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THE EFFECTS OF FSD CHANGES IN MULTIPLICATIVE BACKGROUND RISK ON RISK-TAKING ATTITUDE

Yoshitaka Sakagami[1]

Faculty of Management
Otemon Gakuin University
2-1-15, Nishiai, Ibarakishi, Osaka 567-8502, Japan
sakagami@res.otemon.ac.jp

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Abstract. *In this paper, we investigate the effects of first-degree stochastic dominance (FSD) changes in multiplicative background risk on the risk-taking attitude of a decision maker. First, we consider contractive FSD changes in multiplicative background risk and analyze the effect of these changes. Then we consider general FSD changes in multiplicative background risk. Also, in the context of coinsurance, we examine the effects of simple FSD changes and monotone likelihood ratio (MLR) changes in multiplicative background risk.*

Keywords: First-degree stochastic dominance changes, Multiplicative background risk, Risk-taking attitude

1. **Introduction.** Usually, background risk is assumed to be additive. There exists a considerable body of literature concerning additive background risk. Ross [20] and Kihlstrom, Romer, and Williams [11] show that the concept "more risk averse in the sense of Arrow-Pratt" does not work well in the presence of background risk. Kimball [12], Gollier and Pratt [9] consider the effect of background risk on the demand of other independent risk. Gollier and Schlee [10] consider the comparative statics of the change of return distribution of a risky asset in the presence of background risk. Eckhoudt, Gollier, and Schlesinger [4], Franke, Stapleton, and Subrahmanyam [7], and Meyer and Meyer [14] investigate the effects of changes in background risk on the risk-taking attitude of a decision maker. In the the context of insurance, Doherty and Schlesinger [1] examine the choice of the optimal deductible when initial wealth is random. Eeckhoudt and Kimball [5] analyze the optimal level of insurance covarage in the presence of background risk. These papers also analyze the case of dependence between background risk and insurable risk. As for other studies concerning additive background risk, we refer to Gollier [8]. See also Eeckhoudt and Gollier [3].

We assume in this paper that background risk is multiplicative. The risk-taking attitude of a decision maker in the presence of multiplicative background risk seems to be first considered systematically by Franke, Schlesinger, and Stapleton [6]. In particular, they consider conditions under which the presence of multiplicative background risk make a decision maker more risk averse. However, they don't consider the problem of how changes in multiplicative background risk affect the risk-taking attitude of a decision maker.

[1]This paper is based on the author's working paper [22].