

摘要

自 1999 年以來，台灣汽車車體損失險的投保率下降且損失率逐年上升，與強制第三責任險損失率逐年下降形成強烈對比，理論上若按個人風險程度計收保費，吸引價格認同的被保險人加入並對高風險者加費，則可提高投保率並且確保損失維持在合理範圍內。基於上述背景，本文採用國內某產險公司 1999 至 2002 年汽車車體損失保險資料為依據，探討過去保費收入與未來賠款支出的關係，在滿足不偏性的要求下，尋求降低預測誤差變異數的方法。

研究結果顯示：車體損失險存在保險補貼。以最小誤差估計法計算的新費率，可以改善收支不平衡的現象，但對於應該減費的低風險保戶，以及應該加費的高高風險保戶，以類神經網路推計的加減費系統具有較大加減幅度，因此更能有效的區分高低風險群組，降低不同危險群組間的補貼現象，並在跨年度的資料中具有較小的誤差變異。

關鍵詞：汽車車體損失保險、損失率、最小誤差估計法、類神經網路

Abstract

In the past five years, the insured rate of Automobile Material Damage Insurance (AMDI) has been declined but the loss ratio is climbing, in contrast to the decreasing trend in the loss ratio of the compulsory automobile liability insurance. By charging corresponding premium based on individual risks, we could attract low risk entrant and reflect the highly risk costs. The loss ratio can thus be modified to a reasonable level. To further illustrate the concept, we aim to take the AMDI to study the most efficient estimator of the future claim. Because the relationship of loss experience (input) and future claim estimation (output) is similar to the human brain performs. We can analyze the relation by minimum bias procedure and artificial neural network, reducing error with overall rate level could go through with minimum error of classes or individual, demonstrated using policy year 1999 to 2002 data.

According to the thesis, cross subsidization exists in Automobile Material Damage Insurance. The new rate produced by minimum bias estimate can alleviate the unbalance between the premium and loss. However the neural network classification rating can allocate those premiums more fairly, where 'fairly' means that higher premiums are paid by those insured with greater risk of loss and vice-versa. Also, it is the more efficient than the minimum bias estimator in the panel data.

Keyword : Automobile Material Damage Insurance 、 Loss Ratio 、 Minimum Biased Estimate 、 Artificial Neural Network