

数理経済学会 2017 年度研究集会

日時： 2017 年 10 月 27 日（金） 13:00 ~ 10 月 28 日（土） 12:20

場所： 慶應義塾大学三田キャンパス 研究室棟 1 階 会議室 A

—プログラム—

10 月 27 日（金）

13:00~13:50 野口光宣（名城大学）

Alpha Cores of Games with Nonatomic Asymmetric Information

14:00~14:50 細矢祐誉（関東学院大学）

First-Order Partial Differential Equations and Integrability Theory

15:10~16:00 小川健（専修大学）

続：譲渡不可能な生産・収穫枠は共有資源の管理で正当化し得るか

(英題: Can Distribution of Non-Tradable Quota to Each Country be Justified under Common Price of Shared Resource-Good Management?)

16:10~16:40 田端辰哉（慶應義塾大学）

Time Preference and Allocation in the Stationary Equilibrium

16:40~17:10 桑田晋（慶應義塾大学）

A Solution to the Hamilton-Jacobi-Bellman Equation of CRRA- Ak Optimal Growth Model

10 月 28 日（土）

9:30~10:20 新井拓児（慶應義塾大学）

Optimal Initial Capital Induced by Optimized Certainty Equivalent

10:30~11:20 塩澤康平（神戸大学）

Strategy-Proofness and Efficiency of Probabilistic Mechanisms for Excludable Public Good

11:30~12:20 神谷和也（神戸大学）

Equilibrium Selection in Monetary Search Models: An Experimental Approach

研究集会担当理事

新井拓児（慶應義塾大学）

藤生源子（横浜国立大学）

Alpha Cores of Games with Nonatomic Asymmetric Information

Mitsunori Noguchi (Meijo University)

In this paper, we ask under what reasonable conditions a game with asymmetric information on a continuum of states admits a non-empty α -core. Players examine various private information-constrained contracts f (pure strategy profiles) for ex-ante efficiency by evaluating ex-ante expected payoffs and by forming ex-ante coalitions. Once the players agree on a contract, they implement it faithfully in the interim stage. Roughly speaking, our conclusion states that if players hold fine (non-atomic) and independent information, there exists an ex-ante efficient set of contracts (an ex-ante α -core pure strategy profile) that is implementable in the interim stage. To prove that α -cores are non-empty, we need a variant of Lyapunov's theorem for Young measures that preserves private information. We apply an iterated integral version of Lyapunov's theorem for Young measures to derive such a variant.

Key words: α -core, asymmetric information, cooperative games, incomplete information, nonatomic

JEL classification: D62, D82

First-Order Partial Differential Equations and Integrability Theory

Yuhki Hosoya*†

Department of Economics, Kanto-Gakuin University

July 20, 2017

Abstract

In this paper, we show that the existence of a global solution of a standard first-order partial differential equation can be reduced to the extendability of the solution of the corresponding ordinary differential equation under the differentiable and locally Lipschitz environments. By using this result, we can produce many known existence theorems for the solution of the partial differential equations. Moreover, we demonstrate that such a result can be applied to the integrability problem in consumer theory. This result holds even if the differentiability condition is dropped.

Keywords: Partial Differential Equation, Global Solution, Dual Problem, Expenditure Function, Consumer Theory, Integrability.

MSC Codes: 35A01, 91B08, 91B16, 91B42.

*1-50-1601, Miyamachi, Fuchu, Tokyo, 183-0023, Japan.

†E-mail: hosoya(at)kanto-gakuin.ac.jp

0. 概要

本稿では（共有資源など）国際的に共通価格（共通魚価）を持つ資源財に関する譲渡不能な漁獲枠（資源財収穫枠）を正当化するのに大前提となる、各国内点解で欲しがる漁獲枠に均衡が存在するかを、近経理論的に検証した。簡単化かつ偏りのない国家の目的としての経済厚生最大化を非協力的に考えて国家の希望する漁獲枠を決める場合、共通魚価を気にする限りでは各国内点解の均衡は存在しないことが示された。この結果は基本的に鮮魚など貯蔵が本質的に困難な場合に示すが、貯蔵可能な場合でも近視眼的な政府の場合には保持される。協力ゲーム等でのナッシュ交渉でもこうした前提が満たされることは必須であり、一律比例的に漁獲枠を総漁獲量の削減に合わせて減らす場合にもこの前提が満たされる必要があった。これは譲渡不能な漁獲枠に関する正当化は通常難しいことを意味する。本稿ではこの結果が（関数形の一般化など）かなりの一般性を以て示されることが分かった。

キーワード：共通魚価、譲渡不能な漁獲枠、クーン＝タッカーの定理、等号付き不等式型需給均衡

JEL 分類コード：C61、C72、C73、F18、Q22

追加記載分：本稿で出している・本稿の関係で導出できる頑健性は主に次の通りである。

- 資源財の収穫関数・非資源財の生産関数に関する一般化と相違（収穫可変度合いにはよらない）
- 資源ストックベクトル化：親魚・稚魚、捕食・被食、各国保有資源型でも共通資源財価格なら可
- 国の数・効用関数の違いなどに関する一般化：資源財・非資源財の2財なら問題なし、合計が3財以上の場合には粗代替性・粗補完性等が含まれない状況でロフの恒等式が使えば可能
- 資源財の保存可能性：保存可能でも政府が近視眼的（将来の資源財価格は決定に影響無）なら可
- 微分ゲームにおけるフィードバック・ナッシュ均衡の選択：一般形の関数でもこの解概念が使えるのは、明示解の導出ではなく「各国内点解の均衡が存在しない」という不存在性の導出だから
- 資源財の種類の一般化：漁業資源だけでなく森林資源や、石油などの枯渇性資源等にも適用可
- 一般均衡から部分均衡への移行：「部分的には」可能（非資源財の準線型性を仮定などで）
- 輸送費・関税等に対する頑健性：不要な価格のいじりは所得還元で本質的に影響無し

参考文献（主なもののみ）

Brander, James A. and M. Scott Taylor (1997) "International Trade between Consumer and Conservationist Countries," *Resource and Energy Economics*, 19, pp.267-297.

Brander, James A. and M. Scott Taylor (1998) "Open-Access Renewable Resources: Trade and Trade Policy in a Two-Country Model," *Journal of International Economics*, 44, pp.181-209.

Takarada Yasuhiro, Takeshi Ogawa, and Weijia Dong (2012) "International Trade and Management of Shared Renewable Resource," *Working Paper Series, Society of Economics, Nanzan University* (Series No.48), pp.1-29.

Takarada Yasuhiro, Weijia Dong, and Takeshi Ogawa (2013) "Shared Renewable Resources: Gains from Trade and Trade Policy," *Review of International Economics*, 25, pp.1032-1047.

Time Preference and Allocation in the Stationary Equilibrium

Tatsuya Tabata
Graduate School of Economics, Keio University

September 22, 2017

Abstract

In this paper, we investigate relation between time preference and allocation. It is well known that the most patient agent is the only capital owner in the stationary equilibrium when each agent has a Time Additively Separable (TAS) utility function. To avoid this extreme pattern of allocation, Lucas and Stokey (1984) and Dana and Le Van (1990) employ recursive utility function. But they fail to connect allocation with patience. They also limit the utility function to bounded one. Now we suggest the one-sector model with unbounded recursive utility. In the model, equilibrium is seen as the solution to equations, it enables us to grasp intuitively. Some strict conditions in the literatures are skipped. First, we show the existence of the stationary equilibrium, After completing that, consumption and saving are explained from intensity of patience.

A Solution to the Hamilton-Jacobi-Bellman Equation of CRRA- Ak Optimal Growth Model

Yuhki Hosoya¹, Susumu Kuwata², and Hiroyuki Ozaki³

¹Kanto-Gakuin University

²Keio University

³Keio University

Abstract

We have found the optimal growth path in a dynamic macroeconomic model where the felicity of the representative consumer is given by the CRRA function and the technology is given by the Ak production function. In this economy, the felicity and hence the life-time utility is unbounded both from above and from below. Furthermore, the technology allows a sustained growth. We have found an explicit solution to the Hamilton-Jacobi-Bellman equation for this economy that *is* the value function indeed. We completely characterize the optimal growth path for this economy as far as the future is discounted by a constant positive rate ρ and show that the rate of growth of the optimal consumption path is given by $A - \rho$ regardless of whether it is positive or negative.

Optimal Initial Capital Induced by Optimized Certainty Equivalent*

Takuji Arai[†], Takao Asano[‡], and Katsumasa Nishide[§]

This paper proposes the notion of the optimal initial capital (OIC) induced by the optimized certainty equivalent (OCE) discussed in Ben-Tal and Teboulle (1986,2007), and investigates the properties of the OIC with various types of utility functions. By providing its several properties with different utility functions or other assumptions, we successfully present the optimal initial capital as a monetary utility function (negative value of risk measure) for the future payoffs with the decision-maker's concrete criteria in the background.

JEL classification: D81, G32, G11, D46,

* This research is partially supported by the MEXT Grant in Aid for Scientific Research (A) #25245046, (A) #16H02026, (B) #15H02965, (B) #16H03619, (C) #17K03797, (C) #15K04936, (C) #16K03558, (C) #17K03806, and the Joint Research Program of KIER, Kyoto University.

† Department of Economics, Keio University, 2-15-45 Mita, Minato-ku, Tokyo, 108-8345, Japan. Phone: (81)-3-5427-1411. E-mail: arai@econ.keio.ac.jp,

‡ Department of Economics, Okayama University, 3-1-1, Tsushima-naka, Kita-ku, Okayama 700-8530, Japan. Phone: (81)-86-251-7553. E-mail: asano@e.okayama-u.ac.jp.

§ Graduate School of Economics, Hitotsubashi University. 2-1 Naka, Kunitachi, Tokyo 186-8601, Japan. E-mail: k.nishide@r.hit-u.ac.jp.

Strategy-Proofness and Efficiency of Probabilistic Mechanisms for Excludable Public Good

Kazuhiko Hashimoto* Kohei Shiozawa†

Abstract

We study strategy-proof probabilistic mechanisms in a binary excludable public good model. We construct a new class of probabilistic mechanisms satisfying strategy-proofness, called α -mechanisms.

We first show that the α -mechanisms are second-best efficient. Next, we identify the optimal α -mechanism with respect to the supremal welfare loss, and show that the optimal α -mechanism improves inefficiency compared to Moulin's (1994) equal cost sharing with maximal participation mechanism and Ohseto's (2005) anonymous augmented serial mechanisms.

Keywords: Strategy-proofness; Probabilistic mechanism; Excludable public good; Second-best efficiency; Supremal welfare loss.

JEL codes: D61; D71; H41.

*Faculty of Economics, Osaka University of Economics, 2-2-8, Osumi, Higashiyodogawa-ku, Osaka, 533-8533, JAPAN; Email: kazuhiko@osaka-ue.ac.jp

†Research Institute for Economics and Business Administration, Kobe University, 2-1, Rokkodai-cho, Nada-ku, Kobe, 657-8501 JAPAN; Email: shiozawa@rieb.kobe-u.ac.jp

Equilibrium Selection in Monetary Search Models: An Experimental Approach

Kazuya Kamiya,¹ Hajime Kobayashi,² Tatsuhiro Shichijo³ and Takashi Shimizu⁴

Abstract

It is known that there exists a multiplicity (indeterminacy) of stationary equilibria in search models with divisible money. This paper investigate whether some specific stationary equilibrium is selected through economic experiments. We observe that in some treatments there is a tendency to converge to the most efficient equilibrium. However, viewing the experimental results as a whole, there remains some indeterminacy.

¹ Research Institute for Economics and Business Administration, Kobe University

² Faculty of Economics, Kansai University

³ School of Economics, Osaka Prefecture University

⁴ Graduate School of Economics, Kobe University