



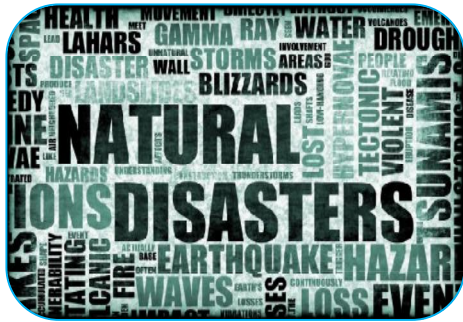
ROLE OF NON-STRUCTURAL MEASURES IN THE STRATEGIC DISASTER MANAGEMENT WITH SPECIAL EMPHASIS ON DISASTER INSURANCE

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ABSTRACT:

Natural Disasters are abundant in number and high in magnitude in India. Disaster preparedness only may reduce the aftermath of these catastrophic events to some significant extent. That requires well-planned strategic disaster management plan depending up on the region-specific existing levels of vulnerabilities. Both structural and non-structural measures of disaster management cycle play important role in such control initiatives. Catastrophic insurance may play a significant role among the non-

structural measures of natural disaster control. After-effects of man-made disasters have been brought under severe control but number of natural ones has only increased. With the increasing probabilities of changing climate a warning may be apprehended to the policy-makers of this country to encourage capable measures to control the magnitude of devastation caused by natural disasters. Both Life and Non-life insurance premium has been found to increase since 1980 with drops during 1998 and 2001 over Asia. Insurance density has also been found to increase in the same time frame.

KEYWORDS: Catastrophe Risk, Disaster Insurance, Disaster management, Non-structural measures .

INTRODUCTION

India has been ranked as third most disaster prone country in the entire world by United Nations Office for Disaster Risk Reduction (UNISDR). Large fraction of the country's population resides in these vulnerable areas. Thus the impact of natural disasters over human population has only increased. Figure 1 show the casualty caused due to severe disaster events in the previous decade. So Far there has been good initiatives in

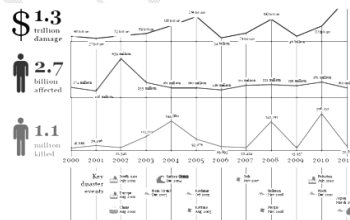


Fig. 1 Impact of Disaster during 2000-2011 (Source: UNISDR)

making structural disaster management (DM) approaches under Disaster Preparedness step of the DM cycle. Such measures help to control the aftermath of natural disasters to significant extent. However there is an increase in demand

for Non-structural measures as well depending on the vulnerability of various regions. India has taken certain serious non-structural steps to minimize the aftermath of any kind of catastrophe. Such measures may be summarized in the following table (Table 1). Globally the idea of disaster insurance has a history of being allocated as fire and marine insurance. In recent times Catastrophe loss has been studied through modeling studies due to their intensive utility in Finance and Insurance industry. Thus knowledge of disaster insurance or catastrophe risk insurance is an emerging area in financial sector. It is basically a monetary agreement

between an individual and an insurance company enabling the beneficiary to get compensation for losses -incurred during a disaster. There are three types of insurance pools identified viz. Mutual Societies, Commercial Insurance and Government Schemes. Government schemes constitute of four vectors of Funds, Funding Roles, Federal

Table 1 Non-structural measures taken in India

1. Early Warning System (EWS)
2. Risk Reduction Strategies
3. Education about EWS from school level
4. Information and prompt communication services
5. Continuous monitoring
6. Research and Development
7. Capacity Building
8. Provision of disaster specific insurance

Supplements Types and Nature of the events. Funds are supplied in the name of Calamity Relief Funds (CRFs) 75% of which is given by central government. Disaster Health Insurance associated with these pools can play a significant role in curbing the after effects. The normal fire insurance is now also being clubbed with wind-damage coverage. Economic effects due to disasters are mainly due to uninsured losses on overall country average. Uninsured losses account for almost 72% out of the total economic loss

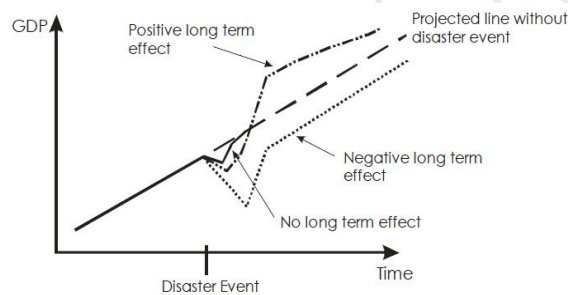


Fig. 2 Post-disaster potential trajectories of GDP (Source: Hochrainer, 2006)

mostly in developing countries. Thus insurance penetration is much lower in emerging economies. Global insured losses were of 23billion USD out of total economic loss of 44 billion USD in 2017. Out this total loss 41billion USD only was due to natural disaster. This is normally measured with respect to annual GDP of individual countries. Figure 2 depicts the probable changes in trajectories of GDP due to a disaster event. Regionally disaster can have a certain positive impacts on development the economical opportunities. It can change the allocation of funds for efficient infra-structural facilities over a disaster-prone region. Present study emphasizes on the importance of disaster insurance for a developing country like India where more than 50% of the population live in disaster risk zones. It highlights the currently available non-structural measure in terms of disaster insurance to curb disaster effects and the potential benefits that can be harnessed out of that. Inter-relationship between economic parameters and status of catastrophic is explored from financial projections .

DATA AND RESEARCH METHODOLOGY

Data has been obtained from EM-DAT Belgium database and National Disaster Management Authority. Some illustrations are also utilized from Sigma Explorer interface of Swiss Re Institute. Following parameters are studied for the time – period of 1980-2017.

- Direct Premiums Written (DPW)
- Real Premium Growth (RPG)
- Premiums Per Capita (PPC)

- Premiums as a Percentage of GDP (PPGDP)
- Real GDP Per Capita (RGDPPC)
- Real GDP Growth (RGDPG)
- This study reviews the parameters chosen for non-structural disaster management and their current usage. Thus it suffices the main objective of the study to make a concise statement about disaster management and available insurance back-up ways.

Analysis of Results

- Status of Catastrophe related losses:
- The extent of monetary loss in past two years have been projected in figure 3 by the examining the ratio of Economic Loss (EL) and Insured Loss (IL) due to Natural Disaster (Nat-Dis) and other Anthropogenic causes to the total Catastrophic Losses of the world. It is evident that in 2017 more EL and IL has occurred with more of insured loss for anthropogenic reasons.

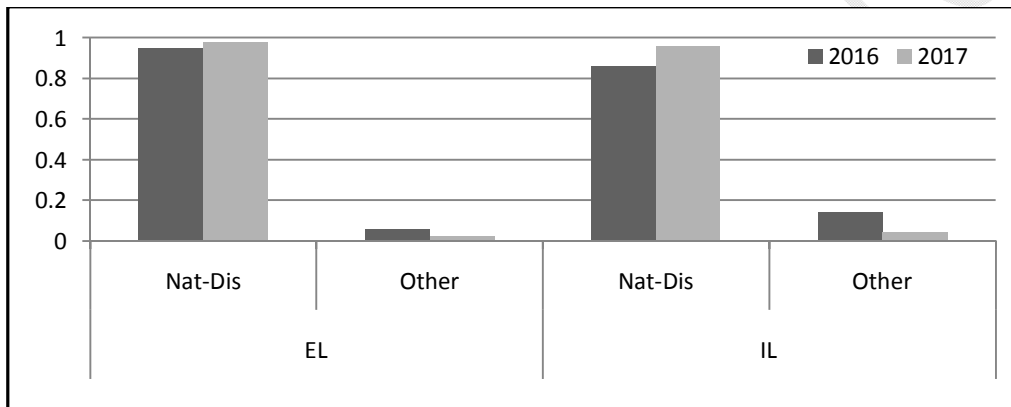


Fig. 3 Projections of Economic and Insured losses

Variation of Economic parameters:

The distribution of DPW is checked continent and country wise for 2017 (Fig. 4). It is identifiable that North America and Advanced Europe has greater contribution

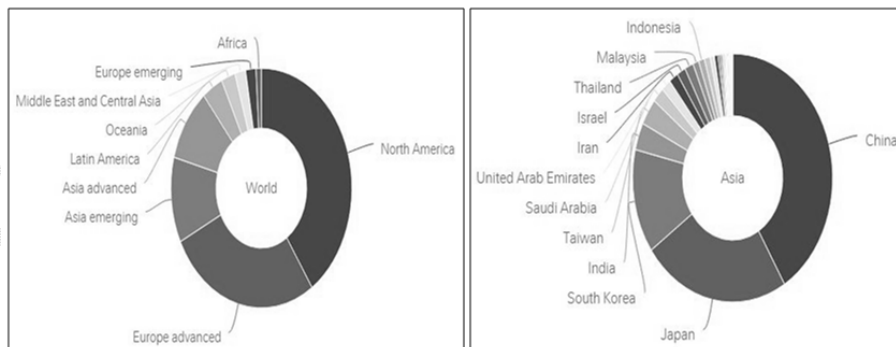


Fig. 4 Global and country wise contribution to Catastrophe insurance

to DPW of Catastrophe insurances in the world with Africa showing the least coverage and thus the susceptibility of their organization is also reflected. India is observed to be in the third position in terms of DPW contribution while coming after China and Japan. Still it is low as the index of vulnerability is quite high in different parts of the country and for an emerging economy it may largely affect the growth rate of the country. The variation of direct premium (DPW), insurance density (PPC) and insurance penetration (PPGDP) is

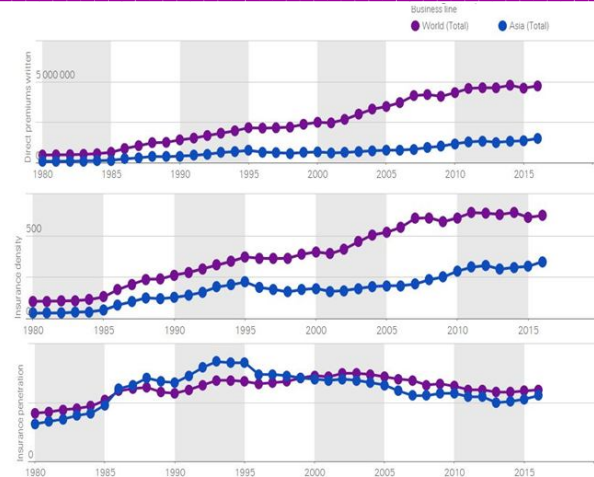


Fig. 5 Variation of DPW, PPC and PPGDP

observed for 1980-2016 in global and Asian coverage for catastrophe insurance market (Fig. 5). Direct premium and insurance density follows identical growth pattern. Insurance penetration is following a stabilized pattern after 2005. It is interesting to observe that Asian insurance penetration (PPGDP) was higher than that of the entire world during 1985-1995. Both of the trends stabilized after 2010. The inter-relationship between DPW with other insurance parameters are checked for Asian countries for 2016. The variations are shown in figure 6. It is evident from the figure that the GDP of a

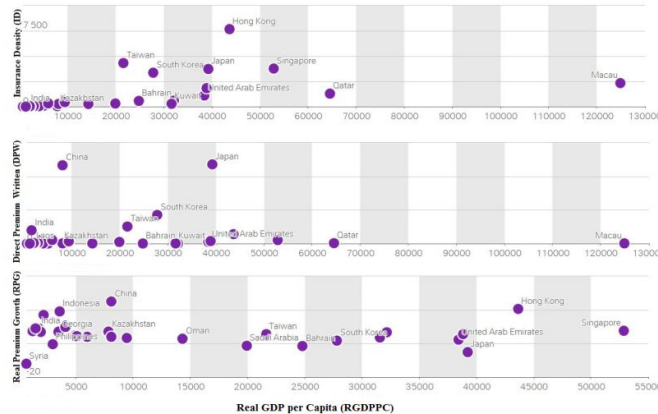


Fig. 6 Inter-dependence of economic parameters of disaster insurance RGDPPC vs ID (top), RGDPPC vs. DPW (middle) and RGDPPC vs. RPG (bottom)

country has an important role to play in deciding the behavior of catastrophe insurance market. India shows a nominal account in this case in comparison to other Asian countries.

CONCLUSION

Disaster insurance is an emerging field in the market that may help curbing down the casualty levels of developing countries. But there are a few precursor stages to achieve such noble goal. Research and development and imparting the knowledge about different catastrophe insurance scheme can really help in restoring economic status of a region a lot faster. Present study highlights the non-structural measures taken in India. The economic parameters those can reflect the status of disaster insurance in Asia sector and compare position of India to other countries. GDP has a significant role in estimation of extent of insurance coverage. More study is required in this field with region specific data

to evaluate and scheme up a process that may be followed to create a non-structural plan to control the effects of a disaster regionally and nationally.

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