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Sharp Tail Estimate for Aggregate Critical Illness Claims in a Large Population

Health insurance has become an essential component in our society. In most advanced countries, health insurance is jointly provided by the government and private parties through universal insurance and voluntary insurance, respectively. A fundamental question is which treatments should be covered by universal basic insurance and which by private voluntary insurance. In health economics literature, discussions focus on maximizing a population's total welfare, which is defined as the expected utility. In our research, we study the effect of variation of aggregate health claims for the population. In particular, we estimate quantities related with the tail of the aggregate critical illness claims for the population. The idea is motivated by a newly proposed credit risk model for large portfolio.