

Multiple state models for critical illness policy

Gogola János

University of Pardubice (CZE)

Faculty of Economics and Administration

Institute of Mathematics and Quantitative Methods

Disability insurance, long-term care insurance and critical illness cover are becoming increasingly important in developed countries as the problems of demographic aging come to the fore. The private sector insurance industry is providing solutions to problems resulting from these pressures and other demands of better educated and more prosperous populations. The data we used in our contribution were supplied by the Continuous Mortality Investigation (CMI). The CMI is a research organisation established by UK actuarial profession.

Critical illness insurance (CII) is a type of long term insurance that provides a lump sum on the diagnosis of one of a specified list of critical illnesses within the policy conditions. Most of the CII policies in the UK are linked to mortgages as this is a considerable financial commitment and diagnosis with a critical illness could affect the individual's ability to repay the mortgage. There are two types of critical illness policy: Full Accelerated, which covers both critical illness and death, and Stand Alone, which covers only critical illness. Most of the policies in UK are accelerated policies (88%) and they are attached to life insurance, term insurance or endowments.

The main goal of our contribution is to apply multiple state models for an insurance policy combining disability income insurance benefits and critical illness benefits. We consider a policy which provides a death benefit, a disability benefit and a critical illness benefit. Our contribution is based on Markov process that can be used to develop a general, unified and rigorous approach for describing and analysing disability and related insurance benefits. From the CMI Working paper 50 we apply our model for particular critical illnesses: cancer and stroke for female population and calculate the net premium payable for these policies.

References

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