Theory of Incentives and its Applications

Semester: Autumn semester

Class time: 15:10-17:50, Thursday

Classroom: 理教 306

Instructor: Jianye Yan

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TA: Wanqing Zhang

Course Arrangement/Time Allocation: the first half of the course is devoted to unfolding the several canonical setting, problem and theory of incentives according to different information structures, which is ended by a midterm exam; the second half of the course mainly focuses on the exploration of broad applications of the theory of incentives in all kinds of economic situations, which is, after navigation of classical papers, ended by presentation from each student on his/her research proposal/design and (at least one) related paper(s) from the literature; near the end of the course, the skill to critically read the most up-to-date unpublished working papers and how to write referee report is also trained and to submit a sample referee report is a course assignment.

Grading: midterm exam (35%) + presentation (40%) + report (25%); there may be problem sets in the first half of the course, the completion and master of which is helpful to midterm exam, as though no need or at most marginal evaluation on the submission of problem sets.

Brief Introduction of Course Topic: The strategic opportunities that arise in the presence of asymmetric information typically lead to inefficient market outcomes, a form of market failure in the sense that the first welfare theorem no longer holds generally. More importantly, these kinds of situations and setting are pervasive in the real world. Thus, the main theme to be explored is to stimulate different agents' optimal/efficient behaviors in different informational settings to achieve the "second-best" market outcomes. Theoretically, the knowledge on economics of information, basics in contract theory, revelation principle and mechanism design is presented by the instructor. Practically, the topics as applications of the theory of incentives, such as incentives in management, in agricultural contracts, in voting, in regulation, in insurance, in redistribution, in market design (auction), in public decision-making and in industrial organization, etc., are also reviewed by the instructor as well as the stimulation to students to design their research topics. Finally, we mention that "for the most part, the models (from the theory of incentives) are partial eq. models: they isolate the markets for one good (sometimes two goods) from the rest of the economy. It was hoped then that lessons drawn from these studies could later be integrated inside a better theory of general eq.". In the end, the perspective of new structural economics in the theory of incentives is also introduced, with several directions of research potential related to China's reform and transition.

Main Textbook: Laffont, J.J. and D. Martimort, 2002, *The Theory of Incentives*, Princeton

University Press.

References:

Books**:**

Patrick Bolton and Mathias Dewatripont, 2005, *Contract Theory*, The MIT Press Cambridge, Massachusetts London, England

Laffont, J.J. and J. Tirole, 1993, *A Theory of Incentives in Procurement and Regulation*, MIT Press

Laffont, J.J., 2000, *Incentives and Political Economy*, Oxford University Press

Salanie, B., 2005, *The Economics of Contracts*, The MIT Press Cambridge, Massachusetts London, England

Papers:

(To be added)

Course Outline:

First part:

1. Adverse selection (The Trade-Off Between Rent Extraction and Efficiency)

    1.1 First-Best and second-best

    1.2 Incentive Compatibility and Participation

    1.3 The Spence-Mirrlees Condition

    1.4 Renegotiating and Reneging

    1.5 Multi-dimensional Asymmetric Information

    1.6 Countervailing Incentive

2. Moral Hazard (The Trade-Off Between Insurance and Efficiency)

    2.1 Risk Neutrality and Aversion

    2.2 Limited Liability

    2.3 The "first-order Approach"

    2.4 Multi-Task

3. Implementation (of mechanism design)

    3.1 Subgame Perfect Implementation

    3.2 Nash Implementation

    3.3 Risk Averse Agent/Principal

4. Auction (as market design)

    4.1 Examples and different auctions

    4.2 Bidding strategies and revenue equivalence theorem

    4.3 Revenue-maximizing auctions

5. Extended Models[*]

    5.1 Adverse Selection Followed by Moral Hazard

    5.2 Moral Hazard Followed by Adverse Selection

    5.3 Correlation of Types

    5.4 Collusion

    5.5 Career Concern

6. Incomplete Contracts and Institution Design

    6.1 Employment Relation, Ownership and Property-Rights

    6.2 Financial Structure and Control

7. Some Empirical Work[*]

    7.1 Unobserved Heterogeneity

    7.2 Tests of Asymmetric Information (in Insurance Market)

Second part (broad applications in all kinds of topics):

1. Incentive Contracts in Agriculture (Adam Smith)

2. Regulation of Natural Monopolies (Leon Walras)

3. Incentives in Management (Chester Barnard)

4. Incentives in Voting (Borda, Bowen, Vickrey)

5. Incentives in Insurance (Knight, Arrow, Pauly)

6. Redistribution and Incentives (Sidgwick, Vickrey, Mirrlees)

7. Price Discrimination (Dupuit, Edgeworth, Pigou)

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Instruction on constructive criticism and referee report

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[*] If time permits.