

**TAKAYOSHI NAKAOKA**

Kindai University, Japan

**TAKUYA URAKAMI**

Kindai University, Japan

**HIROYUKI INABA**

Kindai University, Japan

## **BIASED TECHNOLOGICAL CHANGE IN THE JAPANESE NON-LIFE INSURANCE INDUSTRY**

### **Abstract:**

Since 1996, insurance industry deregulations in Japan has allowed Life and Non-Life insurers to enter into each other's business sectors through subsidiaries. Many of previous studies in the world have conducted empirical analyses to investigate impacts of mutual entry, suggesting there have been (dis) economies of scope, conglomerate discount (premium), etc. However, in the case of Japanese insurance industry, the impact of mutual entry is still controversial; technical change in their production process might be affected by newly developed services, mutual use of customer information, and among others. Therefore, the purpose of this paper is to investigate the impacts of Japanese insurers' mutual entry on the production technology with estimating the translog cost function. Japanese Non-Life insurance industry data over the 1985-2014 periods is used, and obtained results are as follows: (1) technological change has been biased due to labor-saving and insurance agency-using, (2) the intensity of bias tends is much stronger among the mutually entered companies, (3) mutually entered companies relish economies of scale with the increasing trend of their core business.

### **Keywords:**

Insurance industry deregulation

Mutual entry

Biased technological change

**JEL Classification:** G22, L25, O38