

## An optimal control problem in estimation of parameters for economic models

Vasily Dikumar, Dorodnicyn Computing Centre (with Nikolay Olenov)

Each mathematical model of economy contains a lot of unspecified parameters which are not defined directly by the data of economic statistics. We determine the unknown parameters of an economic model by comparing time series for macro indexes calculated by model with statistical time series for the indexes. The time series are considered similar if they are close as functions of time. The closeness of calculated and statistical data for each macro index is measured by Theil index of inequality. The problem is formulated as an optimal control problem with constraints of general form. A convolution of Theil indexes is maximized. The equations of the model give constraints of the optimal control problem. The unknown parameters of the model are piecewise constant controls of the optimal control problem. The optimal control problem is solved numerically using parallel calculations. Identified model of a Russian economy with structural changes in production function is used for estimation of the Government economic policy.