

This book was written in order to investigate some microeconomic theorems that are fundamentals to explanation of how markets work in real world. First chapter contains insights in microeconomic theory of auctions, second chapter is about anything goes theorem incomplete markets and Ricardian equivalence theory, and the final third chapter contains issues on Shapley-Folkman- Lyapunov theorems. These theorems are interrelated with nonconvexities and the presence of multiple unique equilibria. Later these researches will be extended with an asymmetric auctions with log-concave statistical distributions of the bidders.

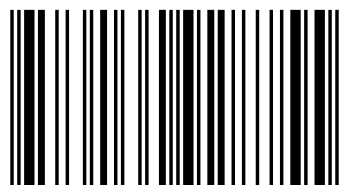


Dushko Josheski

## Three essays in microeconomic theory



Dushko Josheski, PhD, was born on 29.08.1983 in Bitola R.Macedonia. Since 2009 he works at Goce Delcev university, Stip, R.Macedonia. He is a researcher in the fields of economic theory and public economics. Currently holds a position of assistant professor at the Goce Delcev university, Stip, R.Macedonia.



978-613-4-92875-5

**LAP**  
**LAMBERT**  
Academic Publishing

**Dushko Josheski**

**Three essays in microeconomic theory**



**Dushko Josheski**

**Three essays in microeconomic  
theory**

**LAP LAMBERT Academic Publishing**

**Imprint**

Any brand names and product names mentioned in this book are subject to trademark, brand or patent protection and are trademarks or registered trademarks of their respective holders. The use of brand names, product names, common names, trade names, product descriptions etc. even without a particular marking in this work is in no way to be construed to mean that such names may be regarded as unrestricted in respect of trademark and brand protection legislation and could thus be used by anyone.

Cover image: [www.ingimage.com](http://www.ingimage.com)

Publisher:

LAP LAMBERT Academic Publishing

is a trademark of

International Book Market Service Ltd., member of OmniScriptum Publishing Group

17 Meldrum Street, Beau Bassin 71504, Mauritius

Printed at: see last page

**ISBN: 978-613-4-92875-5**

Copyright © Dushko Josheski

Copyright © 2017 International Book Market Service Ltd., member of OmniScriptum Publishing Group

All rights reserved. Beau Bassin 2017

# THREE ESSAYS IN MICROECONOMIC THEORY

DUSHKO JOSHESKI

PhD, GOCE DELCEV UNIVERISTY-SHTIP

R.MACEDONIA

## Contents

Chapter 1.....	4
SYMMETRIC AUCTIONS: FINDING NUMERICAL SOLUTIONS BY USING AUCTION SOLVER.....	5
Introduction .....	5
Interactions between markets and institutions-The case of auctions.....	6
First price auction (sealed first bid auction strategically equivalent to Dutch auctions) .....	8
Vickrey type of auction (sealed-bid) .....	8
Symmetric model case .....	12
All-pay auctions.....	16
Expected revenue (expected payoffs in auctions) .....	19
Results from auction solver .....	20
Conclusion.....	26
Appendix 1. Distributions in Auction solver software .....	26
Standard Normal distribution function.....	26
Log normal distribution.....	27
Beta distribution .....	28
Uniform distribution .....	28
Triangular distribution .....	29
Kumaraswamy or double bounded distribution.....	30
Gamma distribution .....	30
Weibull distribution .....	31
Uniform distribution .....	31
Power distribution .....	32
Reverse power distribution.....	32
Exponential distribution.....	33
Appendix Parametrized distributions in auction solver.....	33
Practical exercise.....	35
References .....	41
Chapter 2.....	43
ANYTHING GOES THEOREM, INCOMPLETE MARKETS AND RICARDIAN EQUIVALENCE HYPOTHESIS ..	43
Introduction .....	43
Incomplete markets and excess demand functions .....	43
Pseudoequilibrium in incomplete markets.....	47
Nonexistence of equilibrium in incomplete markets.....	50
Law of one price on securities .....	52
Tax cuts and fiscal policy.....	53

Concluding remarks .....	55
References .....	56
Chapter 3.....	58
Shapley-Folkman- Lyapunov theorem and second welfare theorem with nonconvex preferences.....	58
Shapley Folkman theorem .....	58
Lyapunov theorem .....	61
The second fundamental welfare theorem and nonconvexities .....	63
Conclusion.....	72
References .....	72



## Preface

This book was written in order to investigate some microeconomic theorems that are fundamentals to explanation of how markets work in real world. First chapter contains insights in microeconomic theory of auctions, second chapter is about anything goes theorem incomplete markets and Ricardian equivalence theory, and the final third chapter contains issues on Shapley-Folkman- Lyapunov theorems. These theorems are interrelated with nonconvexities and the presence of multiple unique equilibria. Later these researches will be extended with an asymmetric auctions with log-concave statistical distributions of the bidders.