

Methods of analysis of seasonality in demography

Gabriela Myšáková

Abstract

The thesis presents statistical methods suited for analysis of seasonality in time-series. Three statistical methods have been thoroughly described, namely the time-series decomposition, the X12-ARIMA method and the cointegration of time-series. Further methods applicable for similar analysis have been briefly discussed as well. Three main methods have been subsequently applied to monthly demographic data for the Czech Republic and chosen European countries by natality, nuptiality and mortality. Seasonality has been discovered in all three demographic events and by using the time-series decomposition and the X12-ARIMA method for time-series lay out to separate units, and those progressions have been track by graphic and verbal interpretation. Cluster analysis has been applied to European countries nuptiality and mortality time-series in order to reveal similarities and dissimilarities among particular countries. All the methods were used onto data set by using appropriate procedures in statistical software SAS.