

The thesis introduces an overview of techniques for filtering of unobserved variables using a state-space representation of a model and state inequality constraints. It is mainly aimed at a derivation of the linear Kalman filter and imposing state constraints. The state uniform model with noise bounds and the sequential importance sampling, as a method of particle filters using Monte Carlo simulations, are described as alternative methods. These three methods are applied on a simple semi-structural model for a monetary policy analysis. The filtration is based on Czech macroeconomic data and reflects an imposed time-varying non-negative state constraint on the nominal interest rate. Results of the algorithms are compared and discussed.