Consumer surplus analysis under uncertainty: a general equilibrium perspective

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This paper presents an exact form of partial equilibrium efficiency measure under uncertainty which is consistent with expected utility maximization in a general equilibrium situation with ex-post spot markets for many goods and an asset market.

We consider that the good under consideration tends to be negligibly small compared to the entire set of commodity characteristics which is assumed to be a continuum, and look into the limit property of preference over state-contingent consumption of the good and state-contingent income transfer associated to it. We show that the limit preference exhibits risk neutrality, not only that it exhibits no income effect, meaning that the two conditions are tied together.

We also show that the marginal rate of substitution between extra income transfers at different states of the world converges to the ratio between the Lagrange multipliers associated to those states. When the asset market is complete such ratios are equalized between consumers, but it is not the case in general when the asset market is incomplete. This means that using the aggregate expected consumer surplus as the welfare measure will be in general inconsistent with individuals' expected utility maximization in the general equilibrium environment or with Pareto efficiency.