

Accepted Manuscript

Optimal insurance design with a bonus

Yongwu Li, Zuo Quan Xu

PII: S0167-6687(17)30117-8

DOI: <http://dx.doi.org/10.1016/j.insmatheco.2017.09.003>

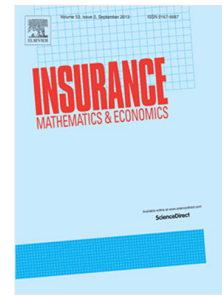
Reference: INSUMA 2387

To appear in: *Insurance: Mathematics and Economics*

Received date: March 2017

Revised date: July 2017

Accepted date: 9 September 2017



Please cite this article as: Li Y., Xu Z.Q., Optimal insurance design with a bonus. *Insurance: Mathematics and Economics* (2017), <http://dx.doi.org/10.1016/j.insmatheco.2017.09.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Optimal insurance design with a bonus*

Yongwu Li[†] and Zuo Quan Xu[‡]

July 4, 2017

Abstract

This paper investigates an insurance design problem, in which a bonus will be given to the insured if no claim has been made during the whole lifetime of the contract, for an expected utility insured. In this problem, the insured has to consider the so-called optimal *action* rather than the contracted compensation (or indemnity) due to the existence of the bonus. For any pre-agreed bonus, the optimal insurance contract is given explicitly and shown to be either the full coverage contract when the insured pays high enough premium, or a deductible one otherwise. The optimal contract and bonus are also derived explicitly if the insured is allowed to choose both of them. The contract turns out to be of either zero reward or zero deductible. In all cases, the optimal contracts are universal, that is, they do not depend on specific form of the utility of the insured. A numerical example is also provided to illustrate the main theoretical results of the paper.

Keywords: optimal insurance design; bonus-malus system; insurance contract with bonus; personalized contract; expected utility.

1 Introduction

Risk sharing, also known as “risk distribution”, is a method of managing or reducing risk exposure by spreading the burden of loss among each member of a group based on a pre-determined formula. It can be mathematically formulated as a multi-objective optimization problem in which a Pareto optimality is sought with respect to each member’s risk preference.

*This work has been done when Li was visiting Xu at The Hong Kong Polytechnic University.

[†]School of Economics and Management, Beijing University of Technology, Beijing 100124, China. This author acknowledges financial supports from NSFC (No.71501176). Email: liyw555@163.com.

[‡]Department of Applied Mathematics, The Hong Kong Polytechnic University, Kowloon, Hong Kong. This author acknowledges financial supports from NSFC (No.11471276), and Hong Kong GRF (No. 15204216). Email: maxu@polyu.edu.hk.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات