Abstract

In this thesis, we deal with the Arrow-Debreu model of general equilibrium, which is an integrated model of production, exchange and consumption.

At the beginning, we present and discuss the original assumptions of the Arrow-Debreu model, i.e. the assumptions introduced by Kenneth J. Arrow and Gerard Debreu in 1954. Under these assumptions, Arrow and Debreu proved the existence of a general equilibrium.

As a part of the proof, Arrow and Debreu showed that the equilibria of their model are the same as the equilibria of an abstract economy, or a generalized Nash equilibrium problem (GNEP). We describe the GNEP and look at whether there is a connection which allows to apply results developed by researchers from other disciplines to the Arrow-Debreu model.

A part of the thesis is dedicated to a two-factor, two-commodity, two-consumer model, which is based on the original assumptions of Arrow and Debreu. In order to find the solution, we use a method called applied general equilibrium modelling and a software called GAMS. We examine the impact of better technology and taxes on consumers and producers.

We have brief remarks on applications of the model at the end.