

# Abstract

*Title:* Advance parts of game theory and their applications  
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*Abstract:* This work deals with advance parts of game theory and their applications mainly in financial area and follows a work *Applications of evolutionary and differential game theory* written by Martin Chvoj in 2010. At the beginning there is a brief introduction into classical game theory, which uses a concept of Nash equilibrium. The work requires knowledge of this theory. In following chapters, modern ways of game theory are described in detail. These chapters deal with basic concepts of evolutionary, differential, statistical games and metagames, which are supported by a number of examples and application possibilities. Work contains an original example which models an income tax system as a differential game. This model uses a Czech tax legal framework for year 2009 and statistical data, which can be found at Czech bureau of statistics.

*Keywords:* game theory, evolutionary games, differential games, statistical games, metagames, personal income tax