

The aim of this thesis is to provide an overview of methods used in cause-of-death mortality analysis and to demonstrate the application on real data. In Chapter 1 we present the continuous model based on the force of mortality and review the approach using copula functions. In Chapter 2 we focus on the multinomial logit model formulated for cause-specific mortality data, discuss life tables construction and derive life expectancy. In Chapter 3 we apply the multinomial logit model on the data from Czech Statistical Office. We identify the regression model, check its assumptions, present the outputs including the fitted life expectancy, and predicted mortality rates. Later in Chapter 3 we consider several stress scenarios in order to demonstrate the impact of shocked mortality rates on the life expectancy. In Chapter 4 we apply copula functions according to the methodology covered in Chapter 1 and consider cause-elimination stress scenario.