

Abstract

Women with BRCA mutation are subject to higher risk of breast cancer and ovarian cancer. This paper attempts to quantify the impact of breast cancer on term insurance cost due to the inheritance of the gene mutation. I start off with a double-decrement model proposed by Lemaire (2000) and I examine the assumptions and the methodologies used by them in deriving the term insurance cost. Then, the important assumptions and methods which have great influence on the results are identified.

By using different incidence rates for women with the mutation from different studies, I find that the relative cost of term insurance vary from 120% to 450%. I find that the results are also very sensitive to changes in the general population mortality rates and survival rates for breast cancer patients. The results for older-age female carriers of the gene are less sensitive to changes compared to younger-ages. For insurers, in order to prevent overestimation of risks, they have to be aware of the existence of other risk factors and the interactions between these factors in “triggering” breast cancer. Less biased data have to be collected given the underlying uncertainties in the medical literature.