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ANALYSIS OF THE NO-CLAIM DISCOUNT SYSTEM AND THE PROPOSED MODIFICATION: A CASE STUDY IN MALAYSIA

(Analisis Sistem Diskaun-Tiada-Tuntutan dan Cadangan Modifikasi:
Suatu Kajian Kes di Malaysia)

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ABSTRACT

The No-Claim Discount (NCD) is a system that adjusts the premium paid by policyholders according to their individual insurance claim history. The current NCD system in Malaysia is not protecting good drivers more than bad drivers. Good drivers, who are in the maximum discount group are being penalised unfairly more than those in the 0-percent discount level. Therefore, this paper introduces an alternative step-back NCD system with additional classes and a malus zone, which is rather "tough" to policyholders. The idea is that the bonuses awarded to good drivers should be compensated for by maluses from bad drivers. The main actuarial tools for evaluating and comparing different NCD systems are then used in this study in terms of the fairness of penalty charges to policyholders, the total difference of premium income collected by insurance companies and the efficiency of the systems.

Keywords: No-Claim Discount; Bonus-Malus; modified NCD system

ABSTRAK

Diskaun Tanpa-Tuntutan (NCD) adalah satu sistem menyesuaikan kadar premium yang dibayar oleh pemegang polisi mengikut pengalaman tuntutan insurans secara individu. Sistem NCD yang diamalkan di Malaysia tidak melindungi pemandu berhemah lebih daripada pemandu kurang berhemah. Pemandu berhemah yang telah mencapai kumpulan diskaun maksimum telah diberi penalti dengan tidak adil berbanding mereka yang berada di dalam kumpulan diskaun 0-peratus. Dengan itu, dalam makalah ini diperkenalkan sistem alternatif NCD langkah ke belakang dengan penambahan beberapa kelas diskaun dan zon penalti yang agak "ketat" kepada pemegang polisi. Ideanya adalah untuk memberikan bonus kepada pemandu berhemah dengan ganti rugi berupa penalti oleh pemandu kurang berhemah. Kemudian, beberapa alat aktuari untuk menilai dan membandingkan beberapa sistem NCD digunakan di dalam kajian ini, dari segi keadilan penalti yang dikenakan kepada pemegang-pemegang polisi, jumlah perbezaan kutipan premium insurans oleh syarikat insurans dan keefisienan sistem berkenaan.

Kata kunci: Diskaun Tanpa-Tuntutan; bonus-malus; modifikasi sistem NCD

References

Hossack I.B., Pollard J. H. & Zehnwirth B. 1992. *Introductory Statistics with Applications in General Insurance*. 2nd. Ed. Cambridge, UK: Cambridge University Press.

Kaas R., Goovaerts M., Dhaene J. & Denuit M. 2008. *Modern Actuarial Risk Theory Using R.* 2nd Ed. Berlin: Springer-Verlag.

Lemaire J. 1976. Driver versus company: Optima1 behaviour of the policy holder. *Scandinavian Actuarial Journal* **59**(4): 209-219.

Lemaire J. 1998. Bonus-Malus Systems: The European and Asian Approach to Merit Rating. *North American Actuarial Journal* **2:** 26-47.

Lemaire J. & Zi H. 1994. A Comparative Analysis of 30 Bonus-Malus Systems. *ASTIN Bulletin* **24:** 287-309.

Loimaranta H. 1972. Some Asymptotic Properties of Bonus Systems. *ASTIN Bulletin* **6:** 233–245.

Nelson D. P. 1978. The Efficiency of a Bonus-Malus System. *ASTIN Bulletin* **10:** 59-72.
Park S., Chua C.T. & Lemaire J. 2008. Is the Design of Bonus-Malus Systems Influenced by Insurance Maturity or National Culture? Presented at the Singapore Management University Seminar. http://insr.wharton.upenn.edu/documents/research/WP-Lemaire09.pdf (6 Feb. 2009).
Philipson C. 1960. The Swedish Sytem of Bonus. *ASTIN Bulletin* **1**: 134-141.

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