the protective measures should be taken. Fixed installed gas detectors should be available to inform the control room automatically whenever there is a dangerous concentration of gases and vapours in the process or tank area.

So-called steam curtains may be provided between the process furnaces and the other parts of the plant in order to prevent hydrocarbon gas clouds from coming into contact with any source of ignition. By means of these steam curtains a gas cloud can be safety discharged upwards into the atmosphere, or it may be rarefied to such an extent that there is no further danger of ignition.

Vessels and apparatus should preferably be fitted with pressure release devices such as glass planes, bursting discs or explosions shutters, apart from they should be designed explosion-proof from the very beginning. It should be noted here that the formation of an explosive hydrocarbon/air mixture in reactors etc. can be prevented by applying a protective (inert) gas atmosphere. In vessels, apparatus and pipes an explosion in the initial stage can be suppressed by dispersing an extinguishing agent.

Hazards Involved

The hydrocarbon processing industry is generally of gigantic size as compared to the normal chemical industry. The industry is susceptible to the risk of catastrophic financial losses because of:

a. Its enormous concentration of capital investment

b. The magnitude of its earnings;

c. The inherent fire and explosion hazards of hydrocarbon processes and products.

Today's trend towards "JUMBOIZING" the plant and storage capacities of hydrocarbon processing industry has further enhanced the risk potential of the industry. This puts an added responsibility on the shoulders of the Under-writer.

For sound underwriting practice, the fire insurer must:

a. Keep abreast of fast changing technical developments.

b. Have highly trained and specialized Engineers for risk assessment, loss prevention and risk identification

c. Have thorough knowledge of risk management techniques.

From the fire and explosion hazard point of view, hydrocarbon processing complex can be divided broadly into five identifiable areas as under:

a. Process Plants/Production Units

b. Bulk Tanks / Tank Farms

c. Utilities/Auxiliaries, Miscellaneous Buildings

d. Material Handling facilities like loading/unloading areas and Warehouses

e. Flares and Waste disposals

Before considering the hazards associated with the above identifiable areas, due consideration must also be given to the layout and site preparations for a hydrocarbon processing complex.

Considerations on Site Preparation, Design & Layout

Firstly, the site which should be large enough to accommodate the proposed developments and to avoid congestion – considering for the entire proposed project plus future expansions. The prevailing wind direction and strength also needs to be considered. In consideration the possibilities of fire spread on the site, allowances should be made for the velocity and direction of the prevailing wind. As fire may spread from the adjoining or nearby premises, the risk can be minimized by providing a clear space between the risk and the neighboring premises. Where the adjoining area is a waste land, hazards are not absent since an accident fire can set fire to the dried vegetation. To minimize this

hazard, the growth of vegetation in open space may be controlled and a boundary wall as an effective fire break may be constructed.

Since the majority of hydrocarbons are heavier than air (vapour density > 1), then tend to flow like liquids along the earth's surface and if ignited, can flash back considerable distance to the source of leak which is usually the Plant or Storage Tank. They can also be accumulated in hollows, gullies, trenches, etc. up to hazardous concentration. In order to avoid such accumulation, it is advisable to choose a site with a leveled ground.

Process plants pose the highest hazard potential. So, adequate separating distances should be maintained between "Process Plants" and Tank farms/bulk tanks, liquefied pressurized hydrocarbon storage areas and Utilities, auxiliaries and miscellaneous buildings. Also, adequate separating distance should be maintained between various processing units of differential hazards.

A processing unit can be grouped together according to flammable materials handled i.e., as per their degree of hazards. Example - High pressure gas and liquefied petroleum gas processing units should be grouped together.

Bulk storage tanks/tank farms contain very huge quantities of hydrocarbon fluids. The intensity of fire and explosion in the Tank farm is, therefore, very severe. The elevation of bulk storage tank is equally important. Usually, they should be at a lower elevation as compared to the processing units in order to avoid flow of huge quantities of hydrocarbon fluids towards the processing units.

Insurance Norms

Standard Fire and Special perils Policy shall be issued in India to cover manufacturing risks, storage risks and miscellaneous blocks of the Refineries/Hydrocarbon Industries ratable under the Tariff/Guidelines as available –

a) For risks using Class A and/or Class B hydrocarbon/natural gas as basic raw materials and

b) Where the total sum insured in one compound/complex exceeds Rs. 50 Crores and

c) The sum insured of plant(s) using hydrocarbon (Class A/Class B) /natural gas as basic raw materials are in excess of 35% of the total sum insured of the risk.

d) Insurance Guidelines prescribe separate rates of premium, warranties, terms, conditions & regulations for different sections/ blocks as per various provisions.

e) Following types of risks are excluded from the scope of this Petrochemical Tariff/ Guidelines:

   (i) Plants whose basic raw materials are not hydrocarbons although the units constituting the plant may be manufacturing Class A/B hydrocarbons or further processing them to make a final product.

   (ii) Bottling plants of LPG and similar materials located outside the refinery premises.

Excess amount applicable for the Petrochemical Risk Insurance is 5% of the claim amount subject to minimum of Rs. 5 lakhs resulting from each and every loss in Material Damage Insurance for all perils. The excess is applicable per Event per Insured per Policy.

Minimum requirements for granting cover under Petrochemical Guidelines are as below:

1. **Fire Protection:** Plant area should be protected with hand appliances in accordance with Section 4 of the Fire Protection Manual and hydrant service complying with rules according to the Hazard Classification of Fire Protection Manual. All hazardous storage areas and tank farms should be protected by effective hydrant service.

2. Electrical Installation throughout the premises should comply with by using co-axial cables or using metal conduit with fireproof coating thereon and all the motors to be Totally Closed Fan Cooled (TCFC) type.

While Summing Up

We need to remember that the replacement cost of damaged property is not the only measurement of the magnitude of the economic loss. More important is the loss of earnings, production markets, and goodwill. Overall impact of a

major catastrophe in the Refinery / Hydrocarbon Processing Industry can disturb not only the Indian National economy but also the international economy.

There should be a definite Loss Prevention policy and plan for the Hydrocarbon Processing Industry. Provision should be made for supervision and safeguarding of not only property but also the personnel involved in the processes. Such a Loss Prevention policy when initiated should get goals, offer incentives and outline responsibilities.

Within the Hydrocarbon Processing Industry, we know that a large measure of in-built safety must exist otherwise the plants would not be able to operate safely. In the long term, insurance merely spreads the financial loss over a period of time. A company in the Hydrocarbon Processing Industry pays insurance premiums which reflect to a great degree the past loss experience of the industry and the future loss potentials. Insurance premiums contain two main components. First, a percentage reserved for the payment of losses and the other for the expenses and profits of the insurance company. What is perhaps special about the Hydrocarbon processing industry is that the catastrophe potential is hugely associated. So in spite of all precautions taken in design, layout and for installation, it is impossible to make a plant full proof.

One aspect currently causes us some concern is the question of instrumentation. Within the Hydrocarbon Processing Industry, instrumentation is becoming increasingly more sophisticated. As a result, the maintenance of this instrumentation often incorporating fail-safe and cut-out devices becomes ever more important. It is probably true to say that the instrumental maintenance and supervisory staff in the Hydrocarbon Processing Industry is today almost as important as the process operational staff.

As a general philosophy, the entire workforce from top management downwards must have an awareness and alertness at all times to the needs of safety, particularly when there are signs and symptoms in the plant of something different, for example different noise level or pitch, unusual vibration, abnormal vapours and smells, hot bearings etc.

In talking about loss prevention/ control through people, there is no doubt that “attitude” is the key to applying awareness and understanding – “attitude” encompasses the desired willingness to respond to a situation requiring action. Some operators think that they know it all and regard, for example, simulated exercises as a waste of time believing that they can respond adequately enough in a time of crisis. They may be right, but all too often you will find they have reached this happy state because of too many real (routine) incidents in the past which could and should have been avoided.

TJ

Reference

Different contemporary Global/Indian Regulations, Indian Petrochemical Tariff/ Current Underwriting Guidelines, discussions/information as collected/collated from various text materials available on-line & in hard copies.

Evaluating the Efficacy of Crop Insurance Schemes in India – An Operational Proficiency Analysis

Rudramuni P. B.
rudramunipbctd@gmail.com

Rudramuni P. B. is a research scholar in the Department of Commerce, at Kuvempu University. He holds an M. Com in Accounting and Taxation and possesses 2 years of experience in teaching and 1.5 years of experience in Research. Presently Pursuing a Ph.D. in Crop Insurance. He published more than ten research papers in reputed journals.

Prof. S. Venkatesh
drvenki@yahoo.co.in

Prof. S. Venkatesh is presently working as a Professor at Kuvempu University. He has 25 years of teaching and 2 decades of research experience. Professor holds a Ph.D. in the field of finance. Professor holds a prominent position as Chairman of the Department of Commerce, and Dean of the Faculty of Commerce at Kuvempu University. The professor has guided 18 Ph.D. and 10 M.Phil., scholars in leading their research degrees. Presently 8 scholars are working under his guidance.

Abstract

The objective of the present research paper is to evaluate the efficacy of crop insurance schemes in India, with a specific focus on their performance. The relevant statistics are collected for a period of six years, from 2018 to 2023. The descriptive statistics and CAGR are employed to evaluate the farmer's enrolment, sum insured, and premium collected from Farmers, state/UT, and GOI. Testing of hypotheses made with the help of one sample t-test, paired sample t-test, and correlation.

The study found that farmers' enrollment is higher in the kharif season than in the rabi season, and the overall farmer's participation, and sum insured, premium of farmers, State/UT, and GOI in crop insurance schemes is reduced during the study period, which is evidenced by the negative CAGR. There is a consistent decline in farmers' participation in crop insurance schemes which is evidenced by negative CAGR and supported by hypotheses testing.

Keywords

Agriculture, Crop Insurance, Kharif, Rabi, Premium and Sum Insured.

Abbreviations

- PMFBY – Pradhan Mantri Fasal Bima Yojana
- RWBCIS – Restructured Weather-Based Crop Insurance Scheme
- CAGR – Compound Annual Growth Rate
- GOI – Government of India
- UT - Union Territory
- CAGR – Compound Annual Growth Rate

Introduction

Crop insurance schemes play a pivotal role in mitigating the financial risks faced by farmers in the agricultural sector. In India, where agriculture is a predominant livelihood for a significant population, the efficacy of crop insurance schemes holds paramount importance. The agricultural landscape is inherently susceptible to various risks such as adverse weather conditions, pest attacks, and market fluctuations, all of which can significantly impact crop yields and farmer incomes.

Recognizing farmers' vulnerability to these risks, the Indian government has implemented various crop insurance schemes over the years to safeguard the economic interests of farmers.

The objective of this research paper is to conduct a comprehensive evaluation of the efficacy of crop insurance schemes in India, with a specific focus on their performance. The study aims to analyze the effectiveness of these schemes on the agricultural sector. By assessing the performance of crop insurance schemes, the research endeavors to provide insights into their ability to fulfill the intended objectives, improve resilience among farmers, and contribute to the sustainable development of the agricultural economy.

In summary, this research paper will contribute to the existing body of knowledge on crop insurance in India by conducting a rigorous evaluation of the performance of crop insurance schemes. By identifying areas of improvement and assessing their overall effectiveness, the research aims to inform policymakers, and agricultural stakeholders, fostering a more resilient and sustainable agricultural sector in the country.

The present research paper has been organized in the following order, Introduction, Literature Review, Research Gap, Research Objectives, Research Hypotheses, Materials and Methods, Results, and Discussions, Testing of Hypotheses and Recommendations, followed by Concluding Remarks.

Literature Review

Parthiban & Anjugam (2023) The study attempted to summarize the various crop insurance plans available in India since the commencement of crop insurance. According to the study, the total amount of premiums paid by farmers had a significant effect on the total number of farmers who received insurance over the course of the investigation.

Meuwissen et al., (2023) The authors looked at how crop insurance prices in Europe were impacted by World Trade Organization (WTO) policies. The decision to eliminate the government-financed agricultural insurance program was influenced by WTO regulations. It suggests some sort of income insurance policy to lessen the risk. The fact that crop insurance policy approaches have altered dramatically in Europe is the most crucial piece of information presented in this section. The primary problems are privatization and the challenges the public sector faces in providing crop insurance. India's crop insurance is comparable to that of wealthy European countries.

Nagesh et al., (2022) The authors assessed the challenges that the farmers in Andra Pradesh's Srikakulam district faced. The main challenges faced by farmers were a lack of knowledge about PMFBY, restricted awareness of the benefits of crop insurance, late payment, variable premium rates for different crops, electronic enrollment and risk assessment, and complicated, high-cost premiums. The study recommended holding PMFBY training sessions in addition to expediting the registration process.

Meena et al., (2022) The study looked at farmers' attitudes and knowledge of PMFBY in Maharashtra's Washim district. According to the survey, most of the respondents have a moderate attitude and a medium level of understanding of PMFBY. In addition, the majority of responders have positive opinions about the plan.

Research Gap

A few other researchers have concentrated on different features and elements of crop insurance. Nevertheless, no study has attempted to assess the crop insurance schemes (PMFBY and RWBCIS) in India by considering the enrolment of agriculturalists, the premiums paid by different stakeholders, and the total insured amount. Thus, the goal of the current study is to fulfill as much of this research gap as possible.

Research Objectives

1. To evaluate and compare the farmer's enrolment in the kharif and rabi seasons during the study period.
2. To determine the growth rate of farmers' enrolment during the study period.
3. To analyze the relationship between crop insurance premiums in different agriculture seasons.
4. To appraise and compare the Sum insured status in the kharif and rabi seasons during the study period.

Research Hypotheses

1. **H_0:** There is no significant difference in farmers' enrollment in the kharif and rabi Seasons during the study period.
2. **H_0:** There is no statistically significant growth in farmers' enrollment during the study period.
3. **H_0:** There is no significant relationship between the Kharif Season crop insurance premium and the rabi season crop insurance premium.
4. **H_0:** There is no significant relationship between the kharif season sum insured and the rabi season sum insured amount.

Materials and Methods

This research primarily aims at assessing the efficacy of crop insurance schemes. For the evaluation and analysis, three variables are used. They are (i) farmers enrolment under the crop insurance schemes and (ii) Farmers, State/UT, Government of India premium (iii) Sum insured. Each of these variables is used from the points of view of both the kharif and rabi seasons.

The major source of data for this study is the website of Pradhan Mantri Fasal Bima Yojana. Necessary data are also collected from a few other secondary sources such as books, published research papers, government publications, etc.

To evaluate the efficacy of crop insurance schemes in India. performance statistics of crop insurance schemes for a period of 6 years, 2018 to 2023, are collected and used. Further, analyzing and testing of hypotheses, a few descriptive statistics such as Mean, Standard Deviation (SD), Coefficient of Variation (CV), Skewness, etc., one sample t-test and paired sample t-test besides the Percentage and Compound Annual Growth Rate (CAGR) are used.

Results and Discussions

Against the above backdrop, the performance of crop insurance schemes in the kharif as compared to rabi is examined. And the relevant performance statistics on all two variables for six years are presented below.

(1) Farmers Enrollment

It may be noted here that the number of farmers enrolled (participated) in crop insurance schemes signifies the efficacy of crop insurance schemes. In this background, based on the data about farmers' enrollment following table (Table – 1) is prepared. Further, a few descriptive statistics are presented in Table – 2 for analysis.

Table – 1: Farmers enrollment in crop insurance schemes (2018 – 2023)

Year	Kharif	%	Rabi	%	Total
2018	2,16,63,839	59.59	1,46,85,273	40.41	3,63,49,112
2019	2,00,50,883	67.49	96,60,447	32.51	2,97,11,330
2020	1,68,70,111	62.77	1,00,07,561	37.23	2,68,77,672
2021	1,50,95,011	60.61	98,09,873	39.39	2,49,04,884
2022	1,79,55,622	62.27	1,08,81,229	37.73	2,88,36,851
2023	2,00,41,532	72.33	76,66,061	27.67	2,77,07,593
Total	**11,16,76,998**	**64.04**	**6,27,10,444**	**35.96**	**17,43,87,442**

Source: Data Compiled from the PMFBY website.

Table – 2: Descriptive statistics and CAGR for farmers enrollment in crop insurance schemes

Season	Sum	Mean	Standard Deviation	Skewness	Coefficient of Variation	CAGR
Kharif	11,16,76,998	18612833	2419168.623	-0.3140117	12.99	-0.0129
Rabi	6,27,10,444	10451740.67	2328205.437	1.271575663	22.27	-0.1027
Total	17,43,87,442	29064573.67	3936028.548	1.485167569	13.54	-0.0442

Source: SPSS Output

During this 6-year study period, 11,16,76,998 farmers enrolled in Kharif season which works out to 1,86,12,833 farmers enrollment per annum. The number of farmers enrollment varied between 1,50,95,011 farmers (2021) and 2,16,63,839 farmers (2018) with a CV of 12.99% (and SD of 24,19,168 farmers) indicating no wide variation in the farmer's enrollment in the crop

insurance scheme from year to year during the study period. The CAGR is negative at -0.0129 % denoting the overall reduction in farmer enrollment, this is also supported by the negative skewness value (-0.3140117) signifying that the number of farmers enrolled is skewed towards a negative value than a positive value during the study period.

On the other hand, in the case of the rabi season, the number of farmers enrolled in crop insurance schemes is 6,27,10,444, and during these 6 years, 10451740.67 per annum of rabi season. And the number of farmers enrollment varied between 76,66,061 farmers (2023) and 1,46,85,273 farmers (2018). As the CV is 22.27% (and SD is 2328205.437 farmers), there is no wide variation in the number of farmers enrolled in crop insurance schemes during the study period. However, CAGR is negative at -0.1027 and this indicates an overall reduction in the number of farmers enrollment. The positive skewness value of, 1.271575663 indicates that the number of farmers enrolled in the crop insurance scheme is skewed towards positive value than negative value during the study period.

In overall, in the case of the total of farmers enrolled during the study period, 17,43,87,442 farmers enrolled, which works out to 29064573.67 farmers enrolled per annum. The total number of farmers who participated in the crop insurance scheme varied between 1,46,85,273 farmers (2021) and 3,63,49,112 farmers (2018). As the CV is 13.54% (and SD is 3936028.548 farmers), indicates that there is no wide variation in farmers enrolled in crop insurance schemes during the study period. However, the CAGR is negative at -0.0442 and this indicates that overall reduction in the farmer's participation during the study period. The positive skewness value of 1.485167569 indicates that the number of farmers who participated in the crop insurance scheme is skewed towards positive value than the negative value during the study period.

Despite these two negative CAGR trends, in all the years of the study period, farmer's enrollment is higher in the kharif season than in the rabi season. The above analysis points out that farmers' enrollment is attaching comparatively more importance to the kharif season.

(ii) Farmers, State/UT, and Government of India premium

Table 3: Crop Insurance Premium Status (2018 – 2023) (Amount in Lakhs)

Year	Kharif Season			Rabi Season		
	Farmers Premium	State/UT Premium	GOI Premium	Farmers Premium	State/UT Premium	GOI Premium
2018	2,61,310	7,45,134	7,18,461	1,61,533	3,32,096	3,21,600
2019	2,48,347	9,09,110	8,18,686	1,33,650	3,25,103	3,18,554
2020	2,43,796	8,43,204	8,05,339	1,42,261	5,34,433	4,31,007
2021	2,13,472	7,68,761	7,35,839	1,38,520	5,28,941	4,40,190
2022	2,29,461	8,05,314	7,37,779	1,43,365	5,42,499	4,19,757
2023	1,45,274	8,60,173	6,90,004	81,736	2,81,404	2,33,462
Total	**13,41,660**	**49,31,696**	**45,06,108**	**8,01,065**	**25,44,476**	**21,64,570**

Source: Data Compiled from the PMFBY website

Table 4: Descriptive statistics and CAGR for Crop Insurance Premium Status

Season/ Statistic/ Premium	Kharif				
	Mean	Standard Deviation	Skewness	Coefficient of variation	CAGR
Farmers Premium	223610	41747.39730	-1.668	18.67	-0.0932129
State/UT Premium	821949.33	60854.12051	.159	7.40	0.02421682
GOI Premium	751018	50434.25200	.474	6.71	-0.006713

Season/ Statistic/ Premium	Rabi				
	Mean	Standard Deviation	Skewness	Coefficient of Variation	CAGR
Farmers Premium	133510.83	27072.70333	-1.739	20.28	-0.1073278
State/UT Premium	424079.33	123134.57455	-.079	29.03	-0.0272279
GOI Premium	360761.66	82757.53107	-.606	22.94	-0.051982

Source: SPSS Output

Kharif Season

In the Kharif season, the mean farmers' premium is estimated at approximately Rs. 223,610. The standard deviation of approximately Rs. 41,747 signifies a moderate degree of variability in the distribution of farmers' premiums. The negative skewness value of -1.668 indicates a leftward skew in the premium distribution, suggesting that a majority of premiums are concentrated towards the higher end. The coefficient of variance (CV), calculated at 18.67%, denotes a moderate level of relative variability in farmers' premiums. Additionally, the negative Compound Annual Growth Rate (CAGR) of -0.0932129 implies a minor annual decrease in farmers' premiums over the specified period.

In the context of State/UT premiums, the mean is approximately Rs. 821,949.33, reflecting the central tendency of the distribution. The relatively low standard deviation of Rs. 60,854.12051 points to a distribution with less variability, indicating a more stable pattern in State/UT premiums. The positive skewness value of 0.159 implies a slight rightward skew, suggesting a tendency for some higher premium values. With a coefficient of variance (CV) calculated at 7.40%, there exists a moderate level of relative variability in State/UT premiums. Furthermore, the positive Compound Annual Growth Rate (CAGR) of 0.02421682 indicates a gradual annual increase in State/UT premiums over the specified period.

In the case of the Government of India (GOI) premiums, the mean is approximately Rs. 751,018, representing the central tendency of the premium distribution. The standard deviation, measuring around Rs. 50,434.25200, points to a moderate degree of variability in GOI premiums, indicating fluctuations around the mean. The positive skewness value of 0.474 suggests a rightward skew in the premium distribution, indicating the presence of relatively higher premium values. With a coefficient of variation (CV) calculated at 6.71%, there exists a relatively low level of relative variability in GOI premiums, signaling a more stable pattern. Additionally, the negative Compound Annual Growth Rate (CAGR) of -0.006713 implies a minor annual decrease in GOI premiums over the specified period.

Rabi season

In the context of the rabi season, the mean farmers' premium is approximately Rs. 133,510.83, serving as a measure of central tendency in the premium distribution. The standard deviation, totaling Rs. 27,072.70333, suggests a moderate degree of variability in farmers' premiums, reflecting fluctuations around the mean. The negative skewness value of -1.739 points to a more pronounced leftward skew in the premium distribution, indicating an extended tail towards lower premium values. With a coefficient of variation (CV) calculated at 20.28%, there exists a relatively high level of relative variability in rabi season farmers' premiums. Furthermore, the negative Compound Annual Growth Rate (CAGR) of -0.1073278 implies a notable annual decrease in farmers' premiums over the specified period.

In the context of State/UT premiums during the Rabi season, the mean is approximately Rs. 424,079.33, signifying the central tendency of the premium distribution. The high standard deviation of Rs. 123,134.57455 suggests a considerable degree of variability in State/UT premiums, indicating substantial fluctuations around the mean. The slight negative skewness value of -0.079 implies a minor leftward skew in the premium distribution, suggesting a relatively longer tail towards lower premium values. With a coefficient of variation

(CV) calculated at 29.03%, there exists a high level of relative variability in State/UT premiums. Additionally, the negative Compound Annual Growth Rate (CAGR) of -0.0272279 implies a slight annual decrease in State/UT premiums over the specified period.

Concerning the Government of India (GOI) premiums during the rabi season, the mean is approximately Rs. 360,761.66, representing the central tendency in the premium distribution. The substantial standard deviation of Rs. 82,757.53107 suggests a noteworthy degree of variability in GOI premiums, indicating considerable fluctuations around the mean. The negative skewness value of -0.606 indicates a leftward skew in the premium distribution, suggesting a relatively longer tail towards lower premium values. With a coefficient of variation (CV) calculated at 22.94%, there exists a relatively high level of relative variability in GOI premiums. Additionally, the negative Compound Annual Growth Rate (CAGR) of -0.051982 implies a moderate annual decrease in GOI premiums over the specified period.

In summary, the analysis reveals distinct patterns in premium distributions across the kharif and rabi seasons. Kharif consistently exhibits higher premiums than Rabi across all categories. Farmers' premiums in both seasons display a leftward skewness, indicating a prevalence of lower premium values among the majority. State/UT premiums exhibit a more stable and right-skewed distribution in Kharif, whereas, in Rabi, they showcase a leftward skew with higher variability. GOI premiums, on the other hand, demonstrate a moderate to high level of variability, displaying both rightward and leftward skewness in different seasons.

(iii) Sum insured in crop insurance schemes

Table 5: Sum Insured status (2018 – 2023)

Season/ Year	Kharif	Rabi	Total	Few Descriptive Statistics and CAGR		
	Sum Insured	Sum Insured		Statistic	Kharif	Rabi
2018	1,24,06,740	92,60,432	21667172	**Sum**	7,17,84,332	4,76,05,095
2019	1,34,23,181	71,86,703	20609884	**Mean**	11964055.33	7934182.50
2020	1,10,26,990	84,41,115	19468105	**Standard Deviation**	1462691.91566	1114198.01700
2021	96,31,876	78,60,763	17492639	**Skewness**	-.707	-.638
2022	1,18,99,364	86,75,998	20575362	**Coefficient of Variation**	12.22	14.04
2023	1,33,96,181	61,80,084	19576265	**CAGR**	0.0128704	-0.06518174

Source: Data Compiled from the PMFBY Website and Descriptive Statistics calculated with the help of SPSS

The above table depicts the data about the Sum Insured during the study period, the total sum insured during the kharif season is Rs. 7,17,84,332 which works out to Rs. 11964055.33 per annum of the kharif season. The amount of sum insured varied between Rs. 96,31,876 (2021) and Rs. 1,34,23,181 (2019) with a CV of 12.22% (and SD of Rs.1462691.91566) indicating no wide variation in the sum insured amount from year to another during the study period. The CAGR is positive at 0.0128704 denoting the slight growth in the sum insured amount. The negative skewness value -.707 indicates that the sum insured amount is skewed towards a negative value than the positive value during the research period.

On the other hand, in the case of the rabi season total sum insured amount is Rs. 4,76,05,095 during this 6-year study period working out to Rs. 7934182.50 per annum of rabi season. As the CV is 14.40% (and SD is Rs.1114198.01700), there is no wide variation in the sum insured amount. However, the CAGR is negative at -0.06518174 and this indicates that overall reduction in the sum insured amount. The skewness value of -.638 indicates that the amount of sum insured is skewed towards negative value rather than positive value during the study period.

Testing of Hypotheses

H_0: There is no significant difference in farmer enrollment in Kharif and Rabi Seasons during the Study Period.

Table No. 6
[Paired Sample t-test (Number of Cases or Observations (N) = 6, Degree of freedom (df) N-1 =5)]

Season	Mean	Standard Deviation	't' Value	'P' Value or Significant value	Decision made to the null hypothesis
Kharif	8161092.333	2655845.260	7.527	.001**	Rejected
Rabi					

Source: SPSS Output Note: Significant level at 1%

The above table outcome highlights the farmer's participation in the kharif and rabi season during the study period. To examine the difference in farmer participation between the kharif and rabi season paired sample t-test has been carried out. Since the p-value is less than 0.01, the null hypothesis "There is no significant difference in farmer enrollment in kharif and rabi seasons during the study period" is rejected at a 1% significant level and concluded that there is a significant difference in farmers enrollment in kharif and rabi season during the study period.

H_0: There is no statistically significant growth in farmers enrollment during the study period

Table - 7
[One Sample t-test (Number of Cases or Observations (N) = 6, Degree of freedom (df) N-1 =5)]

Particulars	Mean	Standard Deviation	't' Value	'p' Value or Significant value	Decision made to the null hypothesis
Total No. of farmers Enrolled	29064573.67	3936028.548	18.088	.000**	Rejected

Source: SPSS Output Note: Significant level at 1%

The above table depicts the farmer's enrollment in crop insurance schemes during the study period. To examine whether is there any statistically significant growth in farmer's participation in crop insurance schemes during the study period one sample t-test has been employed. Since the p-value is less than 0.01, the null hypothesis "There is no statistically significant growth in farmers enrollment during the study period" is rejected at a 1% significant level and concludes that there is statistically significant growth in farmers enrollment during the study period, but the significant growth is in terms of negative, the result also supported by negative CAGR value at -0.0442 (Table – 2).

State/UT Premium in Kharif Season:

The Pearson correlation coefficient between State/UT Premiums and Farmer's Premiums in the Kharif Season is -0.225, indicating a weak negative correlation. However, the associated p-value of 0.668 suggests that this correlation is not statistically significant. Consequently, there is insufficient evidence to assert the presence of a strong linear relationship between State/UT premiums and farmer's premiums in the kharif Season. The weak negative correlation implies that, on average, as one variable increases, the other tends to decrease slightly, but this trend is not strong enough to be considered statistically significant based on the given p-value.

GOI Premium in Kharif Season

The correlation coefficients between farmer's Premiums and State/UT Premiums in the kharif Season are 0.608 and 0.538, respectively. These

H_0: There is no significant relationship between Kharif Season crop insurance premium and Rabi Season crop insurance premium.

Table –8

[(Karl Pearson Correlation (Number of Cases or Observations (N) =6)]

Correlations							
		Farmer's Premium in Kharif Season	State/UT Premium in Kharif Season	GOI Premium in Kharif Season	Farmer's Premium in Rabi Season	State/UT Premium in Rabi Season	GOI Premium in Rabi Season
Farmer's Premium in Kharif Season	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	6					
State/UT Premium in Kharif Season	Pearson Correlation	-.225	1				
	Sig. (2-tailed)	**.668**					
	N	6	6				
GOI Premium in Kharif Season	Pearson Correlation	.608	.538	1			
	Sig. (2-tailed)	**.201**	**.271**				
	N	6	6	6			
Farmers Premium in Rabi Season	Pearson Correlation	.938**	-.530	.370	1		
	Sig. (2-tailed)	**.006**	**.280**	**.471**			
	N	6	6	6	6		
State/UT Premium in Rabi Season	Pearson Correlation	.277	-.326	.252	.447	1	
	Sig. (2-tailed)	**.595**	**.528**	**.629**	**.374**		
	N	6	6	6	6	6	
GOI Premium in Rabi Season	Pearson Correlation	.487	-.367	.384	.632	.962**	1
	Sig. (2-tailed)	**.327**	**.474**	**.452**	**.178**	**.002**	
	N	6	6	6	6	6	6
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: SPSS Output

values suggest moderate positive correlations, indicating that there is a tendency for both variables to increase together. However, it is noteworthy that these correlations are not statistically significant, as evidenced by the associated p-values being greater than 0.05. Therefore, there is insufficient evidence to establish a robust and statistically significant linear relationship between farmer's premiums and State/UT premiums in the kharif season. The lack of statistical significance implies that the observed correlations may be due to random variation rather than a systematic association between the two variables.

Farmers' Premium in the Rabi season

A substantial and statistically significant positive correlation of 0.938 is observed between farmer's

premiums in the rabi Season and farmer's premiums in the kharif season. The strength of this correlation, coupled with its statistical significance at the 0.01 level, indicates a robust and consistent linear relationship between the premium values in the two seasons. This implies that as a farmer's premium in one season increases or decreases, there is a strong tendency for a corresponding increase or decrease in farmer premium in the other season. The high level of correlation suggests a stable and predictable pattern in farmers' premium payments across both the kharif and rabi seasons.

State/UT Premium in Rabi Season

The correlation coefficients with farmer's premium in the rabi season range from -0.326 to 0.277. However, none of these correlations are statistically significant, as indicated by the p-values exceeding 0.05. This lack of statistical significance suggests that there is no strong linear relationship between the farmer's premium in the rabi season and the other variables under consideration. The correlation coefficients, though displaying some degree of association, are not robust enough to be considered meaningful or reliable, and the observed correlations may be attributed to random variability rather than a systematic relationship.

GOI Premium in Rabi Season

Significant positive correlations are identified between GOI premium in the rabi Season and both Farmer's premium in the rabi Season (0.632) and State/UT premium in the rabi Season (0.962). The fact that these correlation coefficients are statistically significant at the 0.01 level indicates robust linear relationships between GOI premium and both farmer's premium and State/UT Premium in the rabi season. This implies that as GOI premium in the rabi season increases or decreases, there is a strong and predictable tendency for a corresponding increase or decrease in both the farmer's premium and State/UT [premium during the same season.

In a nutshell, the correlation analysis indicates that premiums in the kharif season are weakly or not significantly correlated with each other. This implies that there is a limited or negligible linear relationship among farmer's premium, State/UT premium, and GOI premium during the kharif season.

On the other hand, a robust and significant positive correlation is observed between Farmer's premiums in the rabi and kharif seasons. This suggests a consistent and predictable pattern in farmers' premium payments across both seasons, emphasizing a strong connection between premium values in these two periods. Additionally, strong positive correlations between GOI premiums in the rabi season and both farmers and State/UT premiums in the same season imply a coordinated and interconnected pattern in the variations of premiums, particularly involving the government.

H_0: There is no significant relationship between the Kharif season sum insured and Rabi Season sum insured.

Table – 9

[(Karl Pearson Correlation (Number of Cases or Observations (N) =6)]

Correlations			
		Sum Insured in Kharif Season	**Sum Insured in Rabi Season**
Sum Insured in Kharif Season	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	6	
Sum Insured in Rabi Season	Pearson Correlation	-.413	1
	Sig. (2-tailed)	.415	
	N	6	6

Source: SPSS Output

The table above assesses the correlation between the sum insured values in the kharif and rabi seasons using Karl Pearson correlation coefficients. The obtained p-value, which is greater than the significance threshold of 0.05, leads to the acceptance of the null hypothesis. The null hypothesis posits that "There is no relationship between kharif season sum insured and rabi season sum insured." Therefore, based on the statistical analysis, it is concluded that there is no statistically significant relationship between the sum insured values in the kharif and rabi seasons.

Recommendations

After the above meaningful and insightful results and discussions, the researchers presented the following recommendations to policymakers and agricultural stakeholders to improve the efficacy of crop insurance schemes.

Policymakers

1. Implement a differential premium structure, with lower premiums during the rabi season to incentivize enrollment during the rabi season.
2. Provide targeted subsidies for crop insurance premiums, with higher subsidies for crops and regions that are less frequently insured.
3. Introduce incentive mechanisms, such as bonus coverage or loyalty rewards, for farmers who consistently enrolled in crop insurance over multiple seasons, helping to bridge the enrollment gap between kharif and rabi seasons.
4. Establish an extremely low premium for farmers who are classified as living below the poverty line to enroll them in the crop insurance schemes.
5. Launch targeted campaigns to educate farmers about the benefits of crop insurance, the enrollment process, and the importance of insuring crops for both seasons.

Agricultural Stakeholders

1. Farmers should incorporate crop insurance premiums into their budgeting and financial planning for each cropping season, considering it is an essential investment in risk management.
2. Financial institutions should ensure that crop insurance products are easily available to farmers through various channels, including bank branches, mobile banking, and agent networks, especially in rural and remote areas.
3. Financial Institutions can collaborate with agricultural input suppliers and extension services to promote crop insurance among farmers and facilitate enrollment through integrated service delivery channels

Concluding Remarks

Evaluating the efficacy of crop insurance schemes in India reveals that there is a significant difference between farmers' enrollment in kharif and rabi seasons. On the other hand, there is a consistent decline in farmers' participation in crop insurance schemes. To enhance the efficacy of crop insurance schemes, there is a need for comprehensive reforms that increase awareness among farmers, streamline the claim settlement process, expand coverage to include more crops and regions, and ensure affordability for small and marginal farmers are critical steps. The study suggested establishing nodal offices at gram panchayath level to bring the small and medium farmers into crop insurance schemes also collaborative efforts between the government, insurance companies, financial institutions, and agricultural stakeholders are essential to create a more resilient and farmer-friendly crop insurance ecosystem. TJ

References

1. Krishna, T. G., Rao, B. M., & Nagesh, H. (2022). Constraints Faced by the Beneficiaries of PMFBY and Suggestions Given by Them to Overcome the Constraints in Srikakulam District of Andhra Pradesh. *Current Journal of Applied Science and Technology*, 40-43.
2. Meena, S. K., Wakle, P. K., More, S. D., Badhala, B. S., & Meena, D. K. (2022). Knowledge and Attitude of Farmers towards Pradhan Mantri Fasal Bima Yojana (PMFBY). *Asian Journal of Agricultural Extension, Economics & Sociology*, *40*(11), 562-568.
3. Meuwissen, M. P. M., Huirne, R. B. M., Skees. J. R. (2023). Income Insurance in European Agriculture, Euro Choices, 2 (1), 12-17.
4. Parthiban, J. J., & Anjugam, M. (2023). A Comparative Study on the Performance of Various Agricultural Crop Insurance Schemes of India with Special Reference to Pradhan Mantri Fasal Bima Yojana (PMFBY). *Asian Journal of Agricultural Extension, Economics & Sociology*, *41*(3), 145-153.
5. Pradhan Mantri Fasal Bima Yojana - Crop Insurance | PMFBY - Crop Insurance
6. https://www.aicofindia.com

The Future of Health Insurance: What the Coming Decade Holds For the Insurers and the Insured

Gaurav Sahni
gaurav_sahni_1983@hotmail.com

Gaurav Sahni is a competent professional with over 15 years of work experience in Health Insurance Product Development, Underwriting and Operations. Presently he is working as Associate Vice President Product Development in SBI General Insurance Company Limited, Mumbai and is responsible for Product filing and launching of Health Insurance Products.

Abstract

The global health insurance landscape is experiencing a resurgence of growth while in the midst of transformative challenges for the insurance industry. Climate change, evolving distribution channels, and changing customer expectations are reshaping an industry once characterized by stability. The COVID-19 pandemic has accelerated these challenges, intensifying the need for swift adaptations.

This article delves into the key challenges faced by the health insurance sector, emphasizing issues of trust, rising healthcare costs, competitive dynamics, and the impact of climate change. Trust deficits arise from claims denials and the perception of unnecessary expenses. Escalating healthcare costs, driven by medical inflation and premium hikes, pose substantial challenges for both insurers and policyholders. Intense competition is characterized by diverse market strategies, trust dynamics, and a general sense of risk aversion. The impact of climate change introduces multifaceted challenges for public health and the insurance sector.

Amidst these challenges, the article explores current trends shaping the health insurance industry. Changing customer expectations highlight a shift towards digital offerings and user-friendly interfaces. Globalization in health insurance caters to individuals with dynamic lifestyles, fostering increased competition and more attractive policy options. Digitization and automation, including the mainstreaming of blockchain technology and the integration of artificial intelligence, reshape operations and enhance efficiency. The convergence of the Internet of Things (IoT), telemedicine, and advanced analytics guides the creation of personalized policy products.

One significant trend is the emphasis on regulatory oversight in the face of data-driven insurance. The article discusses the potential benefits and pitfalls of insurers accessing personal health data and the role of regulators in safeguarding privacy.

The conclusion emphasizes that the future of health insurance demands a reimagining of traditional practices, innovation, and a commitment to delivering real value. As technology and insurance converge, the relationship between insurers and policyholders takes center stage, demanding a delicate balance between data-driven insights and personal privacy, facilitated by stringent regulatory oversight.

Introduction

The global health insurance market, after experiencing a phase of declining growth rate a few years back, is back to growing at 8.7% between 2022-23. From a market size of $ 6.47 trillion in 2023, it is further expected to hit $ 8.6 trillion in 2027, clocking a CAGR of 7.4% during the said period.

And yet, the insurance industry, once characterized by stability and predictability, has undergone a profound transformation as achieving growth while maintaining profitability has become increasingly challenging. The influence of climate change has irreversibly altered risk profiles,

prompting the need for adaptation. Distribution channels have evolved into truly omni-channel platforms, and customer expectations now revolve around personalized products and services. Simultaneously, technology continues its relentless advancement, and a burgeoning player ecosystem threatens to disrupt customer acquisition strategies. Consequently, industry leaders are compelled to make deliberate and bold strategic choices to thrive, as incremental changes or the hope of evading change altogether are no longer tenable alternatives.

Moreover, the COVID-19 pandemic has accelerated these challenges, reshaping customer and employee expectations in just 24 months much more than in the previous two decades. This has placed immense pressure on the insurance industry, forcing carriers to make swift and, at times, immediate adjustments. Even though the pandemic is behind us, the pace of change remains unrelenting.

In the face of ongoing disruption and the influx of new entrants seeking to exploit these changes, many insurance carriers retain a valuable competitive advantage that is not easily replicable. Regrettably, despite the recognition of their strengths, many insurers tend to underinvest in these critical areas and lack the necessary sense of urgency, resulting in a convergence towards mediocrity. It is worth noting that, unlike the past, a vague and unfocused approach is no longer tenable. Private equity firms, asset managers, and other emerging players are rapidly and meticulously capitalizing on the industry's state of flux. Companies that persist with fuzzy, three- to five-year timelines that lack a clear strategic focus are at risk of losing market share and potentially becoming acquisition targets for others.

Before we look into the trends that shape the health insurance industry today, it is worthwhile looking at the key challenges that the sector faces.

Key Challenges Faced by the Insurance Industry

1. Lack of Trust

One prevailing challenge in the health insurance sector is the pervasive lack of trust among potential policyholders. This profound distrust is a significant deterrent for many individuals when it comes to purchasing insurance. Several factors contribute to this issue:

- **Claims Denials and Benefit Denial:** A substantial portion of the skepticism towards insurance stems from the perceived reluctance of many insurance companies to honor claims and fulfill promised benefits. Individuals often recount instances where their claims were denied, or benefits were not provided as expected. This not only erodes trust but also fosters a belief that insurance companies prioritize profits over the well-being of their policyholders.
- **Perceived Unnecessary Expense:** As a direct consequence of the aforementioned trust issues, many individuals view insurance as an unnecessary expenditure. They are reluctant to allocate their hard-earned resources to insurance policies when they harbor doubts about the reliability of the insurers and the likelihood of obtaining support in times of need.

2. Rising Healthcare Costs

The escalating cost of healthcare presents a formidable challenge within the health insurance sector, affecting both insurers and policyholders. The increased cost is attributed to several factors:

- **Impact of Medical Inflation:** The relentless rise in healthcare costs year-on-year is fueled by a myriad of factors, with medical inflation being a prominent contributor. Medical inflation in India stands at an alarming rate of approximately 15 percent, far outpacing the Consumer Price Index (CPI) inflation rate, which hovers around 6 percent. This substantial variance significantly drives up the costs associated with claims for insurance companies.
- **Premium Hikes:** This point follows from the above. In recent years, premiums for medical insurance policies have experienced a substantial upswing, ranging from 10 to 25 percent over the last year. This surge can be primarily attributed to the relentless rise in healthcare costs. Factors such as medical inflation, technological innovation, and a growing awareness of the demand for improved healthcare

facilities contribute to the higher premiums.

- **Urban-Centric Healthcare Costs:** Private health insurance is predominantly embraced by individuals residing in top-tier cities, where the cost of medical treatments is notably higher. This geographical discrepancy invariably translates into elevated insurance premiums, making health insurance less affordable for many.
- **Persistent Post-Pandemic Impact:** The onset of the COVID-19 pandemic led to an unprecedented surge in medical inflation. Although the pandemic has subsided, healthcare costs have remained high, demonstrating a notable inflection point in 2019-2020. During this period, there was a substantial increase in average claim sizes, and this upward trajectory in healthcare expenditure has yet to subside.

3. Competition

The landscape of the health insurance industry today is marked by an abundance of insurance firms, contributing to an environment of intense competition. Several factors underpin this competitive challenge:

- **Diverse Market Strategies:** In this fiercely competitive arena, each insurance company seeks innovative ways to differentiate itself and market its insurance products effectively. The competition extends to identifying and targeting specific demographics and market segments to gain a competitive edge. As a result, there is a continuous race to capture the attention and loyalty of potential policyholders.
- **Trust Dynamics:** Trust dynamics play a pivotal role in the competition among insurance firms. A general lack of trust is something already elucidated in the first point. Established insurance companies often enjoy higher levels of trust and credibility in the eyes of potential policyholders compared to new entrants. The perception is that existing companies have a more stable track record, whereas newer businesses operate on a precarious edge between success and failure, making individuals hesitant to entrust their limited financial resources to them. However, legacy insurers do not have a free run anymore, as customers have now begun to look at various other factors beyond brand name when it comes to trusting an insurance provider.
- **Risk Aversion:** The heightened competition in the health insurance sector has generated a sense of risk aversion among potential policyholders. Many individuals are reluctant to take chances with their financial security and well-being by choosing relatively untested insurance providers, especially when established options are readily available. The fear of selecting a company that might not stand the test of time or adequately meet their needs dissuades potential policyholders from engaging with newer insurers.

4. Climate Change Impact

Generally, the impact of climate change is mostly talked about with respect to property insurance. However, even health insurance players can be considerably affected by the same. Climate change presents a multifaceted challenge for the health insurance sector, with profound implications for public health and the industry itself.

- Direct impacts of climate change encompass increased mortality rates and the broader prevalence of vector-borne diseases, primarily due to extreme heat. These health risks pose a significant burden on individuals and healthcare systems. Indirect impacts stem from factors like air pollution and deteriorating water quality, leading to a rise in diseases. Furthermore, the mental health of individuals is affected, given the stressors such as job losses and forced migration. The World Health Organization (WHO) forecasts a grim outlook, estimating an additional 250,000 deaths annually between 2030 and 2050 from causes such as malnutrition, malaria, diarrhea, and heat stress.
- The ramifications of climate change for the health insurance sector include effects on both claims and policy payouts. Health insurers would be compelled to integrate climate effects into their

product design and underwriting strategies. However, the diversity in product lines, geographic locations, and local insurance penetration rates necessitates a company-specific assessment of climate change impacts. Climate change may also influence sales strategies, as economic deterioration resulting from climate-related issues could adversely affect insurance sales.

- In response to the potential impacts on morbidity and mortality rates, regulatory bodies have begun to evaluate climate-related risks. For instance, in 2018, the International Association of Insurance Supervisors (IAIS) issued a paper that recognized the physical risks of climate change, including changes in mortality profiles and demographics, as key concerns for life and health insurers. The paper also emphasized the risk of extreme heat exacerbating pre-existing health conditions.

Against this backdrop, we can now look at the current trends and innovations in health insurance, which we cover as follows:

What the Future Holds for the Health Insurance Industry

The following are key current trends shaping the health insurance industry today that are expected to grow in prominence in the near future:

1) Changing Customer Expectations

A PwC report in 2022, titled 'Next in Insurance', which involved a survey of 6000 insurance customers revealed some key insights regarding how the new-age customers look at insurance as a product. The following are the findings:

- In 2018, the top 4 product selection factors when it came to insurance were:
  i) Competitive Price
  ii) Discount offers
  iii) Prior interactions
  iv) Brand name

In 2021, only the top factor (Competitive Price) remained constant. The following is the list of top 4 product selection factors in 2021:

i) Competitive Price
ii) Product Variety
iii) Product Expertise
iv) Digital offering

Clearly, we can see that within a span of merely 3 years, the preferences of insurance customers have drastically evolved.

- 80% of customers indicated that they would switch insurance carriers if they lacked a user-friendly user interface.
- 77% of customers said that they would prefer submitting insurance claims via mobile.
- 45% customers said that they expect 24/7/365 online support from their insurance provider.

2) Health Insurance is witnessing Globalization

The trend of globalization in health insurance has gained substantial traction, appealing to individuals who frequently travel for work or adopt a digital nomadic lifestyle. Prominent providers, such as Cigna, IMG, and GeoBlue, offer comprehensive global health insurance coverage. These providers go the extra mile by offering modular packages that can be tailored to meet the specific healthcare needs of patients, even including coverage in their home countries. This global health insurance trend is ushering in increased competition, potentially resulting in more enticing packages for policyholders.

Major international health insurance providers, such as Allianz Worldwide Care, AXA Global Healthcare, and Aetna International, have expanded their presence in India, offering comprehensive plans tailored to the needs of Indian travelers and expatriates. These plans often include coverage for hospitalization, outpatient care, emergency medical evacuation, and repatriation. The influx of international health insurance providers into India has intensified competition, leading to more competitive pricing and enhanced benefits for policyholders. Indian consumers now have a wider range of options to choose from, enabling them to find affordable plans that meet their healthcare needs.

Examples of India-specific global health insurance plans include:

- Aditya Birla Global Health Secure: This plan offers in-patient treatment for 16 critical illnesses, worldwide cashless treatment, international second e-opinion, and travel and accommodation cover for insured and accompanying attendant.

- Bajaj Allianz Global Health Care Plan: This is a comprehensive international health insurance plan that provides coverage for a wide range of medical expenses, including in-patient and out-patient hospitalization, pre- and post-hospitalization, day care procedures, and emergency medical evacuation.
- ManipalCigna LifeTime Health Insurance Plan: This plan provides worldwide coverage for 27 major illnesses as well as global ambulance cover, medical evacuation and repatriation, and global travel vaccination.

As international insurance companies expand their offerings, individuals may discover more attractive and cost-effective options than what local providers can offer. This enhanced competition not only benefits policyholders but also serves as an incentive for local competitors to innovate within the realm of global health insurance, further enriching the landscape of options available to consumers.

3) Digitization and Automation re-shaping Health Insurance Operations

As with every other industry, digitization has brought about considerable disruption within the health insurance industry.

3.1) Mainstreaming of Blockchain Technology

The demand for processing vast amounts of customer data in real-time, involving various insurance functions, necessitates a seamless and secure means of data exchange among multiple organizations and stakeholders. Blockchain technology has emerged as a pivotal solution, offering a secure data management framework that spans numerous interfaces and stakeholders while preserving data integrity. It finds application in various aspects of health insurance, including identity management, underwriting, claims processing, fraud management, and ensuring the reliable availability of data. Blockchain technology not only enhances security but also results in reduced operational costs. Furthermore, it introduces valuable features like Decentralized Autonomous Organizations (DAOs) and smart contracts, enriching the landscape of policy management with added efficiency and transparency. This signifies a significant trend in health insurance, where blockchain is steadily moving into the mainstream to meet the industry's evolving demands.

3.2) Artificial Intelligence and RPA imparting increased 'smartness'

Robotic Process Automation (RPA) and Artificial Intelligence (AI) are poised to take center stage, propelled by the emergence of novel data channels, enhanced data processing capabilities, and continuous advancements in AI algorithms. This technological integration has profound implications for the industry:

- Streamlined Processes: AI, coupled with RPA, streamlines insurance procedures, reducing the need for intermediaries and laborious paperwork. These innovations enhance the efficiency of insurance processes, leading to faster claims processing, ultimately minimizing the time, effort, and associated costs.
- Fraud Detection: Behavioral economics capabilities of AI play a pivotal role in identifying and mitigating fraudulent activities, thus safeguarding the integrity of insurance claims. This results in a further reduction of costs and enhanced trust within the insurance ecosystem.
- Integration of Bots: Bots, powered by AI, are swiftly becoming mainstream fixtures in both front-end and back-end operations of health insurance companies. They automate policy servicing and claims management, offering customers faster and more personalized service, thus significantly improving the overall customer experience.

The widespread adoption of AI and automation in health insurance is expected to have far-reaching implications in terms of quality of customer experience, cost optimization, enhancement of operational efficiencies, bolstering market competitiveness, and even emergence of innovative business models.

3.3) IoT + Telemedicine + Advanced Analytics guiding Personalized Policy Products

A 2021 McKinsey study revealed that 40% surveyed people expressed an inclination to rely on tele-health, up

from 11% during pre-Covid times. While the percentage of active users of these solutions remains lower, it hints at untapped market potential, awaiting exploration. The pivotal role of telemedicine becomes evident in its capacity to bridge geographical and temporal gaps in healthcare accessibility, providing a lifeline for those residing in remote or underserved areas. Beyond enhanced accessibility, telehealth significantly reduces costs for healthcare providers, optimizing resource utilization and operational efficiency. The rapid evolution of telemedicine has led to the emergence of sophisticated telemedicine kits, equipped with interconnected medical devices that facilitate comprehensive examinations. These advancements include instruments capable of generating clinic-quality images and data. Furthermore, seamless integration with provider systems enhances the patient experience, blurring the lines between virtual and in-person care.

As the global prevalence of non-communicable diseases (NCDs) surges, healthcare systems worldwide face the mounting challenge of addressing this health crisis, which accounts for a substantial share of global mortality. The burden of managing chronic conditions often leads to significant out-of-pocket expenditures, particularly for individuals in middle- and low-income groups. Recognizing their pivotal role in fostering member wellness, health insurers are forming strategic partnerships with wearable device manufacturers like Fitbit and GOQii. This convergence of technologies enables Remote Patient Monitoring (RPM), a groundbreaking approach that continuously captures real-time vital parameters. RPM not only addresses critical infrastructural gaps in healthcare but also ushers in a new era of data accessibility and patient care. These partnerships are paving the way for personalized health coaching, creating a bridge between technology and well-being.

The proliferation of wearable devices and interconnected tools, encompassing sensors, monitors, and cameras provides health insurers with an invaluable stream of real-time health-related data for policyholders. This wealth of data empowers insurers to craft tailored insurance products that align with an individual's unique health profile. Insurers can further incentivize policyholders by offering premium discounts when predefined health goals are achieved, thus fostering a mutually beneficial partnership centered on wellness and proactive risk management. This approach exemplifies how the synergy of the Internet of Things (IoT) and advanced analytics is profoundly influencing the design and delivery of personalized health insurance products on a global scale.

4) Greater Regulatory Oversight

The confluence of cutting-edge technologies, wearable sensors, and personal health metrics marks the dawn of a new era for insurance companies. It's no longer a matter of whether they will harness this wealth of health data; the crucial question pertains to how they will effectively leverage it. The potential advantages are unmistakable, encompassing enhanced risk assessment, more informed investment strategies, and the capability to deliver highly customized healthcare services. However, this transformative journey also brings to the forefront a slew of ethical and privacy considerations.

On one hand, the escalating use of health data empowers insurers to make well-informed investment decisions and offer more precisely tailored care, potentially leading to improved health outcomes. Yet, the flip side of this coin reveals apprehensions regarding privacy infringements and the potential adaptation of insurance plans and benefits based on individuals' personal lifestyle choices. In this context, insurance companies may find themselves inclined to adjust coverage and premium rates in response to an individual's health-related behaviors. Also, insurance providers may seek access to an individual's comprehensive health data, extending their reach to information gathered by personal sensors, ranging from smartwatches to sleep monitors. This expanded access could wield influence over insurance determinations, impacting coverage, premium adjustments, or even triggering notifications about changes rooted in an individual's lifestyle choices. Such a scenario holds the potential to give rise to a figurative 'Dr. Big Brother' who scrutinizes every facet of an individual's existence, potentially influencing personal health-related decisions.

Furthermore, the role of social media has evolved beyond mere information dissemination; it has assumed the role of an information gathering tool. For instance, lifestyle data is now readily accessible through social media platforms, enabling health insurers to leverage this information for customer education, engagement, and lead generation, all with the overarching aim of nurturing brand presence and awareness. However, this may also lead to unhinged access to policy-holders (potential and existing) private lives.

In the face of these challenges, the role of regulatory oversight assumes paramount importance. Insurance regulators are poised to play an increasingly pivotal role, striving to strike a delicate balance between safeguarding privacy and delivering high-quality, personalized care. Their responsibility extends to averting unwarranted intrusions into individuals' personal lives while ensuring the ethical and transparent utilization of health data. Policymakers, guided by stringent regulatory oversight, must ensure that insurance companies do not overstep their bounds concerning our personal health data and choices. In a controlled environment, the option to share health tracker data with health insurers, fostering a healthier lifestyle while accessing personalized care, epitomizes a harmonious equilibrium between personal wellness and safeguarding sensitive data.

Conclusion

The future of health insurance is not a mere continuation of the past but a dynamic journey into uncharted territory. The traditional challenges that insurance companies face, such as trust deficits and intense competition, are now amplified by the urgency of addressing the rising costs of healthcare. These challenges demand a reimagining of insurance practices, a call to action for innovation, and a commitment to deliver real value to policyholders. It is clearly evident that health insurance is no longer a solitary industry but an integral part of the larger healthcare ecosystem.

While globalization opens doors for insurers to tap into the global market, new-age technologies such as blockchain, artificial intelligence, and automation promise to streamline operations and create more efficient, secure, and personalized insurance solutions. IoT, telemedicine, and advanced analytics converge to foster a new era of health insurance, one where data-driven insights help individuals lead healthier lives, and insurers can proactively manage risks and create personalized health management programs. This fusion of technology and insurance presents a vision of a future where customers receive more than just financial security; they receive tailor-made care, thus underscoring the potential for a win-win relationship between insurers and policyholders, where health and well-being take center stage.

Yet, with this evolution come ethical and privacy concerns, where the balance between data-driven insurance and personal privacy must be meticulously maintained. In this realm, regulatory oversight plays a crucial role in ensuring that innovation does not compromise the integrity of personal information. TJ

References

https://www.thebusinessresearchcompany.com/report/insurance-global-market-report

https://www.nri.com/-/media/Corporate/en/Files/PDF/knowledge/publication/lakyara/2023/02/lakyaravol366.pdf?la=en&hash=72E49DDBFFF0123BF9E229F9FD79C90F98197396

https://www.pwc.com/us/en/industries/insurance/library/assets/next-in-insurance-overview-01-04-22.pdf

https://www.mckinsey.com/industries/healthcare/our-insights/telehealth-a-quarter-trillion-dollar-post-covid-19-reality

Health Insurance and Access in Rural India

Datta Kartikeya
idksharma321@gmail.com

Datta Kartikeya had an experience of 9 years in the field of financial sector where he majorly worked with top and renewed Insurance companies.

Dr. Geeta Tomar
bhagwatgeeta22@rediffmail.com

She is working in Education Industry as Management Faculty qualify MBA, PhD in Management, UGC-NET in Management.She is having rich experience in curriculum design and development of various vocational courses of sector councils as Expert Member at PSS Central Institute of Vocational Education (A constituent unit of National Council of Educational Research and Training, under Ministry of Education, Government of India), Bhopal.

Abstract

For the development of human potential, improved health status is essential. Since the beginning of civilization, man has been seeking security and protection. He came across the idea of insurance because of this urge. The sharing of a few people's losses among many people is the foundation of insurance. The growth and development of the Medical Insurance Industry is dependent on people's awareness of the need for security and their ability to pay the premium. Health insurance is a crucial choice that planners and policymakers should consider. It is a type of risk management that is primarily employed to protect against the risk of a potential, unforeseen loss. In present study an attempt has been made to give a detailed view on importance and scope of health insurance in rural India. Also, different types of health insurance schemes available, challenges faced in claiming health insurances and role of government in health insurance sector are discussed in detail.

Keywords

Health insurance, Schemes, Medical Claims, Risk Management.

Introduction

Health Insurance

An enhanced state of health is necessary for the full realization of human potential. Ever before the dawn of civilization, humans have sought safety and security. It was this drive that led them to the concept of insurance. The basis of insurance is the distribution of a few individuals' losses among many others. The insurer promises to compensate any financial damage the insured may sustain because of an insured danger occurring in exchange for the insured paying the premium. We refer to this arrangement as insurance. The insurance institution's two main objectives are to provide both immediate and long-term assistance. The immediate objective is to prevent the guaranteed from losing their health by spreading the loss over many individuals using expert risk takers like insurers. The long-term objective is for significant investments in organized trade and industry to drive the nation's industrial and economic growth (Reshmi et al., 2010). The expansion and advancement of health insurance the capacity of consumers to pay the premium and their understanding of the necessity for security are key factors for industry success.

The advantages are uncertain and distant, but the buyer must pay the premium now. It is commonly known that the private medical industry provides care for over 75% of the population. Regrettably, the cost of medical treatment is rising and the impoverished can no longer afford it. The health sectors require a substantial influx of funding to guarantee that healthcare is available and affordable for everyone (Agarwala, 1961).

It is imperative that planners and politicians take health insurance into account. The terms of the insurance are usually set by the provider of the coverage. It has been shown that medical insurance is linked to improved health status for low-income groups and other vulnerable populations. One kind of risk management that is commonly used to guard against the possibility of an unexpected loss is health insurance. Insurance is the fair transfer of the risk of loss from one party to another in return for monetary compensation. Essentially, insurance is a scheme in which a big number of individuals with similar risks share the losses sustained by a small number of people. It acts as insurance against possible financial loss due to unforeseen events. In exchange for the insurer's pledge to cover or indemnify the insured in the case of a substantial, possibly catastrophic loss, the insured agrees to pay the insurer for a guaranteed and known, relatively minor loss. An insurance policy is a contract that the insured receives that specifies the terms and conditions under which the insured will receive compensation under the assurance system to cover unforeseen medical expenses, provide protection against financial loss due to unplanned illness, pay for high-quality medical care, and reduce stress (Tayade et al., 2018).

Healthcare access is a major issue in India, particularly in rural areas. Many individuals who live in rural areas find it difficult to get healthcare due to inadequate infrastructure, limited resources, and low literacy rates. In India today, the expense of healthcare is not only exorbitant but also on the rise. The rising demand for healthcare has driven up the cost of the healthcare system to the point that the average Indian cannot afford specialized care. The richest quintile receives Rs. 3 for every rupee spent on curative care, which benefits the non-poor. Indians who are hospitalized often spend 58% of their yearly income. More than 40% of hospitalized Indians take out large loans or liquidate assets to pay for bills. Due to medical costs, more than 25% of Indian patients are impoverished. According to a study conducted by FICCI and consulting firm Ernst and Young (E and Y), India's healthcare spending would quadruple over the next ten years. A smart way to deal with the growing expense of healthcare is through health insurance. Just 10% of Indians have health insurance, and most of them don't have enough of it. This low percentage may be the result of people not knowing about health insurance (Kapur, 2013).

Need for Expansion of Health Insurance in Rural India

By pooling the high level of Out of Pocket Expenditure on health (OOPE) in India, health insurance helps to increase the efficiency of healthcare delivery and organization, provide financial protection against unexpected medical costs, and improve overall health outcomes. By capping the total amount of medical expenses that a person or family can incur, increased health insurance coverage will lessen catastrophic and impoverishing medical costs. India's high out-of-pocket expenses (OOPE) are a result of relatively low health insurance coverage and more expensive private sector health care delivery. India's OOPE as a percentage of current health spending is 63%, which is much higher than the norm for lower-middle income nations and among the highest in the world, notwithstanding the recent reduction. Individuals who have high OOPE are at financial danger (Kumar, 2022).

Health Insurance for Rural India

India's healthcare costs are rising daily and are quite high. Additionally, infectious and lifestyle illnesses are also common in India. The amount of money needed for therapy depends on how serious the sickness is. For those residing in rural India, it might be difficult to receive the appropriate care at the appropriate time. People in remote regions cannot afford proper medical care at the appropriate time without health insurance.

Most individuals in rural regions are impoverished. They struggle to make ends meet, much alone get a health insurance coverage, let alone eat twice a day. Because they view purchasing health insurance as an unnecessary cost, most people who reside in rural regions lack a policy. Nonetheless, the fact that rural Indians have lower incomes does not negate the reality that they are more susceptible to illness.

Many rural residents lack access to even the most basic sanitary amenities. People who do not practice good hand hygiene can wind up drinking tainted water more frequently than those who live in cities. Nonetheless, the fact that rural Indians have lower incomes does not negate the reality that they are more susceptible to illness. Many rural residents lack access to even the most basic sanitary amenities. People who do not practice good hand hygiene can wind up drinking tainted water more frequently than those who live in cities.

Furthermore, rural India has little healthcare services. While basic health care facilities and health and wellness clinics can be found in remote locations, severe illness treatment is not possible there. The patient will either need to relocate to a city government hospital or seek care at the closest private hospital. In both situations, most of the rural populace may find the costs prohibitive. As a result, it is imperative that Indian citizens obtain rural health insurance. (Bhat et al., 2018)

Features and Benefits of Government Health Insurance Plans

Most government health insurance programmes are designed with special care for those who are socially and economically disadvantaged. Aside from the significant financial obligations associated with medical care, enrolling in a government health insurance plan might be quite advantageous for them.

Trues & Benefits:

- Government hospitals are easily accessible: India's government is always striving to enhance and broaden the country's public health infrastructure. Policyholders can get in touch with treatment providers fast.
- Premiums: Frequently, there are no premiums included in government-issued health insurance plans. The state provides funding for all of that. This lessens the load on those who are impoverished even more.
- Holistic treatment: The government has created rules to guarantee that insurance policies cover holistic treatment, including diagnostic costs and post-medical care expenditures.
- National and local Relevance: State governments consider the needs of the populace as well as the local infrastructure when establishing several policies.

Indian Health Insurance Scheme Types (Anand, 2017 & K, 2023)

They may be roughly divided into three groups according to the target group (such as employees in the formal sector), the financing source (government tax money or contribution based), and whether the programme is mandatory or optional. The state of health insurance in India is briefly described in the paragraphs that follow.

1. **Government-sponsored health insurance programmes:** These programmes offer specifically targeted demographic segments completely or partially subsidized insurance coverage. The impoverished and the unorganized sector are the main targets of these programmes. The largest health insurance programme is Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB- PMJAY), which was introduced in September 2018. It expands upon the Rashtriya Swasthya Bima Yojana (RSBY) of the past. AB-PMJAY offers comprehensive secondary and tertiary healthcare packages that are completely subsidized and offer floater coverage of up to Rs. 5 lakhs per family year. It grants complete subsidized health insurance coverage to 10.9 crore households, or 49 crore persons, who were classified as impoverished in the Socio-Economic Caste Census (SECC) 2011 (Table 1). The programme is in place in 33 States and

UTs. Moreover, AB-PMJAY participants can get benefits anywhere in India because to its national portability feature.

2. **Social Health Insurance (SHI) Plans:** These are mandatory health insurance plans that require contributions from workers in the organized sector. The government required health insurance coverage is funded by premiums paid by both the employer (private companies or the government) and the employees. With 13.6 crore members as of 2019, the Employee State Insurance Scheme (ESIS), administered by the Employee State Insurance Corporation (ESIC) under the Ministry of Labour and Employment, is the largest of its kind. ESIS offers private establishment workers and their family's complete coverage, including benefits for both inpatient and outpatient care. It covers workers in most industries with ten or more employees who make less than Rs. 21,000 per month. The Central Government Health Scheme (CGHS), which is managed by the Union Government and would register over 40 lakh employees in 2021, is another social health insurance programme. Additionally, several government agencies offer exclusive programmes just for their staff members. In most cases, these are not insurance plans. They directly supply healthcare services by running their own hospitals and dispensaries. For instance, separate programmes encompassing both inpatient and outpatient care are in place for employees, veterans, and pensioners of central government ministries like the Railways and the Defence Department. Large hospitals are operated by the Home Ministry's paramilitary under the Border Security Forces (BSF) and Indo Tibetan Border Police (ITBP) in border districts.

3. **Private voluntary health insurance (PVHI) programmes:** PVHI programmes are voluntary and contributory. These are retail insurance packages that cover around 11 million people. PVHI may be classified into two main categories: individual/family and group company (government excluded). As the name implies, the former targets individuals and families and encompasses 4.2 crore people. The latter is intended for employees of private companies, which employ 7.3 crore people. Group insurance plans are aimed at corporations and commercial businesses with employee salaries above the Rs. 21,000 ESIC maximum. The PVHI market barely covers 9% of the population, despite nearly doubling from 6.1 crore in 2013–14 to 11.5 crore in 2018–19.

Health Insurance Plans For Rural People in India (K, 2023 & Vellakkal, 2012)

For low-income residents of rural locations, purchasing a standard health insurance coverage is unfeasible. In response to the problem, the federal and state governments have introduced several health insurance programmes that provide lower-class people with access to healthcare. Look at the several Indian rural health insurance schemes that are offered:

- **Ayushman Bharat Yojana**

Ayushman Bharat Yojana, initiated by the Ministry of Health and Family Welfare, is to offer free and universal health insurance coverage. Those who are at the bottom of the socioeconomic scale are the intended beneficiaries of this. In addition to providing medication, pre-hospitalization expenditures, medical treatment costs, and diagnostic fees, the policy covers coverage up to INR 5 lakh.

- **Aam Aadmi Bima Yojana (AABY)**

The goal of the 2007 Aam Aadmi Bima Yojana was to address the issues faced by those residing in rural and developing areas of India. In an effort to support education, the proposal also calls for giving scholarships to poor Indian youngsters. The policy is applicable to all individuals between the ages of 18 and 59, and it covers those who are renters in both urban and rural regions and do not own land.

Usually the head of the household, the policyholder pays a yearly premium of INR 200. If the death is natural, the family receives INR 30,000; if the death is caused by

lifelong disability, the family receives INR 75,000

- **Janshree Bima Yojana**

The Life Insurance Corporation and the Government of India collaborated to launch the Janshree Bima Yojana, which provides insurance to those living in poverty in both urban and rural regions. Indian working-class people who fall into various occupational categories are the target audience for this policy. Currently, 45 different occupational categories can choose from the policy.

Financial support to the policyholder's legal successor in the event of an accident or natural disaster is one of the policy's general advantages. In the event of complete or partial disability, it also involves monetary compensation. The insurance is most notable for having benefits designed specifically for women. This includes prenatal care coverage and the cost of treating female severe illnesses.

- **Mukhyamantri Amrutam Yojana**

The primary focus of the Mukhyamantri Amrutam Yojana, which was introduced by the Gujarati government in 2012, was low-income families and people. After much deliberation and revision, the policy's advantages were expanded to include those in the lower income bracket.

One of the main advantages of this plan is that it pays for all medical expenses, including diagnostic testing and post-hospital treatment. The best thing is that there are no enrollment fees or insurance premiums to pay with this system. Additionally, a large range of medical conditions are covered, and the government will completely pay for their treatments.

All policyholders receive an amount insured of INR 3 lakh; however, in situations when certain procedures are required, such as kidney, liver, or pancreas transplants, the total insured rises to Rs. 5 lakhs. It is noteworthy that each household may only have a maximum of five members registered in this programme.

- **Mahatma Jyotiba Phule Jan Arogya Yojana**

For the state's residents, the Mahatma Jyotiba Phule Jan Arogya Yojana was created by the Maharashtra government. The main objective is to give those from lower socioeconomic categories access to cashless medical services and high-quality healthcare.

A comprehensive list of 971 medical treatments and an additional 120 post-therapy packages are covered by the coverage. Among many others, they include cardiac procedures, radiation therapy, orthopaedic procedures, obstetric and gynaecological procedures, and plastic surgery.

The benefits of the policy are numerous, even though the annual sum covered for each family is a meagre Rs. 1.50 lakhs. The state pays the premium for the insurance. In addition to the costs of diagnostic services, medical benefits also cover consultation fees. Several private hospitals, in addition to government institutions, take the policy into account and provide beneficiaries with services.

- **Bhamashah Swasthya Bima Yojana**

To better serve the people of Rajasthan, the state government created the Bhamashah Swasthya Bima Yojana. The main recipients of this policy's benefits are Rajasthani permanent residents from low-income households.An amount insured of INR 5 lakh for medical expenses and emergencies is one of the policy's features. The Bhamashah Swasthya Bima Yojana policy cards allow female policyholders to purchase rations from approved PDS stores, which is another benefit exclusive to them. The Rajasthani government provided this special function to raise women's knowledge of healthcare.

- **Chief Minister's Comprehensive Health Insurance Scheme**

The Amma Health Insurance scheme is designed for underprivileged families that have low annual income. With the "**Amma Maruthuva Kapitu Thittam**", they do not have to go through a financial struggle at the time of a medical emergency. This Tamil Nadu CM Insurance Scheme offers coverage to the entire family with the help of cashless facilities. Amma health insurance plan offers financial aid when a medical emergency strikes. With this health insurance plan, a beneficiary can avail the coverage of hospitalization, diagnostic procedures and follow up treatments.

- **Rashtriya Swasthya Bima Yojana**

This government-sponsored health insurance plan, which falls under the category of family floater, is intended for those who are below the poverty threshold. The policy has no enrollment age restrictions and an extremely cheap premium. The maximum amount covered is INR 3 lakh.

In addition to the standard benefits provided by the government through health insurance policies, the Rashtriya Swasthya Bima Yojana goes one step further by including pre- and post- hospitalization coverage for dental care, nursery services, transportation costs, maternity benefits, and newborn coverage.

- **Central Government Health Scheme (CGHS)**

Established in 1954, the Central Government Health Scheme mainly serves employees of the central government, including justices of the Supreme Court and officials of the Central Railway. Seniors are covered by the coverage as well. Hospitalization and domiciliary care, including allopathic and homoeopathic medications, are the goals of the policy. Central government employees can also receive free laboratory and X-ray services under this programme.

Currently operating in 71 cities, the Central Government Health Scheme serves 35 lakh people.

- **Universal Health Insurance Scheme (UHIS)**

One of the primary health insurance programmes of the central government, the Universal Health Insurance Scheme, is designed to serve a broad spectrum of individuals who fall between and slightly over the poverty line. The policy covers both maternity and hospitalization expenses.

The major wage earner of the family is primarily covered by the insurance for accident coverage and medical expenses. If an accident results in death, the insurance payout will be given to the family.

- **West Bengal Health Scheme**

West Bengal has received a lot of praise for making improving the infrastructure for public health a priority. In this sense, enrolling in the West Bengal health programme may save your life. Nevertheless, this is limited to retirees or those in the All-India Services.

At least 1014 medical conditions, including OPD procedures, are covered under this plan's treatment expenses. The policy's salient characteristics encompass cashless claims, out-of- hospitalization costs coverage, OPD treatment coverages, and reimbursements for treatments received in non-empanelled institutions.

On the West Bengal Health Scheme's official website, you may also register and enroll for the policy online.

- **Yeshasvini Health Insurance Scheme**

The Yeshasvini Health Insurance Scheme is sponsored by development cooperatives and the state government of Karnataka in response to the needs of the region's farmers and lower- and middle- class populations. This initiative aims to give Karnataka access to high-quality, reasonably priced healthcare.

In addition to the benefit of cashless claims at network hospitals, policyholders are covered up to INR 5 lakh. The programme also offers savings on certain diagnostic or treatment expenses, as well as claim benefits for 1,650 conditions.

- **Karunya Health Scheme**

The Karunya Health Scheme's primary goal is to give Keralans who are suffering from serious illnesses access to healthcare. Lower-income individuals can take use of this programme to get medical care for a variety of chronic illnesses, including as cancer, heart problems, and palliative care. Each household is covered up to INR 5 lakh under the Karunya Health Scheme. Intensive care treatments, pre- and post-hospitalization fees, consultation fees, and diagnostic care costs are all covered.

- **AWAZ Health Insurance Scheme**

The AWAZ health insurance plan, another creation of the Kerala government, focuses on offering insurance to migrant workers.

This insurance is available to migrant workers in the state of Kerala who

are between the ages of 18 and 60. In government hospitals throughout the state, each insured is eligible for free medical care up to Rs. 15, 000. The programme also addresses the health effects of mishaps on migrant workers.

- **Telangana State Government Employees and Journalists Health Scheme**

The Employees and Journalists Health Scheme, or EJHS, is a special insurance plan put together by the state of Telangana. The policy supports healthcare and welfare for its personnel, including journalists and their families, as the name implies. They are entitled to cashless hospitalization coverage at all state network hospitals under the terms of the programme.

Hospital stays, outpatient and inpatient care, and follow-up treatments are all included in the benefits. There is no upper limit on the coverage provided by the insurance.

- **Arogya Sanjeevani**

In April 2020, the Insurance Regulatory Development Authority of India (IRDAI) introduced Arogya Sanjeevani, a standardized health insurance plan. Every health insurer that offers the Arogya Sanjeevani offers the same set of standardized benefits. While the amount covered, family structure, and subsequently rates may differ, all health insurers are required to provide certain services. A complicated product is health insurance. Due to the differences in features and advantages among the packages on the market, individuals and families purchasing health insurance may become confused. By providing a standard policy where health insurers may compete based on rates, service quality, and provider network, the Arogya Sanjeevani product seeks to address that issue. It would also enable easy porting across insurance companies.

Hospitalizations and pre- and post-hospitalization costs are covered by the indemnity health insurance plan Arogya Sanjeevani. The variable sum insured can range from Rs. 50,000 to Rs. 10 lakhs, depending on the needs of the person or family.

Challenges in Increasing the Coverage of Health Insurance in Rural Areas (IRDAI, 2020)

Increasing health insurance coverage through voluntary payments presents four main obstacles. The willingness to pay for health insurance does not always follow from one's capacity to pay, and there must be a supply-side (insurance companies and providers) to meet the demand. These difficulties were covered in this section.

- **Awareness:**

Even among the middle class, there is a lack of knowledge about insurance, particularly health insurance products, which prevents their adoption. Moreover, some people may not feel the need to acquire health insurance even if they are aware of it. It is not obvious to pay for a product that you do not intend to use. Even though a sizable portion of the population—nearly 1/4 at the 10% threshold level—experiences catastrophic health expenditure and its effects on savings and standard of living, it is not obvious to link it to the acquisition of health insurance as an investment in health security ex ante. Put another way, it is a difficult choice to forgo current spending in favor of financial insurance against a certain (uncertain) chance of unfavorable health occurrences in the future.

- **Identification and outreach:**

Insurance firms find it challenging to economically reach out to rural populations in order to raise awareness of their goods and health insurance. Approximately 80% to 90% of India's workforce works in the informal sector, where there is a dearth of reliable personnel databases and other resources for outreach and identification. As such, it is challenging for insurance companies to connect with prospective clients. Insurance firms have not recognized and targeted this group of people, or they do not think it's worth their while. As a result, the rural population still lacks widespread access to health care coverage.

- **Affordability:**

There is a large price sensitivity among the missing middle demographic. When possible, reducing the product's expenses will be crucial to guaranteeing both low pricing and strong demand. The private health insurance market has a low claims ratio, which indicates high distribution and/or administrative expenses. It is 64% for freestanding

health insurers and 72.5% for the health insurance component of general private insurers (IRDAI, 2020). There are two main areas of concentration for cutting add-on expenses—that is, costs beyond the actuarially reasonable premium—to lower the product's cost.

Role of Government (National Health Policy, 2017)

There are five possible roles that the government may play in encouraging the missing middle to get health insurance. These positions cover a variety of duties, including provision, funding, sharing government infrastructure as a public benefit, behavior modification, and regulation.

Increasing consumer trust in health insurance and raising consumer awareness of it: First, via information, education, and communication (IEC) programmes, particularly in hospitals, the government may play a significant role in fostering consumer confidence in health insurance. Greater acceptance and trust in the product will result from government marketing of health insurance. To increase consumer knowledge of health insurance and particular products, it can do so through a variety of channels, such as ASHA employees, hospitals, clinics, and Anganwadi centers.

Creating an updated, standardized health insurance product: Secondly, to safeguard consumers by guaranteeing a minimally acceptable level of services, the government must work to improve the product's standardization and simplicity. Wait times should be less for the updated product. To improve the value of healthcare provided, it should also incorporate out-patient benefits via a subscription model.

Reducing operating and distribution expenses through the public sharing of government infrastructure and data: Third, by reducing the expenses associated with distribution and operations, the government may aid in increasing the product's acceptance. The government may increase distribution and operational efficiency in commercial health insurers by making its infrastructure and data available as public goods. Firstly, it may provide private insurance firms with access to PMJAY's network and platform, particularly its IT skills, to fill up the gaps. Scaling PMJAY's platform will be simpler if it is used as a public benefit and lowers operating expenses, particularly in underdeveloped countries. Second, with the permission of the family, the government may also share datasets with commercial insurers, like the NFSA, PM-KISAN, and Pradhan Mantri Suraksha Bima Yojana. By helping insurers reach out to new clients, this will lower the costs associated with distribution. In conclusion, government resources such as post offices and rural regional banks may be utilized as means of distribution to broaden the insurance market at a reduced expense.

Increasing customer trust by providing high-quality services: Fourth, the government should strengthen consumer trust by implementing thorough auditing protocols and quick grievance redressal systems. Ensuring the quality of health services will boost confidence in health insurance as a product and increase patient happiness. These safeguards guarantee that the goals of health insurance are met, including decreased catastrophic costs and increased accessibility to high-quality medical care. They may initiate a positive feedback loop wherein contented health insurance policyholders refer it to others, expanding the risk pool.

Provision of health insurance or partial financing: Lastly, by providing subsidies to the poorest segments of the missing middle population and/or by using the PMJAY infrastructure to enable a voluntary contributory enrolment, the government can directly raise enrollment or save expenses. The first approach involves providing full or partial subsidies for PMJAY coverage to the lower-class members of the missing middle, who might not be able to purchase volunteer health insurance. However, as it has budgetary ramifications, it should only be taken into consideration if there is low adoption among the poorest segments of the missing middle, and only after guaranteeing complete coverage of current qualified beneficiaries under PMJAY. The second choice is to work with the National Health Authority (NHA) to provide the product described in this study on a

contributing and voluntary basis. To guarantee that rates stay cheap, the government may take use of PMJAY's size, which includes its network, systems, and infrastructure.

Conclusion

The lack of funds to purchase a standard health insurance coverage forces people in rural India to make healthcare compromises. However, low-income individuals can receive high-quality care without having to pay a fee thanks to the government health insurance programmes. Consequently, if you reside in a rural part of India, you should enlist your family and yourself in one of these healthcare programmes. It is possible to better understand and administer health insurance programmes to ensure that everyone has access to high-quality healthcare, regardless of where they reside. We must never stop searching for fresh, innovative approaches to improve healthcare access for all. TJ

References

Agarwala, A. N. (1961, January 1). *Life Insurance in India*. http://books.google.ie/books?id=bFBPHAAACAAJ&dq=Agarwala,+Life+Insurance+in+Ind ia+%E2%80%93+A+Historical+and+Analytical+study, +Allahabad+Law+Journal+Press,+A llahabad.&hl=&cd=1&source=gbs_api

Anand, V. E. (2017). Analyzing Rural Health Care Services in Select Villages and Hamlets Around Pune City with Special Reference to Government Hospitals and Schemes. *Indian Journal of Public Health Research & Development*, *8*(4), 491. https://doi.org/10.5958/0976-5506.2017.00390.4

Bhat, R., Holtz, J., & Avila, C. (2018, March 7). Reaching the Missing Middle: Ensuring Health Coverage for India's Urban Poor. *Health Systems & Reform*, *4*(2), 125–135. https://doi.org/10.1080/23288604.2018.1445425

Government of India (2017): "National Health Policy, 2017," Ministry of Health and Family Welfare, Government of India. https://main.mohfw.gov.in/sites/default/files/9147562941489753121.pdf

Guidelines on Standard Individual Health Insurance Product by Insurance Regulatory and Development Authority of India (IRDAI). (2020). https://irdai.gov.in/guidelines

Kapur, A. (2013). National Rural Health Mission (NRHM). *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2231855

Kumar, P. (2022). Analysis of NITI AAYOG (National Institution for Transforming India) Health Index Report on the Ranking of States and Union Territories: Round 1 (2014-2016)- V1. *Public Health Open Access*, *6*(2), 1–20. https://doi.org/10.23880/phoa-16000215

K, R. (2023). Health insurance schemes in India-an overview. *Indian journal of applied research*, 58–59. https://doi.org/10.36106/ijar/7809868

Reshmi, B., Raghunath, R., & Unnikrishnan, B. (2010). Awareness of health insurance among Inpatients at a tertiary care hospital in coastal Karnataka. *Indian Journal of Community Medicine*, *35*(3), 445. https://doi.org/10.4103/0970-0218.69288

Tayade, S., Kore, J., & Singh, N. (2018). Community Based Micro Health Insurance Schemes to Provide Quality Health Care with Equity in Rural India. *Indian Journal of Public Health Research & Development*, *9*(5), 588. https://doi.org/10.5958/0976-5506.2018.00511.9

Vellakkal, S. (2012). Financial Protection in Health Insurance Schemes: A Comparative Analysis of Mediclaim Policy and CHAT Scheme in India. *Journal of Health Management*, *14*(1), 13–25. https://doi.org/10.1177/097206341101400102

Impact of Regulations on Key Metrics of Standalone Health Insurance Companies in India

Dr. Ramesh Kumar Satuluri
Ramesh@iii.org.in

Dr. Ramesh Kumar Satuluri joined College of Insurance (Insurance Institute of India) as Faculty-Research on 5th October 2023. Prior to this, he was working with HDFC Life Insurance as Zonal Training Manager & National Training Manager (Learning & Development) for 14 yrs. He completed his MBA, M.Phil and PHD in Finance. He has presented papers in various seminars on his area of study.

Madhavi Suresh Gurav
gurav@iii.org.in

Ms. Madhavi Gurav is a Research Associate at Insurance Institute of India, presently on deputation from The Oriental Insurance Company Ltd. She has over 25 years of experience in the insurance industry. She has done Master's in Commerce (Business Administration) and a Master's in Law (Business Law). Ms. Madhavi is a Fellow Member of Insurance Institute of India and also possess Diploma in Fire Insurance, Health Insurance and Marine Insurance from Insurance Institute of India and a Certification course in Proficiency in Crop Insurance from the National Insurance Academy.

Abstract

The paper titled "Impact of Regulations on Key Metrics of Standalone Health Insurance Companies in India" is an attempt to gauge the performance of standalone health insurance companies in India. During 2022-23, the non-life insurance industry underwrote a total direct premium of 2.57 lakh crore in India registering a growth of 16.40 per cent from previous year. Out of which, 27 private sector insurers (including standalone health insurers) have underwritten 1.58 lakh crore as against 1.30 lakh crore in 2021-22 Several market dynamics are fuelling this growth, including strong distribution channels, democratic factors, government programs, and a favourable regulatory environment. Among various segments under non-life insurance business, health insurance business is the largest segment with a contribution of 38.02 percent (36.48 percent in 2021-22) of the total premium. Health Insurance Segment reported growth of 21.32 percent (26.27 percent growth in 2021-22) with the premium amounting to 97,633 crore from 80,502 crore in 2021-22. The net incurred claims under health insurance business of general and health insurers stood at 64,631 crore in 2022-23 reported an increase of about 2 percent from previous year. However, during the year 2021-22, the net loss of general and health insurance industry was ₹2,857 crore as against the net profit of ₹3,853 crore in 2020-21. Health Insurance Industry in general and Standalone Health Companies in particular are loss making on an accumulated basis which is the cause of concern. IRDAI regulations have a direct bearing on key metrics of standalone health insurance companies in India. This research is an attempt to decipher the impact of regulations on both top line and bottom line.

Keywords

Health Insurance Regulations, Profit, Profitability matrix, Performance, Health Insurance.

Introduction

The Health Insurance industry in India is witnessing a substantial growth trajectory, particularly evident in

the expansion of Standalone Health Insurance companies. This growth is underpinned by regulatory initiatives aimed at enhancing the accessibility, affordability, and quality of health insurance products. These regulatory changes have been instrumental in shaping the market landscape, with significant implications for Standalone Health Insurance companies. This paper examines the impact of key regulations/guidelines on profitability of Standalone Health Insurance companies.

Regulations have been pivotal in shaping the health insurance landscape, aiming to make health insurance products easily accessible, affordable, and with limited exclusions. On review of the regulations it is observed that, some regulations have strengthened procedural aspects, and they have had no immediate impact on key matrix of profitability of stand-alone health insurance companies.

Some regulations listed below, have focused on enhancing procedural aspects but have not immediately impacted the key matrix under review of Standalone Health Insurance Companies.

Reference number	Regulations / Guidelines	Date	Subject
IRDAI/HLT/REG/ CIR/150/07/2016	Regulations	29/07/2016	Product filing guidelines for Products falling under Health Insurance Business
IRDA/HLT/REG/ CIR/005/01/2017	Regulations	01/09/2017	Clarification on the matter of guidelines on Product filing in Health Insurance and Standardization in health insurance
IRDA/HLT/REG/ CIR/001/01/2020	Guidelines/ Instructions	01/01/2020	Guidelines on Standard Individual Health Insurance Product
IRDA/HLT/REG/ CIR/003/01/2020	Guidelines/ Instructions	01/01/2020	Guidelines on Migration and Portability of Health Insurance Policies
IRDA/HLT/REG/ CIR/031/01/2020	Circulars	24/01/2020	Guidelines on Standard Individual Health Insurance Product
IRDAI/HLT/MISC/ CIR/95/04/2020	Circulars	18/04/2020	Norms on settlement of health insurance claims
IRDAI /HLT/CIR/ MISC/145/06/2020	Circulars	10/06/2020	Standards for hospitals in the provider network-disclosure of quality parameters
IRDAI/HLT/MISC/ CIR/146/06/2020	Circulars	10/06/2020	Guidelines on public disclosures by insurers on the qualitative and quantitative parameters of the health services rendered to policy holders
IRDAI/HLT/REG/ CIR/151/06/2020	Circulars	11/06/2020	Modified guidelines on product filing in health insurance business-Norms on proportionate deductions
IRDAI/HLT/REG/ CIR/172/07/2020	Circulars	07/07/2020	Guidelines on standard individual health insurance product
IRDAI/HLT/REG/ CIR/253/10/2020	Circulars	13/10/2020	Norms on renewability, portability and migration of standard COVID specific products
IRDAI/HLT/REG/ CIR/051/03/2021	Circulars	18/03/2021	Modification in guidelines on standard individual health insurance product
IRDAI/HLT/REG/ MISC/199/07/2021	Circulars	23/07/2021	Standards and Benchmarks for the Hospitals in the provider Network

Though these regulations/guidelines have no direct impact on the key matrix under consideration, they are important in determining performance. They produced an environment that shaped the growth of Standalone Health Insurance Companies.

On the other hand, few regulations listed below have led to increased costs for insurers, who have had to adjust their pricing structures to accommodate higher risk associated with additional coverage.

Reference number	Regulation / Guideline	Date	Subject
RDA/HLT/REG/ CIR/212/10/2016	Regulations	27/10/2016	Clarification to Guidelines on standardization in Health Insurance
IRDA/HLT/GDL/ CIR/257/12/2016	Guidelines/ Instructions	23/12/2016	Clarification to Guidelines on Standardization in Health Insurance
IRDA/HLT/REG/ CIR/006/01/2017	Regulations	01/09/2017	Partial modification of the provisions of guidelines on standardization in health insurance
IRDA/HLT/REG/ CIR/064/03/2017	Regulations	24/03/2017	Modification in premium rates due to revised Commission/ Remuneration Structure and introduction of Reward System
IRDA/HLT/MISC/ CIR/128/08/2018	Miscellaneous	16/08/2018	The mental Healthcare Act, 2017
IRDA/HLT/GDL/ CIR/136/08/2018	Guidelines/ Instructions	27/08/2018	Modified Guidelines on Items for which optional cover may be offered by insurers
IRDA/HLT/MISC/ CIR/169/10/2018	Miscellaneous	10/09/2018	The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act,2017
IRDA/HLT/REG/ CIR/176/09/2019	Circulars	27/09/2019	Modification guidelines on Standardization in Health Insurance Product
IRDA/HLT/REG/ CIR/177/09/2019	Circulars	27/09/2019	Guidelines on Standardization of exclusions in Health Insurance contracts
IRDA/HLT/REG/ CIR/209/11/2019	Guidelines/ Instructions	26/11/2019	Modified guidelines in Standardization of Health Insurance Business
IRDA/HLT/REG/ CIR/002/01/2020	Guidelines/ Instructions	01/01/2020	Modification guidelines on Standardization in Health Insurance
IRDA/HLT/REG/ CIR/046/02/2020	Guidelines/ Instructions	02/10/2020	Amendments in respect of Provisions and guidelines on Standardization of Exclusions in Health Insurance contracts and Modification Guidelines on Standardization in Health Insurance
IRDA/HLT/REG/ CIR/054/03/2020	Circulars	04/03/2020	Guidelines on Handling of Claims reported under Corona Virus
IRDA/HLT/REG/ CIR/055/03/2020	Circulars	04/03/2020	Modification guidelines on Standard Individual Health Insurance Product
IRDAI/HLT/CIR/ MISC/093/04/2020	Circulars	16/04/2020	Providing mandatory medical insurance coverage to workers as part of the national directive of MHA, GOI.
IRDAI/HLT/REG/ CIR/096/04/2020	Circulars	21/04/2020	Norms on collection of health insurance premium during covid-19 crisis
IRDAI/HLT/MISC/ CIR/129/06/2020	Circulars	02/06/2020	Disclosure of underwriting philosophy of offering insurance coverage to Persons With Difficulty (PWD) and people affected with HIV/AIDS and mental illness diseases
IRDAI/HLT/REG/ CIR/149/06/2020	Circulars	11/06/2020	Guidelines on telemedicine
IRDAI/HLT/REG/ CIR/152/06/2020	Circulars	11/06/2020	Guidelines on standardization of general terms and clauses in health insurance policy contracts
IRDAI/HLT/REG/ CIR/156/06/2020	Circulars	23/06/2020	Guidelines on introduction of short term health insurance policies providing coverage for COVID-19 disease

Reference number	Regulation / Guideline	Date	Subject
IRDAI/HLT/REG/ CIR/164/06/2020	Circulars	26/06/2020	Guidelines on COVID Standard Benefit Based Health Policy
IRDAI/HLT/MISC/ CIR/189/07/2020	Circulars	14/07/2020	Provision of cashless facility to the policyholders
IRDAI/HLT/MISC/ CIR/190/07/2020	Circulars	15/07/2020	Guidelines on settlement of claims on treatment at 'Make-shift or Temporary Hospitals' as permitted by Government
IRDAI/HLT/REG/ CIR/193/07/2020	Circulars	22/07/2020	Master circular on standardization of health insurance products
IRDAI/HLT/REG/ CIR/197/07/2020	Circulars	24/07/2020	Filing of "Arogya Sanjeevani Policy" as group health insurance product
IRDAI/HLT/REG/ CIR/249/10/2020	Circulars	07/10/2020	Additional norms on portability under health insurance policies
IRDAI/HLT/REG/ CIR/25/02/2021	Circulars	03/02/2021	Guidelines on Standard Vector Borne Disease Health Policy
IRDAI/HLT/CIR/ MISC/053/03/2021	Circulars	19/03/2021	Health insurance claims settlement
IRDAI/HLT/MISC/ CIR/113/04/2021	Circulars	29/04/2021	Norms on settlement of COVID-19 health insurance claims
30/ HLT/GEN/ ministry/2022-23	Circulars	17/10/2022	Insurance cover for new-borns/infants Health Insurance policies
327/ IRDAI/HLT/MHCA/ CIR /220/10/2022	Circulars	18/10/2022	Providing cover for Mental Illness under Health Insurance policies
IRDAI/HLT/CIR/ REG/244/12/2022	Circulars	08/12/2022	Insurance cover for new-born-infants

Compliance with these standards requires Standalone Health Insurers to reassess their underwriting processes and improve their claims management. The revised standard exclusions now encompass modern treatments, advanced surgeries, and additional diseases like mental illness, age-related macular degeneration, and genetic disorders. These changes, along with the inclusion of a proportional deduction clause and coverage for telemedicine and AYUSH treatment without a sub-limit, are expected to increase costs for insurers. This might lead to future price increases to manage these expenses effectively.

Review of Literature

Main objective of review of literature is to assess and understand the existing work done by researchers across on Health Insurance Regulations and the impact on key metrics.

Segundo Camino-Mogro, Natalia Bermúdez-Barrezueta (2019) studied on "Profitability Determinants of Non life and Life Insurance companies with a special reference to Ecuador". Researchers studied to data between 2001 and 2017 to comprehend the factors influencing profit through standard errors regression. Researchers finally concluded that technical reserves, score efficiency, capital ratio and net premium are the key factors of life insurance sector. Among macro determinants, authors opined that the interest rate plays a vital role in profitability.

Popat, Mitesh Sureshbhai (2016) studied "LIC and its performance evaluation". This study aims to understand the factors determining the growth of LIC. This study factors a period between 2005-06 and

2013-14. This is the period, where insurance sector went through serious of reforms. Objective of this study was to understand the patterns of growth analyze variables determining growth and suggest suitable measures wherever necessary. Researcher concluded by stating that lack of awareness on insurance products strained the growth of insurance industry. In spite of deregulated market, researcher is of the opinion that LIC can retain their dominant position with product innovation and improved client servicing.

IRDAI (2015)[9] passed a regulation entitled "India's Insurance Regulatory Authority (Cost of Managing Insurance Providers conducting business in life insurance)". The profits of life insurers also depend on the cost at the product level and the level involved. "Administrative Expenses" will cover all costs in the form of expenses pertaining to operations including distributor commission payments to insurance agencies, arbitrators and policy sourcing mediators, charged by the Revenue Account.

Dr.Sumninder Kaur Bawa and Samiya Chattha (2013) submitted a research paper on "Life Insurer's performance in Indian Industry". In this research, authors measured the financial performance of insurance companies through statistical ratios.

The study is aimed at assessing the efficiency of Indian life insurers by examining profit indicators. Measuring the entry of insurance companies has found merit as they not only provide a way to save money and transfer risks but also help to move funds efficiently from the remaining economic units to the demise of economic units to aid infrastructure spending in the economy. Company's performance can impact the economy in totality and hence needed technical testing to assess efficiency. In determining efficacy estimates such as present rates, solvency rate, asset recovery and asset insurance rate are assessed. This research estimates that LIC has the right to earn money among all life insurance providers. In the case of independent players, companies such as SBI Life, Shriram Life, Sahara Life Insurance, IDBI Life and Future Generali have a strong position. As per solvency margins estimates, life insurers such SBI Life, Sahara Life Insurance, Max Life Insurance, IDBI Life, Bajaj Allianz Life and Aviva Life Insurance have higher solvency rates when we compare with other companies. In terms of return IPRU and Bajaj Allianz stand out. LIC has stability and depicts a decent picture in terms of efficiency. According to profit analysis, the performance of LIC has improved significantly than that of independent players. Research analysis indicate that profitability leads to strong purchasing power and magnitude. Results also showed profit does not have significant relationship with solvency and insurance awareness.

Objectives of the Study

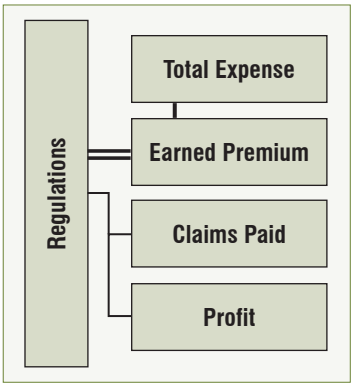
- ✓ The study seeks to examine the impact of regulations on key metrics before 2015 and after 2015
- ✓ The study aims to understand the impact on regulations on profit before 2015 and after 2015
- ✓ The study seeks to assess the impact of regulations on Earned Premium, Total Expense and Claims paid before 2015 and after 2015.

Statement of Problem

- ✓ With more than 8,300+ crore deployed as capital and over 440+ branches becoming operational Health Insurance companies are still grappling to wipe out accumulated losses.
- ✓ We still have all standalone health insurance companies incurring losses which is an alarming situation.
- ✓ Accumulated losses of all Health Insurance Companies is close to 4958 crores.
- ✓ Regulator came out with series of regulations impacting key metrics of standalone health insurance companies.

Conceptual Framework

- ✓ While we have many determinants influencing businesses across insurance industry, regulations impact on key metrics is noteworthy.



Sl no.	Objectives	Research Questions	H0/Ha	Hypothesis
1	This study aims to find out if there is any significant difference in Profit, Earned Premium, Total Expenses and Claims Paid before 2015 and after 2015?	How does Profit, Earned Premium, Total Expenses and Claims Paid differ before 2015 and after 2015?	H0	There is no significant difference in Profit, Earned Premium, Total Expenses and Claims Paid before 2015 and after 2015.
2	This study aims to investigate if there is significant difference in Profit before 2015 and after 2015.	How does Profit differ before 2015 and after 2015?	H1	There is significant difference in Profit before 2015 and after 2015.
3	This study seeks to assess if there is significant difference in Earned Premium before 2015 and after 2015.	How does Earned Premium vary before 2015 and after 2015?	H2	There is significant difference in Earned Premium before 2015 and after 2015.
4	This study aims to understand if there is significant difference in Total Expense before 2015 and after 2015.	What was the variance in Total Expense before 2015 and after 2015?	H3	There is significant difference in Total Expense before 2015 and after 2015.
5	This study seeks to assess if there is significant difference in Claims Paid before 2015 and after 2015.	How does Claims Paid vary before 2015 and after 2015?	H4	There is significant difference in Claims Paid before 2015 and after 2015.

	Slno	Year	Profit	Earned Premium(in 1000s)	Total Expense	Claims Paid
GROUP1	1	2006-2007	-25903	48893	149535	15007
	2	2007-2008	12765	882312	266349	672437
	3	2008-2009	12368	3014525	504221	2584694
	4	2009-2010	-332954	6104307	1189905	5317328
	5	2010-2011	-1088563	8395421	2100087	7621979
	6	2011-2012	-2664061	8594241	3621836	8030895
	7	2012-2013	-2800967	6526801	5705673	4111945
	8	2013-2014	-3662753	9947107	7968769	6595970
	9	2014-2015	-4471696	14935633	11137710	9315230
GROUP2	10	2015-2016	-1995835	22656653	12051407	12691107
	11	2016-2017	-1053069	31349893	16443848	17916866
	12	2017-2018	-1174282	44132491	22020712	25935180
	13	2018-2019	-2279551	61538013	28972693	37031538
	14	2019-2020	-1074675	81224555	34747596	50270833
	15	2020-2021	-13482886	89855564	44460622	67900602
	16	2021-2022	-17930946	160867822	67530992	127180151
	17	2022-2023	4572440	208119605	85434216	127873061

Insurance industry always remained highly regulated. New regulations have a direct bearing on both top line and bottom line for an insurance company. This is pertinent to all lines of business viz. Life Insurance, General Insurance and Health Insurance. Among the lines of business, health insurance business has wider ramifications from the impactful regulations. Regulations vary in terms of effectiveness on various parameters of business. A guideline helping earned premium not necessarily will show an uptick on profitability. Researcher needs to analyze the impact of regulations on all parameters that is both dependent and independent variables. This research is aimed to factor regulatory impact on Profit which is dependent variable and Earned Premium, Total Expense, Claims Paid which are independent variables. In order to ascertain the impact of regulations, researcher has bifurcated entire Standalone health insurance companies journey in two groups. Group 1 is for the duration between 2006-2007 and 2014-15. This can be seen as a period which remained least impacted from the regulations. Even though we have certain guidelines/circulars passed by IRDAI, it was mostly directional. However with the tussle between SEBI and IRDAI during 2010, industry went through series of regulations especially on expenses which has a bearing on both the revenue and profitability. Hence Group 2 is identified for analysis between 2015-16 and 2022-23. While the sample size for Group1 is 9, sample size for Group 2 is 8.

F-Test Two-Sample for Variances		
Parameters	**Group1**	**Group2**
Mean	-4302350.5	-1669084.9
Variance	5.5565E+13	3.0723E+12
Observations	8	9
df	7	8
F	18.0855958	
P(F<=f) one-tail	0.00025926	
F Critical one-tail	3.50046386	
P two-tail	0.00051851	

In order to firm up the option to choose between T-Test for Equal variance and T-Test Unequal variance, researcher deployed F-Test Two Sample for Variances. Mean Variance for Group 1 is -4302350 whereas for Group 2 it is -1669084. Objective of this test is to look at variance between groups. Researcher assumed Null Hypothesis to be that there is no variance between the groups and alternate hypothesis with a variance between the groups. For Group 1 Variance is at 5.5565E for Group 2 Variance at 3.0723E. Prima facie, it appears that there is a variance between the groups. However, researcher wants to establish that the variance between the groups is not by chance. Hence when the researcher went ahead with further analysis, the outcome is that the F-Statistics is much higher than the F-Critical value which only establishes the fact the Null Hypothesis can be rejected. This is further corroborated with a p-value which is 0.00051851. For analysis purpose, level of significance is kept at <5 percent. Considering that p-value is less than 5% we reject null hypothesis. If p value is less than 0.05 then assume it is unequal variance.

Hence the outcome of this analysis clearly indicates that researcher should proceed with t-test assuming unequal variance.

t-Test: Two-Sample Assuming Unequal Variances-Profit		
Parameters	**Group 1**	**Group 2**
Mean	-1669084.889	-4302350.5
Variance	3.07233E+12	5.5565E+13
Observations	9	8
Hypothesized Mean Difference	0	
Df	8	
t Stat	0.975484577	
P(T<=t) one-tail	0.178945164	
t Critical one-tail	1.859548038	
P(T<=t) two-tail	0.357890328	
t Critical two-tail	2.306004135	

As per the above analysis the mean profit for Group 1 is -1669084.889 and mean for Group 2 is -4302350.5. Research identifies variance in both the group

means. Similar difference is observed in both Group Variances. Group1 Variance is 3.07233E+12 whereas Group2 variance is 5.5565E+13. However what is equally important is to find out whether the variance exhibited by groups are statistically significant. T-stat is at 0.975484577 and the t critical two-tail factor is 2.306004135. Null hypothesis assumes that the variance between the groups is statistically significant. However the outcome of t Sat 0.975484577 only indicates that this figure does not fall under rejection area. Hence we cannot reject null hypothesis. When Researcher does further analysis it is found that P value of two-tail is 0.357890328. Significance level is set at 5% which is 0.05. Any value which is less than 5% is considered as statistically significant. However the value is 0.35 for two-tail which is higher than 0.05. Hence Researcher fails to reject null hypothesis on both fronts.

However what is equally important is to find out whether the variance exhibited by groups are statistically significant. T-stat is -3.496926762 and the t critical two-tail factor is 2.364624252. Null hypothesis assumes that the variance between the groups is statistically significant. The outcome of T stat indicates that -3.496926762 falls in the rejection area hence we can reject null hypothesis.

When Researcher does further analysis it is found that P value of two-tail 0.010034509. Significance level is set at 5% which is 0.05. Any value which is less than 5% is considered as statistically significant. Here the value is 0.01 for two-tail. Hence Researcher rejects null hypothesis on both fronts.

t-Test: Two-Sample Assuming Unequal Variances-Expense		
Parameters	**Group 1**	**Group 2**
Mean	3627120.556	38957760.75
Variance	1.5124E+13	6.63127E+14
Observations	9	8
Hypothesized Mean Difference	0	
Df	7	
t Stat	-3.841845303	
P(T<=t) one-tail	0.003179651	
t Critical one-tail	1.894578605	
P(T<=t) two-tail	0.006359303	
t Critical two-tail	2.364624252	

t-Test: Two-Sample Assuming Unequal Variances-Earned Premium		
Parameters	**Group 1**	**Group 2**
Mean	6494360	87468074.5
Variance	2.20627E+13	4.26987E+15
Observations	9	8
Hypothesized Mean Difference	0	
Df	7	
t Stat	-3.496926762	
P(T<=t) one-tail	0.005017255	
t Critical one-tail	1.894578605	
P(T<=t) two-tail	0.010034509	
t Critical two-tail	2.364624252	

As per the above analysis the mean Earned Premium for Group 1 is 6494360 and mean for Group 2 is 87468074.5. Research identifies variance in both the group means. Similar difference is observed in both Group Variances. Group1 Variance is 2.20627E+13 whereas Group2 variance is 4.26987E+15.

As per the above analysis the mean Expense for Group 1 is 3627120 and mean for Group 2 38957760. Research identifies variance in both the group means. Similar difference is observed in both Group Variances. Group1 Variance is 1.5124E+13 whereas Group2 variance is 6.63127E+14. Since the variance is established, researcher needs to identify that the variance is indeed impacting the overall outcome. T-stat is -3.841845303 and the t critical two-tail factor is 2.364624252. Null hypothesis assumes that the variance between the groups is statistically significant. The outcome of T stat indicates that -3.841845303 falls in the rejection area hence we can reject null hypothesis.

When Researcher does further analysis it is found that P value of two-tail 0.006359303. Significance level is set at 5% which is 0.05. Any value which is less than 5% is considered as statistically significant. Here the value is 0.006359303 for two-tail. Hence Researcher rejects null hypothesis on both fronts.

t-Test: Two-Sample Assuming Unequal Variances- Claims Paid		
Parameters	**Group 1**	**Group 2**
Mean	4918387.222	58349917.25
Variance	1.09338E+13	2.13604E+15
Observations	9	8
Hypothesized Mean Difference	0	
Df	7	
t Stat	-3.262509674	
P(T<=t) one-tail	0.006908214	
t Critical one-tail	1.894578605	
P(T<=t) two-tail	0.013816428	
t Critical two-tail	2.364624252	

As per the above analysis the mean Claims Paid for Group 1 is 4918387 and mean for Group 2 is 58349917. Difference in both the group means is significant and researcher needs to evaluate further to find out if it is statistically significant. Similar difference is observed in both Group Variances. Group1 Variance is 1.09338E+13 whereas Group2 variance is 2.13604E+15. However what is equally important is to find out whether the variance exhibited by groups is also statistically significant. T-stat is --3.262509674 and the t critical two-tail factor is 2.364624252. Null hypothesis assumes that the variance between the groups is statistically significant. The outcome of T stat indicates that -3.262509674 falls in the rejection area hence we can reject null hypothesis.

When Researcher does further analysis it is found that P value of two-tail 0.013. Significance level is set at 5% which is 0.05. Any value which is less than 5% is considered as statistically significant. Here the value is 0.01 for two-tail. Hence Researcher rejects null hypothesis on both fronts.

Conclusion

In conclusion, the health insurance sector in India is experiencing rapid expansion, with Standalone Health Insurance companies showing significant growth. This growth is attributed to regulatory changes aimed at enhancing the accessibility, affordability, and quality of health insurance products. While some regulations have focused on strengthening procedural aspects, other regulations such as those related to product filing, standardization of exclusions, and the Mental Healthcare Act, 2017, play a crucial role in shaping the market dynamics. While these regulations may initially increase insurers' costs, but they are designed to benefit both insurers and policyholders in the long run by improving the overall quality and coverage of health insurance products.

From the statistical analysis it is evident that regulations did not have any significant impact on profitability. This could be due to heavy losses getting accumulated by standalone health insurance companies. However, recent circulars and guidelines have had a great uptick on the other three key metrics viz. Earned Premium, Total Expenses and Claims Paid. There is a variance on Earned Premium, Total Expense and Claims Paid both pre-2015 and post-2015.

Standalone health insurance companies need to adapt to these regulatory changes by revising their underwriting processes, claims management practices, and pricing structures. By doing so, they can ensure their long-term sustainability and continue to meet the evolving needs of the market. TJ

Disclaimer

The views and opinions expressed in this article are solely those of the authors and do not reflect the official policy or position of any organization or entity with which the authors are affiliated. These views are personal and are not intended to defend or advocate for any individual, group or entity. The information is for general informational purpose only.

Impact of Covid 19 on Demand for Health Insurance Policies

Dr. Leena Nair
Leena.nair@vsit.edu.in

Dr. Leena Nair has teaching experience of 18 years and research experience of 14 years. She has published 22 research papers in various journals. She has co-authored 9 books. She has administrative and managerial experience of 16 years.

Vijay Gawde
Vijay.gawde@vsit.edu.in

Mr. Vijay Gawde has teaching experience of 17 years and research/industrial experience of 5 years. He has administrative and managerial experience of 10 years. The researcher has published 10 research papers in various journals. The researcher has co-authored 4 books.

Abstract

Health insurance has evolved as a most steady financial management instrument for Indian people who are interested and who are seeking for health care. India health insurance received a major boost after the outbreak of deadly COVID-19 pandemic. During the starting phase of the prevalent pandemic, there has been change in mindset and thought process of individual. The individual opinions saw major transformation about medical and health related issues. The public became more serious and started taking health seriously and individual opinion about medical and health insurance programs also saw major shift. Hence, this study makes an effort to find out the effect of Covid 19 on demand for health insurance policies in Mumbai region. It also tries to understand and to know the perceptions of individual towards buying health insurance policies. It can be concluded that Covid -19 had a positive impact on the buying behaviour of health insurance policy.

Keywords

Health insurance, Covid -19, Buying behaviour, Demand.

Introduction

Health insurance sector in Indian is becoming popular and evolving only after life and automobile insurance sector. The increase in the income level, increase in life expectancy and ever-increasing hospitalization expense and expensive health care, digitization and increase in awareness level has led to the growth in the health insurance sector which is visible. Most of the times individuals have insured home while buying house., buying a vehicle, and taking loan for child's education. But at the same time, thinking is not followed in terms of health insurance But post 2019, it can be seen that change in the lifestyle has also bought tremendous pressure on the health. The illness or accident in any one's life can give a major bolt to the existing financial planning in anybody's life. This can seriously impact the existing finances and have negative impact on the lifelong savings. Therefore, having good health insurance plan has become one of the essentials like food clothing shelter and education.

The outbreak of Covid -19 has become eye opener for the Government as well as households and the importance of health insurance is being realised by most of the sensible individuals.

There was decrease in the global real premiums by around 1.3 per cent in the year 2020, which is almost one third drop in GDP. Even though there was negative impact in the life insurance sector in 2020 the non-life sector continued to show growth in premium.

According to IRDAI reports 2021, due to pandemic there was paradigm shifts for insurance which was considered positive. This shift was due to higher risk awareness and continuous growth in digitization. There seems to be positive structural trends for insurance. Global health and protection-type insurance premiums increased by 1.9 per cent and 1.7 per cent, in 2020 even though there was social distancing affecting distribution.

The reports which were released by general insurance council (GI Council) showed that health segment continued to deliver strong growth (29% for FY22 and 17% in September 21) on a relatively stronger base,

PHDCCI president Pradeep Multani has forecasted that health insurance sector see the increase and growth at 10.1 percent between 2021 and 2027. According to him there is a need to develop customised products in case of Health insurance segment because one product won't suffice and may not be suitable to take care of the requirement of all the people concerned.

Objectives of Study

1. To analyse the growth of health insurance sector post lock down of Covid-19 period.
2. To study the effect of Covid-19 on the demand of health insurance policy.
3. To analyse the perception of customers while purchasing health insurance policy.

Hypothesis

1. There is growth in the health insurance segment of insurance sector after the outbreak of Covid-19.
2. Covid- 19 Pandemic had significant effect on the purchasing behaviour of health insurance policy.

Research Methodology

Data collection:

1. **Secondary data**: IRDAI reports of 2020,2021,2022,2023, report of General Insurance Council. The outbreak of the Covid-19 started in December 2019. Hence for analysing Secondary data health insurance premium and the issued by General and health Insurers were taken and comparison was made for the year 2018-2019 period which was before the outbreak and 2019-2020,2020-2021,2022,2203 period after outbreak of Covid-19. For analysing the growth of health insurance trend analysis for last ten years, segment mean scores of premium of health insurance were taken for pre and post Covid-19 period. Paired T test was conducted.
2. **Primary data**: It was collected through well-structured questionnaire. Questionnaire was drafted for the consumers of health insurance policy. To understand the buying behaviour and impact of covid 19 respondents were asked about whether they have health insurance policy, type of insurance, timing of buying health insurance (pre Covid-19 or post Covid -19), increasing the limit of insured amount (pre Covid-19 or post Covid -19), individual or family plan, etc.

Review of Literature

Surendar Rangasamy et al. (2019)[1] mentioned in their research that almost 50% of the respondent who were selected in urban area of Puducherry of the study were aware of the health insurance concept, but they were not utilising the same. There was strong association between type of family, educational status and awareness about health insurance. The study suggested the need to launch information, education, and communication activities in order to increase various Government and private health insurance schemes.

Madan Dutta (2020)[2] in his study used secondary data. The study found out that health insurance market was not able to attract younger population of the society. It was suggested to introduce entry age-based pricing attracting group of customers. It also suggested instantaneous claim investigation for curbing unethical practice and cheating that takes place while making claims.

Dr. Rajendra Mishra and Shailesh Kumar (2012)[3] and Vitthal Patil et al. (2015)[4] mentioned that the healthcare sector has become major sector in creating revenue and employment. It consists various stakeholders, such as hospitals, diagnostic centres, medical devices and equipment, telemedicine, medical tourism, clinical trials, and health insurance. The study forecasted that the healthcare market in India will be increased and reach to value of □8.6 trillion by 2022, The major source for this increase is rising income levels, greater health awareness, changing of lifestyle diseases, and various awareness drive and new schemes introduced by the government, such as Pradhan Mantri Jan Arogya Yojana (PM-JAY), National Digital Health Mission (NDHM), etc. There is also increase and improvement in medical tourism due to the availability of quality healthcare and highly qualified medical professionals which has improved access to insurance.

Rohit Kumar & K Rangarajan (2011)[5] mentioned in their study that as per the research even the insurance companies and providers of health care (hospitals) don't trust each other which leads to lack of faith which in turn affects the settlement of claims. The study also found that most of the customer are not aware of basic health insurance policy terms and conditions. There is shortage of trained and dedicated workforce which again pose threat to health insurance sector and its affordability.

BlueWeave Consulting and Research Pvt Ltd (2022)[6] mentioned that India health insurance market is witnessing boom, and this is expected to grow at a CAGR of 10.1% during the period (2021-2027). The growth of the health insurance market of India can be due to the rising existence of chronic diseases and increasing awareness among the public regarding the benefits of health insurance. Furthermore, various initiatives taken by the government such as Ayushmann Bharat that provide health insurance coverage of up to five lakhs has helped in strengthening the growth of the health insurance market during the forecast period.

Sumi Dutta (2022)[7] mentioned in their research that although health insurance concept came to India in the year in 1985, it got a major come back in 2001 when the private sector players were given entry in the insurance sector. The premium which stood at Rs 690 crore in 2001, grew to Rs 73,300 crore in 2021-2022 which is almost increase by 106 times. The researcher further cited the paper prepared by National Insurance Academy titled Health Insurance in 2020: Challenges and Opportunities under the Union Finance Ministry where 58,572crore was collected as health insurance premium by Insurance companies in 2020-21 which jumped to Rs 73,330 crores in the next financial year.

NITI Ayog (2021)[8] in its report, which was on Health Insurance for India's Missing Middle, mentioned that health insurance is considered as a financial instrument where high level of Out of the Pocket Expenditure (OOPE) in India is arranged which covers risk and provide safety against health shocks that can come any time without giving any indication. Hence, health insurance cover leads to efficiency in the organization and delivery of healthcare for upgrading and better health results. It is observed and experienced that increase in health insurance coverage leads to decrease in impoverishing health expenditure by providing some limit on the maximum health expenditure incurred by an individual or household.

As per the review of various literature it has been observed that Covid-19 has made some impact on the perception of Indian population towards Health Insurance as a financial management tool. Hence this research attempts to study the impact of Covid-19 on the buying behaviour of selected respondents of the study.

Data Analysis

Hypothesis:

There is growth in the health insurance segment of insurance sector after the outbreak of Covid-19.

In order to study the growth of health insurance after the outbreak of Covid 19 following data were analysed:

I. Trend in Health insurance premium was taken for last ten years from IRDAI reports

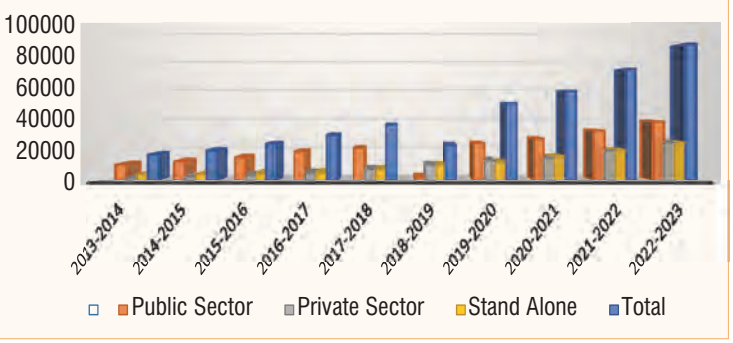
II. Growth in Policies issued by General and Health insurances were also taken.

Table 1 Trend in Health Insurance Premium (Excluding PA & Travel Insurance Business) in Crores

Insurance	Public Sector	Private sector	Stand Alone	Total	Trend 10 years Cumulative	Yearly Growth
2013-2014	10841	2172	4482	17495	100	
2014-2015	12882	2828	4386	20096	114.8671049	114.8671
2015-2016	15591	3946	4911	24448	139.7427837	121.6561
2016-2017	19227	5332	5632	30191	172.5693055	123.4907
2017-2018	21509	7830	7689	37028	211.6490426	122.6458
2018-2019	23536	10681	10655	44872	256.4847099	121.1840
2019-2020	24632	13736	12391	50759	290.1343241	113.1195
2020-2021	27728	15135	15875	58738	335.7416405	115.7194
2021-2022	32943	20001	20107	73051	417.5535867	124.3675
2022-2023	39058	25252	25182	89492	511.5290083	122.5062

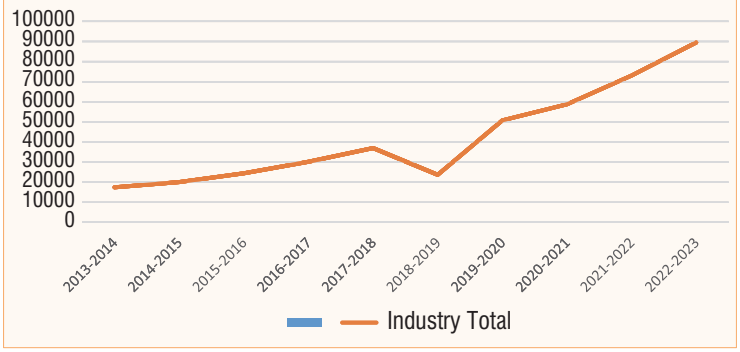
(Source: IRDAI Reports)

Fig I: Sector Wise Growth of Health Insurance Premium



(Sources: Researcher's Compilation)

Trend in Health Insurance Premium



The above data clearly indicates that there was steep rise in the health insurance premium collected during 2019-2020 and 2020-2021compared to 2018-2019. As outbreak of covid started December 2019. So it clearly shows that outbreak of covid has led to the growth of almost 114% increase in health insurance premium in the year 2019-2020 and 147% growth compared to 2018-2019. Hence can be concluded that Covid –19 led to the growth of Health insurance premium in India. It is observed that till 2018-2019 there is 35% increase in premium collected compared to 2013-2014. But then till 2022-23 there almost increase of 511% in the premiums collected.

Table 2. Policies Issued by General and Health Insurers

	2018-2019	2019-2020	2020-2021
Public Sector Insurers	733.02	733.50	684.27
Private Sector Insurers	1021.23	1263.91	1259.72
Stand-alone Health Insurers	79.04	92.18	105.41
Specialized Insurers	78.49	325. 50	417.93
Total	1911.78	2415.09	2467.33

(Source: IRDAI reports)

The above table shows the policies issued by General and Health Insurers in India. It can be observed that there was increase in the total number of General and Health insurance policies in the year 2019-2020 and 2020-2021 compared to 2018- 2019. There is steep growth in new policies issued by the stand-alone health insurers.

In order to test the hypothesis, Paired T test was conducted on the means scores of health insurance premium for pre Covid period and post Covid period.

In order to study the growth of health insurance after the outbreak of Covid 19 following data were analysed.

Hypothesis testing:

T Test: Paired Two Sample for Means	Insurance Industry (Sector Wise Analysis)_					
	Public Sector Segment		Private Sector Segment		Stand Alone Segment	
	Pre Covid	Post Covid	Pre Covid	Post Covid	Pre Covid	Post Covid
Mean	17302.25	31090.25	4984.00	18531.00	5654.50	18388.75
Variance	14622798.25	39977146.92	4648866.67	27285860.67	2100527.00	30464190.92
Observations	4	4	4.00	4	4	4
Pearson Correlation	0.98		0.99		0.97	
Hypothesized Mean Difference	0		0.00		0.00	
df	3		3.00		3.00	
t Stat	-10.42		-8.74		-6.17	
P(T<=t) one-tail	0.00		0.00		0.00	
t Critical one-tail	2.35		2.35		2.35	
P(T<=t) two-tail	0.00		0.00		0.01	
t Critical two-tail	3.18		3.18		3.18	

H0: There is no significant difference in mean score of premium before and after Covid-19

H1: There is significant difference in mean score of premium before and after Covid-19

Since, p value is less than 0.05, the test is statistically significant. There is significant difference in mean score of premium before and after Covid-19

It can be concluded that post Covid-19 score mean score of premium is higher than pre Covid-19 mean score of premium

Hence it can be accepted that there is growth in the health insurance segment of insurance sector after the outbreak of Covid-19.

Hypothesis

Covid- 19 Pandemic had significant effect on the purchasing behaviour of health insurance policy.

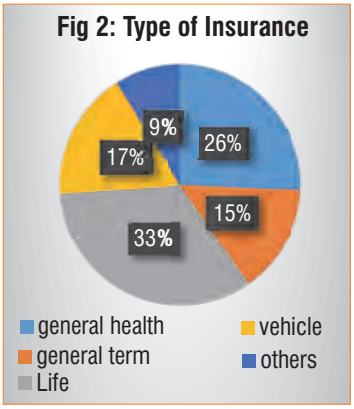
Analysis of Primary Data

Table No 3

Details of Respondents with subscribed for various type of Insurance

Type of Insurance	No of respondents
General health	52
General term	30
Life	68
Vehicle	35
others	18
Total	203

Fig 2: Type of Insurance

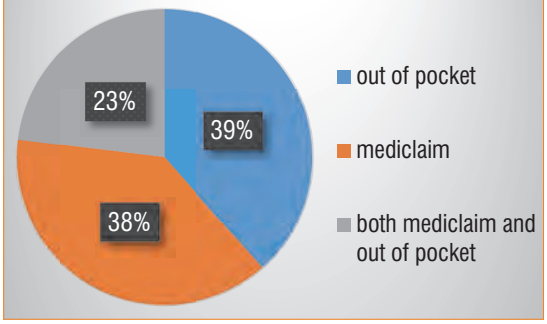


The above table shows that out of 203 respondents only 52 have taken health insurance which accounts to only 26% of the total respondents.

Table No 4: Meeting Hospitalisation Expenses

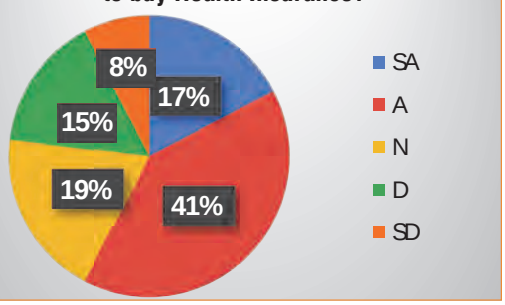
Meeting hospitalisation expenses	No of respondents
Out of own pocket	20
med claim	20
both med claim and out of own pocket	12

Fig 3: Meeting hospitalisation expenses



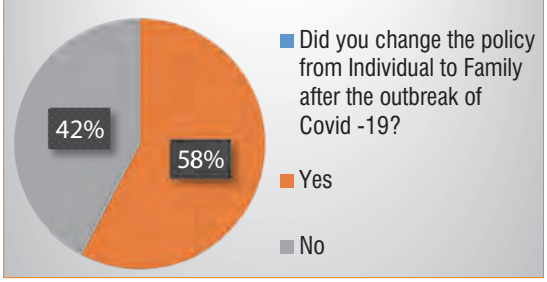
Out of total respondents only 38% have agreed that they are able to meet their hospitalisation expenses through Med claim. For, the remaining 62% Mediclaim is not sufficient to meet their hospitalisation expenses.

Fig 4: Did Outbreak of Covid -19 influenced you to buy Health Insurance?



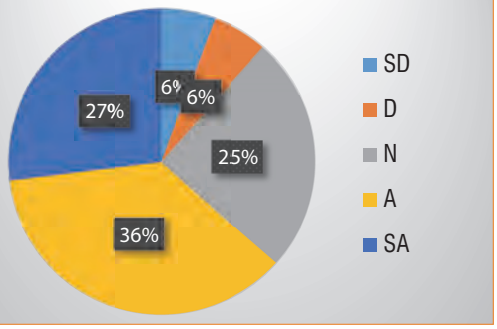
Almost 85% of the total respondents agreed that Covid-19 had influenced them to buy health insurance policy.

Fig:5 Did you change policy from Individual to family after the outbreak of Covid-19



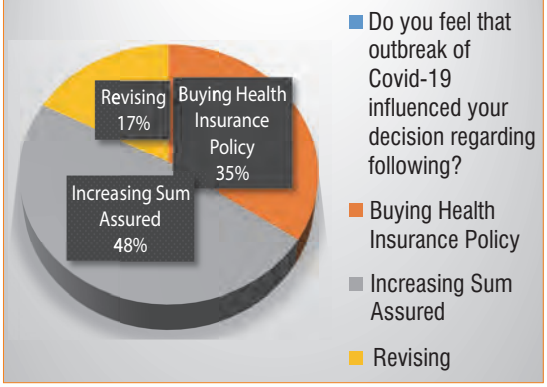
58% of the respondents agreed that they changed their policy form individual to family after the outbreak of Covid-19.

Fig :6 Health Insurance as Financial Tool



Almost 60% of the respondents considered Health Insurance as a financial tool

Fig 7: Influence of Covid-19 on Buying Decision



It was found that due to Covid-19, 17% of the respondents thought of revising the health insurance policy from individual to family. Furthermore, 48% had increased the sum assured It has to be noted that 35% of the respondents agreed they bought the health insurance policy because of outbreak of Covid-19. Out of the total respondent who had taken health insurance policy, below were the findings: -

1. The researcher's calculated correlation coefficient between income of the respondent and timing of buying of health insurance. The value of r = 0.1733. There was a weak correlation between income of the respondent and buying of health insurance policy. It can be concluded that buying the health insurance policy is not dependent on income. So, it was due to outbreak of Covid-19.

2. Similarly, the correlation between income and increasing the sum assured due to outbreak of Covid -19 was negative, r = -0. 219.
3. From the above analysis it was observed that income did not have significant impact on the increasing the sum assured.
4. Finally, it is accepted that Covid -19 had positive impact on the buying behaviour of health insurance policy.

Conclusion

1. Hence it was concluded that Covid-19 had significant impact on the buying behaviour of health insurance Policy.
2. Still penetration of Health Insurance is low as it can be seen out of 203 respondents only 52 had taken Health Insurance policy.
3. The amount of the Medi-Claim is not enough to meet the hospitalisation expenses as only 38% were able to meet the hospital expenses with med claim amount
4. Finally, Covid -19 had positive impact on the buying behaviour of Health insurance policy.

Suggestions

There is need to have customized health insurance policies. The assured amount of med claim needs to be increased based on the increasing cost of hospitalization.

References

1) Rangasamy, S., M, A., S, M., R, S., S, K., & S, S. (2019). *Awareness on Health Insurance among a selected Urban Population in Puducherry*. Research Gate. Retrieved March 28, 2024, from https://www.researchgate.net/publication/341732131_Awareness_on_Health_Insurance_among_a_selected_Urban_Population_in_Puducherry
2) Dutta, M. (2020, September 1). *Health insurance sector in India: an analysis of its performance*. Emerald. Retrieved March 27, 2024, from https://www.emerald.com/insight/content/doi/10.1108/XJM-07-2020-0021/full/pdf
3) Mishra, R., & Kumar, S. (2012, July 1). *Making Indian Healthcare Market a Global Medical Tourism Destination*. IOSR Journal. Retrieved March 27, 2024, from https://www.iosrjournals.org/iosr-jbm/papers/vol2-issue4/D0242328.pdf?id=5512
4) Patil, V., Amrutkar, S., Sharma, B., & Ramachandran, M. (2015, May). *Emerging Trends and Future Prospects of Medical Tourism in India*. Research Gate. Retrieved March 27, 2024, from https://www.researchgate.net/publication/276271060_Emerging_Trends_and_Future_Prospects_of_Medical_Tourism_in_India
5) Kumar, R., & Rangarajan, K. (2011, December). *Health Insurance in India: Factors Affecting Synergy among Insurers and Healthcare Providers*. Research Gate. Retrieved March 27, 2024, from https://www.researchgate.net/publication/308940836_Health_Insurance_in_India_Factors_Affecting_Synergy_among_Insurers_and_Healthcare_Providers
6) Blue Weave Consulting. (2022, January). *India Health Insurance Market*. Retrieved March 27, 2024, from https://www.blueweaveconsulting.com/report/india-health-insurance-market
7) Dutta, S. (2022, May 11). Health insurance premium collected in India grew 25% during peak COVID year. *Money Control*. Retrieved March 27, 2024, from https://www.moneycontrol.com/news/trends/health-trends/health-insurance-premium-collected-in-india-grew-25-during-peak-covid-year-8486261.html
8) NITI Aayog. (2021, October 29). *Health Insurance for India's Missing Middle*. Retrieved March 28, 2024, from https://www.pib.gov.in/PressReleasePage.aspx?PRID=1767498

Ensuring Train Travel Safety for All: Extending Accessibility of ₹0.35 Paise Travel Insurance to Every Reserved Passenger

Karthik R.
karthik.r@mcom.christuniversity.in

Karthik R., pursuing MCOM specializing in Insurance and Risk Management at CHRIST (Deemed to be University) Bangalore,. Scored 71% in Licentiate Exams conducted by the Insurance Institute of India in December 2023. Having completed his undergraduate studies at LOYOLA College, Chennai, his interests encompass personal finance management, microeconomics, and exploring innovative business ideas.

Ashwitha K. P.
ashwitha.p@mcom.christuniversity.in

Ashwitha K. P., currently pursuing MCOM specializing in Insurance and Risk Management at CHRIST (Deemed to be University) Bangalore. Having earned Bachelor's in BCOM Finance and Accounts from the same esteemed institution. Her passion lies in finance, accounts, risk management, and various other facets of banking and insurance.

Dr. Saravanakrishnan V.
saravanakrishnan.v@christuniversity.in

Dr. Saravanakrishnan V. is an esteemed faculty member at CHRIST (Deemed to be University) Bangalore, holding an MBA, EPAF, and a PhD. His research interests primarily lie in commerce, finance, and accountancy, with a keen focus on leveraging artificial intelligence and machine learning in business operations, particularly during the COVID-19 era.

(Source : IRCTC allows passengers to opt out of its automated travel insurance, The Economic Times' Infra.com dated 18th June 2023)

The Odisha train collision in 2023, on June 2, was a terrible railway accident in Balasore, Odisha, India. Three trains, including the Coromandel Express, crashed near Bahanaga Bazar railway station, causing 296 deaths and injuring over 1,200 people. The incident involved a high-speed derailment and collision, making it India's deadliest rail crash since 1995. The collision occurred when the Coromandel Express mistakenly entered a passing loop instead of the main line, colliding with a goods train. The impact derailed 21 coaches of the Coromandel Express, three of which collided with the Bengaluru–Howrah Express on the adjacent track. This incident underscores the importance of travel insurance for train passengers.

Travel insurance becomes crucial in unforeseen circumstances like accidents, providing financial protection and assistance to affected individuals and their families. The compensation announced by the railways and the Government may not cover all the losses, making travel insurance a vital safety net. It serves as a reminder for travelers to consider the value of insurance in safeguarding against the unexpected during train journeys.

The travel insurance policy at ₹0.35 paise covers expenses for death, disabilities, and medical costs resulting from a train accident during the journey. When the insurance scheme commenced in 2016, passengers paid a premium of ₹0.92 paise, with insurers including Shriram General Insurance Company Ltd, ICICI Lombard General Insurance Company Ltd, and Royal Sundaram General Insurance Co. Ltd. Currently, Two general insurance companies, namely SBI General Insurance Company Ltd and Liberty General Insurance Company Ltd, offer this insurance coverage. Now, in this article, we aim to explore ways to make the ₹0.35 Paise Travel Insurance accessible to all passengers, regardless of whether they reserve their train tickets through the IRCTC app or website or at the railway station counters. Currently, this insurance facility is limited to those booking through the IRCTC app or website. Passengers who book their tickets at manually operated railway reservation counters are not entitled to avail of this insurance scheme. However, the goal is to extend this beneficial coverage to all passengers, ensuring comprehensive protection for all reserved travelers.

Eligibility of IRCTC Travel Insurance

(Source : IRCTC Optional Travel Insurance for e-ticket passengers.)

1. The insurance scheme is applicable exclusively to Indian citizens.
2. It is only available for passengers who book their e-tickets through the IRCTC Website or App.
3. The scheme is optional. However, if passengers opt in, it becomes compulsory for all passengers booked under one PNR number.
4. Optional travel insurance is provided for CNF (Confirmed) and RAC (Reservation Against Cancellation) tickets at the time of booking.
5. Since November 1, 2021, the premium per passenger, inclusive of all taxes, is ₹0.35 paise.
6. After booking a ticket, the policyholder needs to fill in the nomination details on the respective insurance company's website. If nomination details are not filled, settlement shall be made with legal heirs in case of a claim.
7. The optional travel insurance is not provided for children below 5 years of age who book the ticket without a berth/seat.

Coverage of IRCTC Travel Insurance

(Source : IRCTC Optional Travel Insurance for e-ticket passengers.)

1. The coverage includes various scenarios like train accidents, untoward incidents, short termination, and diversion of trains.
2. To request or make a claim, the Insured passenger should reach out directly to the insurance company.

Scope of Cover	Sum Insured in ₹
Accidental Death	₹ 10,00,000
Permanent Total Disablement	₹ 10,00,000
Permanent Partial Disablement	Up to ₹ 7,50,000
Hospitalization Expenses for Injury	Max up to ₹ 2,00,000
Transportation of mortal remains	Max up to ₹ 10000

Exclusions of IRCTC Travel Insurance

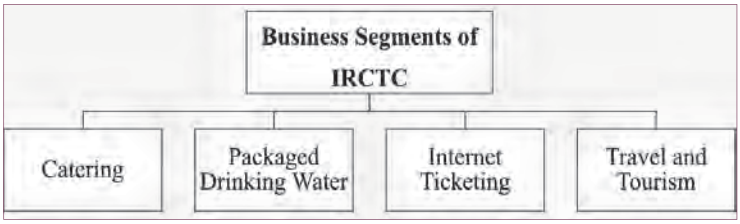
(Source : IRCTC Optional Travel Insurance for e-ticket passengers.)

1. The insurance company won't be liable for compensation if the insured engages in fraudulent activities to claim benefits.
2. The insurance does not cover losses or damages arising from intentional self-injury, suicide, or attempted suicide.
3. No compensation will be provided for incidents occurring while under the influence of alcohol or drugs.
4. The policy excludes coverage for injuries or incidents caused by engaging in adventurous sports or activities.

5. Claims on injuries or incidents before or after the journey date are excluded, except for delays in train departure or arrival.
6. The policy does not cover instances where the ticket was booked but the passenger did not board the train, whether canceled or not.
7. Costs associated with pregnancy, childbirth, or congenital diseases are also excluded.
8. The insurance doesn't apply to injuries, illnesses, or damage caused by nuclear weapons, radiation, or radioactive materials.

Business Segments of IRCTC

(Source : Indian Railway Catering and Tourism Corporation Limited Annual Report 2021 - 2022)



Making Train Travel Insurance Easy and Accessible : Suggestions for IRCTC and Indian Railways

1. IRCTC and Indian Railways should collaborate to provide ₹0.35 Paise Travel Insurance for individuals booking tickets at railway stations, expanding the coverage beyond online bookings. Public awareness campaigns through railway station advertisements will inform passengers that this affordable insurance option is now accessible to those booking tickets at reservation counters. The objective is to ensure that all passengers, regardless of how they book their tickets, can avail of this insurance option when making reservations.
2. Installing posters at railway station reservation counters to assist smartphone users in applying for insurance during counter bookings by scanning QR codes. These posters not only guide passengers on opting for insurance but also highlight the benefits of this insurance. Additionally, the messaging on the posters emphasizes that this insurance is now available even for passengers booking tickets at the counter, extending the coverage to all reservation methods. Alongside their ticket booking message, another SMS will be sent, providing details about travel insurance benefits and a link for application, which corresponds to the QR code on the poster. Smartphone users can easily apply for insurance by following the instructions on the posters or by clicking the link received in the SMS. The provided link will prompt users to enter their PNR Number, and after entering it, the travel details, including the number of passengers, will be displayed. A checkbox will allow users to opt for insurance. Once selected, they can proceed to make payment conveniently through the "Make Payment" button using their preferred method. This process is designed to be simple and accessible.
3. Non-smartphone users can access insurance by using a dedicated number provided on posters. Sending their PNR through SMS will generate an automatic message confirming insurance, with the premium debited from their linked bank account. After this process, users will receive the policy number along with the confirmation message. It's recommended to link the mobile number to the bank account for automatic premium deduction. In cases where users lack a bank-linked mobile number, family members can opt for insurance on their behalf.
4. The Travel Insurance is currently not available for passengers with waitlisted tickets. Even if their tickets get confirmed after chart

preparation, they don't have access to this travel insurance. Usually, once the chart has been prepared, we receive a message noting that the chart is prepared and mentioning the berth number and the coach number. If the ticket was initially on the waiting list and gets confirmed after chart preparation, passengers can now avail this insurance. When the message comes in, showing that the ticket is confirmed, another message will also be sent regarding the insurance. This message, similar to the one discussed earlier, will contain a link, details for the insurance, and a dedicated mobile number. This ensures that even non-smartphone users can avail the benefits.

5. Include details about insurance and how to apply for it in regional languages, along with Hindi and English, on posters at reservation counters in railway stations. This is to make sure everyone can easily understand the information and make informed decisions about the insurance in a language they are comfortable with.

6. To raise awareness through advertisements about this insurance, the goal is to educate them about the positive aspects of the insurance coverage without instilling fear about potential issues. The aim is to give people helpful and clear information that encourages them to think about choosing this useful option when they book tickets.

7. IRCTC should collaborate with a global insurance company capable of providing coverage for international travelers during their train journeys. This collaboration should extend to passengers from diverse countries without limitations to specific regions. Implementing this service initially on the IRCTC website is recommended, acknowledging that there could be different charges for international coverage. This ensures a comprehensive and accessible insurance solution for travelers from around the world.

8. When traveling with a child under Five, there should be an option to include them in the insurance. During ticket booking, there will be a separate section to provide details about the child. This ensures coverage for the child in case of any accidents during the journey. The child can be included in the ticket without requiring a separate berth allocation, simplifying the process of providing insurance coverage. This feature can be initially introduced at Counters Ticket Bookings, given that the reservation form already includes a section for entering details about children under Five.

9. For people with basic mobile phones who book tickets at stations, the nominee for their bank account will serve as the nominee for the insurance. If they need to make any changes, the poster also explains an easy step to update nominee details using the same mobile number.

10. IRCTC should send the insurance policy number via SMS when a person opts for insurance. Currently, after booking a ticket, the policy number is shared through email for updating nominee details. However, as IRCTC aims to offer insurance to a larger audience, relying on emails for communication is not efficient, especially for passengers booking Counter tickets. Therefore, once insurance is purchased through the link provided in the SMS after ticket booking, the policy number and the link to update nominee details should be included in the same SMS.

11. When passengers purchase tickets at the counter, IRCTC should directly help with the insurance process on their platform instead of redirecting them to the insurance company's website. This allows passengers to conveniently provide nominee details using their PNR number, similar to the process when booking tickets through IRCTC online. This ensures security and simplifies insurance for counter ticket bookings.

Benefits to Passengers, Insurance Company, IRCTC and Indian Railways

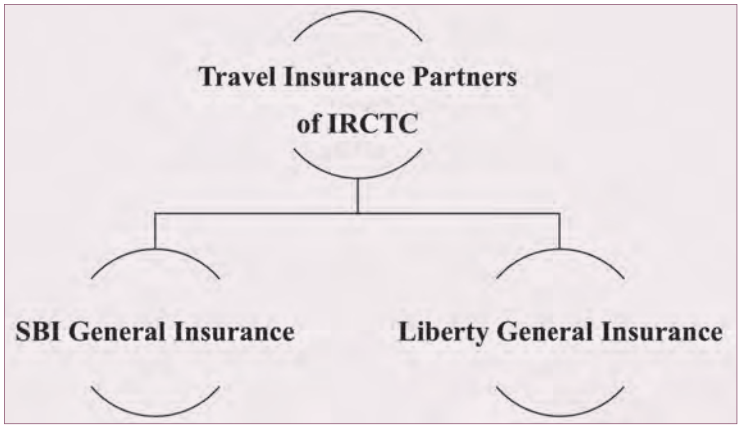
Based on the above suggestions given to IRCTC and Indian Railways to make this travel insurance accessible to all reserved passengers, if they implement the suggestions, the following benefits will occur :

Benefits to Passengers -

- ➔ Passengers, regardless of their booking method (online or at counters), can effortlessly access ₹0.35 Paise Travel Insurance.
- ➔ Parents traveling with children under five can include them in the insurance coverage during ticket booking without requiring a separate berth allocation.
- ➔ Smartphone users benefit from a convenient QR code or SMS application, while non-smartphone users have the advantage of a dedicated mobile number for application, ensuring wider accessibility.
- ➔ Simplified insurance booking process through IRCTC eliminates the need for customers to visit another website.
- ➔ Automatic deduction of premiums for non-smartphone users streamlines the payment process, ensuring efficiency.
- ➔ Collaboration with global insurance companies broadens options for diverse coverage and facilitates travel insurance for International Travellers on Indian Trains.
- ➔ Currently, the insurance costs ₹0.35 paise, mainly chosen by those booking online. They all share the expenses together. If we offer this insurance to counter ticket passengers and more people decide to get it, the cost for each person might drop, maybe even to ₹0.30 paise

Benefits to Insurance Company -

(Source : Indian Railway Catering and Tourism Corporation Limited Annual Report 2021 - 2022)



- ➔ Offering insurance to even Counter ticket reserved passengers attracts a larger number of customers, ensuring a wider reach for insurance services.
- ➔ Expanding travel insurance to more people taps into a larger group, aligning with the Law of Large Numbers principle. This principle helps insurance companies predict and collect the appropriate funds for coverage. By broadening the customer base, it creates a stable and equitable system where unforeseen events impacting an individual don't lead to significant challenges for the entire group. This ensures the insurance system's strength and reliability over time.

Benefits to IRCTC -

- ➔ Collaborating with insurance companies can lead to revenue-sharing models, providing an additional income stream for IRCTC. With the newly accessible option for passengers booking tickets at counters, there is a potential for increased insurance participation. This means that as more passengers choose to insure their journeys, it not only enhances the safety measures but also contributes to additional revenue for IRCTC through the revenue-sharing arrangement with the insurance companies. Making insurance more

accessible aligns with the goal of promoting safety and creating a partnership that benefits both IRCTC and insurance providers financially.

Benefits to Indian Railways -

- ➔ Offering insurance to even Counter ticket reserved passengers demonstrates a commitment to passenger safety and well-being.
- ➔ Proactive measures to provide accessible insurance contribute to a positive public perception of IRCTC and Indian Railways.

Conclusion

In conclusion, the initiative to make ₹0.35 Paise Travel Insurance widely accessible to all reserved passengers is a crucial step towards enhancing train travel safety. By extending coverage beyond online bookings to include railway station counter reservations, every passenger, regardless of their preferred booking method, can benefit from this affordable insurance. Simplifying the application process for both smartphone and non-smartphone users, providing options for children under five traveling with their parents, and collaborating with global insurance companies are proactive measures that contribute to passenger well-being. Moreover, addressing the concern of waitlisted ticket passengers by enabling them to avail the insurance after chart preparation, but specifically when their tickets get confirmed, adds an extra layer of inclusivity. This comprehensive and inclusive approach not only provides financial protection for unforeseen incidents during train journeys but also reinforces the positive perception of IRCTC and Indian Railways in prioritizing passenger safety. Additionally, when more people sign up, the insurance could become cheaper for each person, making it more affordable and ensuring the system stays strong and reliable.

TJ

References

Infra, E. (2023, July 18). IRCTC allows passengers to opt out of its automated travel insurance. ETInfra.com. https://infra.economictimes.indiatimes.com/news/railways/irctc-allows-passengers-to-opt-out-of-its-automated-travel-insurance-cover/101860010

Optional Travel Insurance For E-Ticket Passengers. (n.d.). https://contents.irctc.co.in/en/InsuranceTermCondition.pdf

Optional travel insurance scheme. (n.d.). https://pib.gov.in/Pressreleaseshare.aspx?PRID=1595897

Indian Railway Catering and Tourism Corporation Limited Annual Report 2021 - 2022. (n.d.). https://irctc.com/assets/images/Annual%20Report%202021-22.pdf

Guidelines for contributors of the Journal

Note to the Contributors:

"The Journal" quarterly publication of Insurance Institute of India, Mumbai. It is published in the month of Jan/ April/July/Oct every year. "The Journal" covers wide range of issues related to insurance and allied areas. The Journal welcomes original contributions from both academicians and practitioners in the form of articles. Authors whose papers are published will be given honorarium and two copies of the Journal.

Guidelines to the Contributors:

1. Manuscript submitted to the Editor must be typed in MS-Word. The length of the Manuscript should be 2500-5000 words.
2. General rules for formatting text:
   i. Page size : A4 (8.27" X 11.69")
   ii. Font: Times New Roman - Normal, black
   iii. Line spacing: Double
   iv. Font size: Title - 14, Sub-titles - 12, Body- 11 Normal, Diagrams/Tables/ Charts - 11 or 10.
3. The first page of the Manuscript should contain the following information of the Author(s) –
   (i) Title of the paper
   (ii) The name
   (iii) Email address
   (iv) Photo
   (v) Brief profile - The profile will include 2 to 3 lines about author's professional qualification and experience in the field.
4. **Abstract:** A concise abstract of maximum 150 words is required. The abstract should adequately highlight the key aspects or state the objectives, methodology and the results/major conclusions of analysis. The abstract should include only text.
5. **Keywords:** Immediately after the abstract, provide around 3-6 keywords or phrases.
6. **Tables and Figures:** Diagrams, Tables and Charts cited in the text must be serially numbered and source of the same should be mentioned clearly wherever necessary. All such tables and figures should be titled accurately and all titles should be placed on the top after the number. Example: Table 1: Growth Rate of Insurance Premium in India (1997-2010).
7. **References:** all the referred material (including those from authors own publication) in the text must be appropriately cited. All references must be listed in alphabetical order and sorted chronologically and must be placed at the end of the manuscript. The authors are advised to follow American Psychological Association (APA) style in referencing.

- **Reference to a Book:** Author. (Year). *Title of book.* Location: Publisher.

  Example: Rogers, C. R. (1961). *On becoming a person.* Boston: Houghton Mifflin.

- **Reference to a Journal publication:** Author(s). (Year). Title of the article/ paper. *Journal name*, volume (issue), page number(s).

  Example: Smith, L. V. (2000). Referencing articles in APA format. *APA Format Weekly, 34(1),* 4-10.

- **Reference to a Web Source:** Author. (Date published if available; n.d.--no date—if not). Title of article. *Title of website*. Retrieved date. From URL.

  Example: Landsberger, J. (n.d.). Citing Websites. In *Study Guides and Strategies.*

Retrieved May 13, 2005, from http://www.studygs.net/citation.htm.

8. Usage of abbreviations in the text should be avoided as far as possible and if used should be appropriately expanded.

9. The Manuscript submitted must be original work and it should not have been published or submitted for publication elsewhere. The author(s) are required to submit a declaration to this extent in the format specified in Appendix 1, while submitting their Manuscript.

10. Once article is published in any particular issue (e.g. January-March issue) then next contribution of particular author will not be accepted for immediate issue of the Journal (i.e. April-June issue).

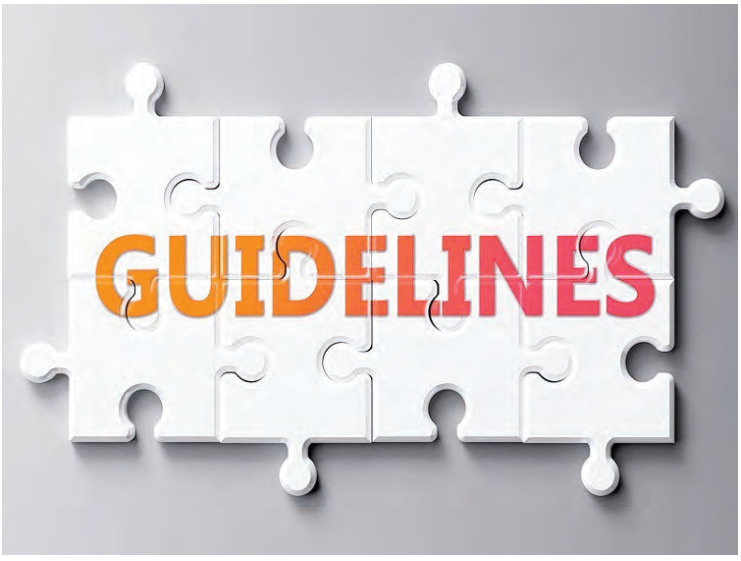
11. All the submissions would be first evaluated by the editor and then by the editorial Committee. Editorial committee may require the author to revise the manuscript as per the guidelines and policy of the Journal. The final draft is subject to editorial changes to suit the journals requirements. Editorial Committee also reserves its right to refer the article for review/ delete objectionable content/ edit without changing the main idea/ make language corrections/ not to publish/ publish with caveats as per its discretion. The Author would be duly communicated with such decisions.

12. Contribution(s) should reach the designated email address at III on or before 31st October (January-March issue), 31st January (April-June issue), 30th April (July-September issue).

13. Please send your manuscripts to <journal@iii.org.in> with subject line as "Contribution for "The Journal" January/April/July/October (Mention Year) issue.

14. All enquiries related to the submissions should be addressed only to the Editor.

15. Copyright of the published articles and papers would rest with "The Journal of Insurance Institute of India" and any further reproduction would require prior and written permission of the Editor.



Appendix I

Declaration by Authors

I/we (Full Name of the Author(s)) .... hereby declare that I/we are the author(s) of the paper titles "....." (Title of the paper), which is our original work and not the intellectual property of anyone else. I/we further declare that this paper has been submitted only to the Journal of the Insurance Institute of India and that it has not been previously published nor submitted for publication elsewhere. I/we have duly acknowledged and referenced all the sources used for this paper. I/we further authorize the editors to make necessary changes in this paper to make it suitable for publication.

I/we undertake to accept full responsibility for any misstatement regarding ownership of this article.

.....	.....
(Signature Author I)	**(Signature Author II)**
Name:	**Name:**
Date:	
Place:	

Courses offered by College of Insurance (COI)

Post Graduate Courses in collaboration with University of Mumbai

- **Post Graduate Diploma in Health Insurance (PGDHI)**
  - The Post Graduate Diploma in Health Insurance (PGDHI) is a one year part time post graduate (two semesters) program.
  - The PGDHI Course comprises *7 Papers and a Research Project.*
  - The Course covers all aspects of Health Insurance including health economics, product development, rating, risk evaluation, human anatomy, diagnostics, underwriting, claims processing, importance of data analytics, fraud prevention and functioning of Third Party Administrators (TPAs).
- **Post Graduate Diploma in Insurance Marketing (PGDIM)**
  - The Post Graduate Diploma in Insurance Marketing (PGDIM) is a one year part time post graduate (two semesters) program.
  - The PGDIM Course consists of 8 Papers and a Research Project.
  - The Course covers various topics relating to Insurance Marketing including Principles of Economics and Economic Environment, Risk Management and Underwriting of Life/ General/ Health Insurance lines, Understanding Buyer Behaviour, Marketing, Communication, Branding with specialization in Life Insurance or General Insurance.

Certificate Courses offered by College of Insurance (COI)

CC1 - Certificate course in Life Insurance Marketing

- **Duration of the course - 4 months**
- **Mode of Teaching -** Self-study + 3 days Online Contact Classes
- **Total hours of Teaching -** 18 hours for Online Contact Classes (to solve queries)
- **Exam pattern -** Assignments + MCQ Final Exam

CC2 - Advanced Certificate in Health Insurance – Virtual

- **Duration of the course - 4 months** [3 hours (morning) session on **Saturday** and **Sunday**]
- **Mode of Teaching -** Virtual Training
- **Total hours of Teaching -** 90 hours
- **Exam pattern -** Project Work + MCQ Final Exam

CC3 - Certificate Course in General Insurance

- **Duration of the course - 3 months** [full day session (6 hours) on **Saturday** and half day session in morning (3 hours) **Sunday**]
- **Mode of Teaching -** Virtual Training
- **Total hours of Teaching -** 100 hours
- **Exam pattern -** Weekly Exam + MCQ pattern

CC4 - Certificate Course in Investigation and Fraud Detection in Life Insurance

- **Duration of the course - 3 days** [full day session (6 hours)]
- **Mode of Teaching -** Virtual Training
- **Total hours of Teaching -** 15 hours for Online Contact Classes
- **Exam pattern -** MCQ pattern

NOTES

Form IV (Rule 8)

Statement about ownership and other particulars about the Journal of Insurance Institute of India to be published in the first issue every year after the last day of February.

1.	Place of Publication	Mumbai
2.	Periodicity of the Publication	Quarterly
3.	Printer's Name Nationality (a) Whether a citizen of India? (b) If a foreigner, the country of origin Address	Sneha Vikas Pednekar Indian Yes N.A. Insurance Institute of India Plot No. C-46, G-Block, Bandra Kurla Complex, Mumbai – 400051.
4.	Publisher's Name Nationality (a) Whether a citizen of India? (b) If a foreigner, the country of origin Address	Sneha Vikas Pednekar Indian Yes N.A. Insurance Institute of India Plot No. C-46, G-Block, Bandra Kurla Complex, Mumbai – 400051.
5.	Editor's Name Nationality (a) Whether a citizen of India? (b) If a foreigner, the country of origin Address	P. Jaipuria Indian Yes N.A. Insurance Institute of India Plot No. C-46, G-Block, Bandra Kurla Complex, Mumbai – 400051.
6.	Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital.	

I, Sneha Vikas Pednekar, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Date: 15th June 2024

Sd/-
SNEHA VIKAS PEDNEKAR
Signature of Publisher

RNI No. MAHENG/2013/50733 ISSN No. 2278-6759

भारतीय बीमा संस्थान
INSURANCE INSTITUTE OF INDIA

Online Lending Library

Group Corporate Membership

Insurance Institute of India introduces a new segment in Online Lending Library named **Group Corporate Membership (GCM)** especially for corporates. In GCM, various branches/depts. of a Company can utilise library facility. Corporates can make use of rich collection of books on Insurance, Risk, Reinsurance, Finance, Tax, Law, Management & many more.

Group Corporate Membership Plans:

Particulars	Plan 1	Plan 2	Plan 3
No. of Branches/Dept.	5	10	15
Refundable Security Deposite	100000	200000	300000
Annual fees	75000 + GST	125000 + GST	175000 + GST
No. of Login	5	10	15
No of Books per login	5	5	5
Issue Period	1 month	1 month	1 month
Renew Period	1 month	1 month	1 month

* GST as applicable

GCM Services

- *More than 7000 books to choose from*
- *Free office delivery & pick up of books*
- *Delivery within 48 hours from order*
- *Multiple logins for each Company*
- *Back issues of last 6 months of National/ International Journals on insurance/ Finance/management will be issued*
- *Maximum 20 books in total will be issued to Cos. at a point of time*

Contact Details

Library, Knowledge Management Centre, Insurance Institute of India
Plot No C-46, G Block, Bandra Kurla Complex, Bandra (East), Mumbai 400 051.
Email – library@iii.org.in | Website – www.insuranceinstituteofindia.com