

Estimation of Earthquake Loss for Earthquake Insurance and Expectation for Active Fault Research

Nobuo Marukusu[1]; Masahiro Yoshimura[1]

[1] Non-Life Insurance Rating Organization of Japan

Earthquake insurance systems for residences and household goods were established in 1966, with the Niigata Earthquake in 1964 as the turning point. Losses to be covered in earthquake insurance are losses arising concerning the object insured due to fire, destruction, burial or flood directly or indirectly caused by earthquake, volcanic eruption or tsunami, and, moreover, the degree of loss is total loss, half loss or partial loss. The government undertakes reinsurance contracts of earthquake insurance. Therefore earthquake insurance that is operated jointly by the non-life insurance companies and the government is the insurance to have high publicity. There are two types of earthquake insurance in Japan—one for residences and the other for offices and factories, etc.—and this paper deals with the former.

Premium rates for earthquake insurance are stipulated as standard rates in the Law Concerning Non-Life Insurance Rating Organizations (Law No.193 of 1948). The standard rates are calculated by non-life insurance rating organizations, filed with the Financial Services Agency under the Rating Organization Law and determined through such procedures as assessment. A premium rate for earthquake insurance is composed of a risk premium rate and a loading rate. Risk premium rates are to be appropriated to the insurance claims to be paid arising from earthquake disasters, etc., which will occur in the future. Loading rates are to be appropriated to the expenses of operating the earthquake insurance, and the paperwork cost of insurance policies, adjustment costs at the time of payment of insurance claims, and the commissions to be paid to agencies.

Even in Japan, which is recognized as the most earthquake prone country in the world, the number of occurrence of earthquake disasters is very small, compared with other disasters. Therefore, the law of large numbers, the basics of rating method are not applicable to earthquake risks. So, in earthquake insurance rating, the risk premium rate of earthquake insurance is calculated with estimation of earthquake loss.

In this paper, we explain the summary of the current earthquake insurance system and earthquake insurance rate at first. Then we report it about statistics of earthquake insurance, difficulties of making seismic risk insurable, rating method, and estimation of earthquake loss for rating. Finally we report it about expectation for the future active fault research from the viewpoint of rate calculation of earthquake insurance.