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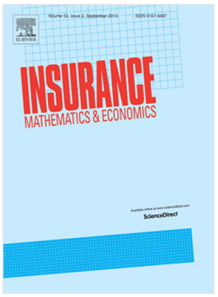

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Optimal reinsurance under risk and uncertainty on Orlicz hearts

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Abstract. In the paper, we study two classes of optimal reinsurance problems on Orlicz hearts in which both the insurer and reinsurer face risk and uncertainty. Based on Balbás et al. (2015) and Rockafellar and Royset (2015b), we first establish the robust representations for the mixed $CVaR$ relative to the set of priors $\mathcal{P}_U^0$. Then we introduce the general reinsurance premium principle and the general optimal reinsurance problems, which include most of the existing problems as special cases. The necessary and sufficient optimality conditions of the optimal reinsurance problems are obtained by different dual approaches under more general assumptions.

Keywords. Risk and uncertainty; Orlicz heart; Robust representation; Optimal reinsurance problem; Dual approach.

JEL classification: G22, G32, C61.

MSC classification: 91B30, 90C48, 90C46.

1 Introduction

Since the seminal papers by Borch (1960) and Arrow (1963), the optimal reinsurance problem has been a fascinating area of research and it has drawn

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