

## Mechanism Design and Contract Theory

### 机制设计与契约理论

Description: This is a topic class on information economics and contract theory. The purpose of the course is to give an introduction to some of the main topics in this field: adverse selection (signaling, screening), moral hazard, and mechanism design. First, the course focuses on the role of private information in people's incentives to work (or to shirk), to distinguish themselves and to communicate (or to lie). Second, it studies the question of how to design optimal mechanisms, compensation schemes and organizations given people's private information. Third, the course emphasizes more on some advanced topics related with issues related with Chinese economics such as relational contract, reputation and property right. This course is more research oriented. The class requires some readings, class presentations and one term paper.

Reference books:

- Mas-Colell, Whinston, & Green (MWG), 1995, *Microeconomic Theory*.
- Fudenberg, D. and J. Tirole (1991), *Game Theory*, Cambridge: MIT Press.

### Course Outline

#### 1. Collusion and Cooperation problem in a game.

Kreps, D. and J. Scheinkman, 1983, "Quantity Precommitment and Bertrand competition Yield Cournot Outcomes", *Bell Journal of Economics* 14: 326-337.

Fudenberg, D. and E. Maskin, 1986, "The Folk Theorem in Repeated Games with Discounting or with Incomplete Information", *Econometrica* 54:533-556.

Green, E. and R. Porter, 1984, "Noncooperative Collusion Under Imperfect Information", *Econometrica* 52: 87-100.

Rotemberg, J. and G. Saloner, 1986, "A Supergame-Theoretical Model of Price Wars during Booms", *American Economic Review* 76: 390-407.

Rubinstein, A., 1982, "Perfect Equilibrium in a Bargaining Model", *Econometrica* 50: 97-109.

P Holmstrom, Bengt, and Paul Milgrom. 1991. "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design." *Journal of Law, Economics, and Organization* 7:24-52.

- Groves, J. , 1973, "Incentives in Team", *Econometrica* 41: 617-631.
- Kreps, D. , 1984, "Signaling Games and Stable Equilibrium", mimeo.
- Milgrom, P. and J. Roberts, 1982, "Limit Pricing and Entry under Incomplete Information: An Equilibrium Analysis", *Econometrica* 40: 433-459.
- P Holmstrom, B. and P. Milgrom , 1990, "Regulating Trade Among Agents." *Journal of Institutional and Theoretical Economics* 146(1): 85-105.
- Kofman, A. and J. Lawarree , 1993, "Collusion in Hierarchical Agency." *Econometrica* 61, 629-56.
- Knez, Marc, and Duncan Simester. 2001. "Firm-Wide Incentives and Mutual Monitoring at Continental Airlines." *Journal of Labor Economics* 19: 743-72.

- Holmstrom, B. , 1982, "Moral Hazard in Teams," *Bell Journal of Economics*, 13: 324-40.
- Battaglini, M. , 2004, "Joint Production in Teams," mimeo, Princeton University.

## 2. Information economics: Adverse Selection ,Signaling, Screening and Cheap Talk Games,

Akerlof, G. , 1970, "The Market for Lemons: Quality and the Market Mechanism," *Quarterly Journal of Economics* 84: 488-500.

Spence, A. M. , 1973, "Job Market Signaling," *Quarterly Journal of Economics*.

Crawford, V., and J. Sobel , 1982, "Strategic Information Transmission," *Econometrica* 50: 1431-51.

Laffont, J.-J. and J. Tirole. 1986. "Using cost Observation to Regulate Firms". *Journal of Political Economy* 94: 614-41.

W Lazear, Edward, and Sherwin Rosen. 1981. "Rank-Order Tournaments as Optimum Labor Contracts." *Journal of Political Economy* 89: 841-864.

- MWG, Chapter 13.
- Cho, I.-K., and D. Kreps. 1987. "Signaling Games and Stable Equilibrium". *Quarterly Journal of Economics* 102: 179-221.
- Baron, D., and R. Myerson. 1982. "Regulating A Monopolist with Unknown Cost". *Econometrica* 50: 911-30.
- Hart, O., 1983, "Optimal Labor Contracts Under Asymmetric Information: An Introduction". *Review of Economic Studies* 50: 3-35.
- Laffont, J.-J., 1994. "The New Economic of Regulation Ten Years After". *Econometrica* 62: 507-37.
- Maskin, E., and J. Tirole. 1990. "The Principal-Agent Relationship with an Informed Principal. : Private Values". *Econometrica* 58: 379-409.
- Maskin, E., and J. Tirole. 1992. "The Principal-Agent Relationship with an Informed Principal. : Common Values". *Econometrica* 60: 1-42.
- McAfee, P., and J. McMillan. 1987. "Auctions and Bidding". *Journal of Economic Literature* 25: 699-738.
- Milgrom, P., 1989. "Auctions and Bidding: A Primer". *Journal of Economic Perspectives* 3: 3-22.
- Mirrlees, J. 1986. "The Theory of Optimal Taxation". *Handbook of Mathematical Economics*, vol. 3, K. Arrow and M. Intriligator, eds. Amsterdam: North-Holland.
- Meyer, Margaret and John Vickers. 1997. "Performance Comparisons and Dynamic Incentives." *Journal of Political Economy* 105: 547-81.
- Townsend, R. and E. Prescott , 1984. "Pareto Optima and Competitive Equilibria with Adverse Selection and Moral Hazard," *Econometrica*, 52(1) : 21-46.

## 3. Mechanism Design and Auctions

Myerson, R. , 1981, "Optimal Auction Design," *Mathematics of Operations Research*, 6: 58-73.

Milgrom, P. and R. Weber (1982), "A Theory of Auctions and Competitive Bid-ding," *Econometrica* 50(5):1089-1122.

Myerson, Roger and M. Satterthwaite , 1983, "Efficient Mechanisms for Bilateral Trading," *Journal of Economic Theory*, 29: 265-281.

- MWG, Chapter 23.
- Fudenberg, D. and J. Tirole , 1991, Chapter 7.
- Milgrom, P. and R. Weber , 1982, "A Theory of Auctions and Competitive Bidding", *Econometrica* 50(5):1089-1122.
- Milgrom, P. . "Putting Auction Theory to Work". Cambridge: Cambridge University Press. (Part I: The Mechanism Design Approach).

#### 4. Advanced topics

##### 4.1 Relational contract

Hart, O. and J. Moore , 1998, "Foundations of Incomplete contracts," *Review of Economics Studies*, Vol 66 (1), 115-138.

MacLeod, Bentley and James Malcomson. 1998. "Motivation and Markets." *American Economic Review* 88:388-411.

W Levin, Jonathan. 2003. "Relational Incentive Contracts." *American Economic Review* 93: 835-57.

W Che, Yeon-Koo, and Seung-Weon Yoo. 2001. "Optimal Incentives for Teams." *American Economic Review* 91: 525-41.

Watson, Joel. 1999. "Starting Small and Renegotiation." *Journal of Economic Theory* 85: 52-90.

- MWG, Chapter 14.
- Grossman, S. and O. Hart , 1983, "An Analysis of the Principal-Agent Problem," *Econometrica* 51: 7-45.
- Holmstrom, B. and P. Milgrom , 1987, "Aggregation and Linearity in the Provision of Intertemporal Incentives," *Econometrica*, 55(2) p 303-328.
- Dewatripont, M., I. Jewitt and J. Tirole , 1997, "Information Structures and Career Concerns," ECARE mimeo.
- Hart, O. and J. Moore , 1988, "Incomplete Contracts and Renegotiation," *Econometrica*, 56, 755-785.
- Hermalin, B. and M. Katz , 1991, "Moral Hazard and Verifiability," *Econometrica*, 59: 1735-1754.
- Tirole, J. , 1998, "Incomplete Contracts: Where Do We Stand?" *Econometrica*, Vol 67(4), 741-781.
- Grossman, S. and O. Hart, 1986, "The Costs and Benefits of Ownership : A Theory of Vertical and Lateral Integration". *Journal of Political Economy* 94: 691-719.
- Aghion, P. and J. Tirole, 1997, "Real and Formal Authority in Organizations", *Journal of Political Economy* 105: 1-29.
- Aghion, P., M. Dewatripont and P. Rey, 1994, "Renegotiation Design with Unverifiable Information", *Econometrica* 62: 257-282.
- Che, Y.-K and D. Hausch, 1999, "Cooperative Investments and the Value of Contracting ", *American Economic Review* 89: 125-47.
- Maskin, E. and J. Tirole, 1999, "Unforeseen Contingencies and Incomplete Contracts", The

*Review of Economic Studies* 66: 83-114.

- Macneil, Ian. 1985. "Relational Contract: What We Do and Do Not Know." *Wisconsin Law Review* 3: 483-526.
- W Bull, Clive. 1987. "The Existence of Self-Enforcing Implicit Contracts." *Quarterly Journal of Economics* 102:147-59.
- MacLeod, Bentley and James Malcomson. 1989. "Implicit Contracts, Incentive Compatibility, and Involuntary Unemployment." *Econometrica* 57: 447-80.
- Brown, Martin, Armin Falk, and Ernst Fehr. 2004. "Relational Contracts and the Nature of Market Interactions." *Econometrica* 72: 747-80.
- W Baker, George, Robert Gibbons, and Kevin J. Murphy. 1994. "Subjective Performance Measures in Optimal Incentive Contracts." *Quarterly Journal of Economics* 109:1125-56.
- Watson, Joel. 2002. "Starting Small and Commitment." *Games and Economic Behavior* 38: 176-99.
- Rauch, James and Joel Watson. 2003. "Starting small in an unfamiliar environment." *International Journal of Industrial Organization* 21: 1021-42.
- Rayo, Luis. 2003. "Relational Team Incentives and Ownership." Unpublished manuscript, University of Chicago.

#### 4.2 Reputation and Career Concerns

Tadelis, Steven. 2002. "The Market for Reputations as an Incentive Mechanism." *Journal of Political Economy* 110 (4), 854-82.

Gibbons, Robert, and Kevin J. Murphy. 1992. "Optimal Incentive Contracts in the Presence of Career Concerns: Theory and Evidence." *Journal of Political Economy* 100:468-505.

- Tirole, Jean. 1996. "A Theory of Collective Reputations (with applications to the persistence of corruption and to firm quality)." *Review of Economic Studies* 63:1-22.
- Tadelis, Steven. 1999. "What's in a Name? Reputation as a Tradeable Asset." *American Economic Review* 89: 548-63.
- W Holmstrom, Bengt. 1982. "Managerial Incentive Problems--A Dynamic Perspective." Republished in *Review of Economic Studies* 66 (1999): 169-82.
- Dewatripont, Mathias, Ian Jewitt, and Jean Tirole. 1999. "The Economics of Career Concerns, Part I: Comparing Information Structures." *Review of Economic Studies* 66: 183-98.
- Holmstrom, Bengt and Joan Ricart I Costa. 1986. "Managerial Incentives and Capital Management." *Quarterly Journal of Economics* 101: 835-60.
- Milbourn, Todd, Richard Shockley, and Anjan Thakor. 2001. "Managerial career concerns and investments in information." *RAND Journal of Economics* 32: 334-51.

#### 4.3 Property Right and Incomplete Contract Theory

W Gibbons, Robert. 2004. "Four Formal(izable) Theories of the Firm." Forthcoming in *Journal of Economic Behavior and Organization*.

Hart, O. and J. Moore, 1990, "Property Rights and the Nature of the Firm." *Journal of Political Economy* 98 (6): 1119-1158.

Holmstrom, Bengt and Paul Milgrom. 1994. "The Firm as an Incentive System." *American Economic Review* 84: 972-91.

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Tirole, J. , 2001, "Corporate Governance," *Econometrica*, 69 (1): 1-35.

- W. Williamson, Oliver. 1971. "The Vertical Integration of Production: Market Failure Considerations." *American Economic Review* 61: 112-23.
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- Williamson, Oliver. 1979. "Transaction Cost Economics: The Governance of Contractual Relations." *Journal of Law and Economics* 22: 233-61.
- Anderson, Erin and David Schmittlein. 1984. "Integration of the Sales Force: An Empirical Examination." *Rand Journal of Economics* 15: 385-95.
- Masten, Scott. 1984. "The Organization of Production: Evidence from the Aerospace Industry." *Journal of Law and Economics* 27: 403-17.
- Masten, Scott, James Meehan, and Edward Snyder. 1991. "The Costs of Organization." *Journal of Law, Economics, and Organization*. 7: 1-25.
- Hart, Oliver. 1995. "The Property Rights Approach," and "Further Issues Arising from the Property Rights Approach." Chapters 2-3 in *Firms, Contracts, and Financial Structure*. Oxford University Press.
- W Holmstrom, Bengt. 1999. "The Firm as a Subeconomy." *Journal of Law, Economics, and Organization*. 15: 74-102.
- W Whinston, Michael. 2002. "On the Transaction Cost Determinants of Vertical Integration." *Journal of Law, Economics, and Organization* 19: 1-23.
- W Hart, Oliver, and Bengt Holmstrom. 2002. "A Theory of Firm Scope." Unpublished manuscript, Harvard University
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- Tadelis, Steven. 2002. "Complexity, Flexibility, and the Make-or-Buy Decision." *American Economic Review* 92: 433-37.
- Matouschek, Niko. 2004. "Ex Post Inefficiencies in a Property Rights Theory of the Firm." *Journal of Law, Economics, and Organization* 20: 125-47.