

数理解析研究所講究録 1654

経 済 の 数 理 解 析

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This is a report of research done at the Research Institute for Mathematical Sciences, Kyoto University. The papers contained herein are in final form and will not be submitted for publication elsewhere.

## Preface

This volume is a collection of papers presented at the symposium on mathematical economics sponsored by the Research Institute for Mathematical Sciences, Kyoto University, which was held during November 28 ~ 30, 2008.

On behalf of the programme committee, I would like to extend my cordial thanks to all the participants of the symposium for their sincere and constructive contributions to our project.

We can safely say that mathematical reasonings have been playing a much more indispensable roles in economic theory than in any other discipline of social sciences. There seems to be several reasons which have endowed economic theory with peculiar mathematical characters.

First of all, many economic phenomena permit expressions in terms of quantitative languages.

We have also to take account of the fact that an economy consists of a huge number of sectors which are entangled in a complex manner. Economic phenomena result from the interactions of these interdependent component sectors. Their mutual relation is so complicated that an ordinary language and a casual way of thinking have only very limited abilities to describe and analyze economic phenomena. It is quite easy for anyone to imagine serious confusions which would result if we had recourse exclusively to ordinary languages and casual reasonings. Although mathematical reasonings may sometimes seem too round-about for our purposes, it certainly provides economists with simple and efficient analytical weapons.

Furthermore economists have been suffering from the difficulty of controlled experiments in their researches. That is exactly why much importance has been attached to rigorous speculative experiments in economic theory. So called "axiomatic method" developed in Vienna during the inter-war period should be regarded as being promoted by the same view and recognition under the influence of D. Hilbert.

I would be pleased very much if our symposium could contribute to widening and deepening of the mathematical foundations in economic theory.

Toru Maruyama

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目 次 (\*speaker)

I. Mathematical Optimization		
1. Golden optimal processes on three dynamics: deterministic, stochastic and non-deterministic -----		1
九大・経済学(Kyushu U.)	岩本 誠一(Seiichi Iwamoto)	
2. Double versus triple competitive processes: non-deterministic model -----		19
九大・経済学(Kyushu U.)	吉良 知文(Akifumi Kira)*	
"	岩本 誠一(Seiichi Iwamoto)	
九工大・工(Kyushu Inst. Tech.)	藤田 敏治(Toshiharu Fujita)	
3. Value Functions and Transversality Conditions for Infinite-Horizon Optimal Control Problems -----		35
法政大・経済(Hosei U.)	佐柄 信純(Nobusumi Sagara)	
II. Utility and Decision Making		
4. On Measuring Utility from Demand: without Proofs -----		56
慶應大・経済学(Keio U.)	細矢 祐誉(Yuhki Hosoya)	
5. A Survey on Axiomatic Development of Lexicographic Expected Utility -----		78
龍谷大・経済(Ryukoku U.)	兵庫 一也(Kazuya Hyogo)	
III. Economic Analysis of Risk		
6. Asymptotics of Probability Minimizing Down-Side Risk and Risk-Sensitive Dynamic Asset Allocation -----		88
阪大・基礎工学(Osaka U.)	長井 英生(Hideo Nagai)	
7. Macroeconomic Implications of Term Structures of Interest Rates under Stochastic Differential Utility with Non-Unitary EIS -----		100
東大・経済学(U. Tokyo)	中村 恒(Hisashi Nakamura)*	
"	野澤 亘(Wataru Nozawa)	
"	高橋 明彦(Akihiko Takahashi)	
8. Risk aversion and the value of money in a class of overlapping generations models ---		101
慶應大・経済学(Keio U.)	大滝 英生(Eisei Ohtaki)	

IV. Game Theory and Industrial Organization		
9.	Evolutionary Game with Statistical Mechanics -----	102
	関西学院大・経済学(Kwansei Gakuin U.)	吉川 満(Mitsuru Kikkawa)
10.	Optimal entry restriction program for a new industry - How Japan nurtured comparative advantage with policy -----	112
	Cornell U.	萬 又煊(Henry Wan, Jr.)
	東北大・国際文化(Tohoku U.)	胡 雲芳(Yunfang Hu)*
11.	Locally Strategy Proof Planning Procedures as Algorithms and Game Forms -----	129
	立教大・経済学(Rikkyo U.)	佐藤 公敏(Kimitoshi Sato)
V. Economic Growth		
12.	On AK growth models with habit formation -----	156
	京大・経済研(Kyoto U.)	平口 良司(Ryoji Hiraguchi)
13.	THE STRUCTURE OF GOOD PROGRAMS IN THE RSS MODEL -----	166
	Technion-Israel Inst. Tech.	Alexander J. Zaslavski
VI. Nonlinear Dynamical Systems		
14.	EXISTENCE OF HOMOCLINIC SOLUTIONS FOR A NONLINEAR ELLIPTIC BOUNDARY VALUE PROBLEM -----	179
	横浜国大・環境情報(Yokohama Nat. U.)	天石 敏郎(Toshiro Amaishi)
	"	平野 載倫(Norimichi Hirano)*
VII. History of Economic Theory		
15.	Axiomatic Interpretation in the History of Economics -----	187
	法政大・社会(Hosei U.)	川俣 雅弘(Masahiro Kawamata)