Application of demographic methods in data analysis of pension company clients at the time of the pension reform

Abstract

This thesis presents the analysis of structure of existing insurance portfolio and its behaviour during saving for pension at the time before pension reform and after. The dataset has been provided by pension company which is present on the Czech market. The aim of this text is to show possibilities of using demographic methods in analyses of clients which can serve for developing business goals or marketing strategies. In the theoretical part of the thesis is described pension system in the Czech Republic and its reform and it also discuss relationship between applied demography and commercial sphere. Analytical part presents results of the study by using several demographic methods. These methods showed dependence of size and structure of insurance portfolio on the demographic evolution in the Czech Republic and also differences between clients of each pension products. The use of survival analysis enabled to observe clients' behaviour during their active saving period, especially the time of saving itself. The risk of termination of saving was then constructed by Cox proportional hazard model in the dependence on demographic and geographic characteristics. For observing the intensity of clients leaving the pension company between 2009 and 2012 were used rates of saving termination, by binary logistic regression was estimated the chance to get employer's contribution for saving. To predict the clients' investment strategy, linear regression model was created which allows us to estimate the proportion of client's means which is put into more risky funds in dependence on their age and sex. At the end of the text are presented results of the derived forecast, which serves to estimate the number and structure of the clients of the pension company until 2025. Results of the thesis confirm wide range of application of demographic methods in the business sphere and their contribution not only for long-term planning, but also for determining the factors affecting clients' behaviour.

Keywords: pension company, insurance portfolio, market segmentation, saving time, pension reform, population ageing, investment strategy, derived forecast