Eco2102: Topics in Micro Theory I
Contract Theory

LA 208, Thursday 2–4, Autumn 2005
http://www.economics.utoronto.ca/board/teaching.html

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This is a course in classic contract theory. We consider the main tools and applications used in models of moral hazard, screening and incomplete contracting.

For those enrolled, there will be three problem sets (15% each) and a final (55%). The problem sets will be due on 13th October (week 5), 10th November (week 9) and 8th December (week 13). Later in the term, there will also be opportunities for students to present specific papers.

Books

- Some books on contract theory: Bolton and Dewatripont (2005), Laffont and Martimort (2002), Mas-Colell, Whinston, and Green (1995), Salanie (1997).
- Some free lecture notes: Segal and Tadelis (2002) and Stole (1993).
- The bible for monotone comparative statics: Topkis (1998).

Topic 1: Moral Hazard: Linear Model

Source: Milgrom and Roberts (1992) or Bolton and Dewatripont (2005).

- The linear model: first order approach
- Informativeness principle
- Comparative performance evaluation
- Multitasking: equal compensation principle.

Topic 2: Moral Hazard

Source: Bolton and Dewatripont (2005) or any other book.

- Two action problem.
- Continuum of actions.
- Sufficiency of first order approach.
- Asymptotic first–best.

Topic 3: Moral hazard—Applications

Source: Bolton and Dewatripont (2005) or any other book.

- Sufficient statistics.
- Free riding in partnerships.
- Private evaluations.
- Efficiency wages.
- Career concerns.
- Application: Justifying debt contracts.
- Application: Debt overhang.

Topic 4: Repeated Moral Hazard

Source: Segal and Tadelis (2002) and Bolton and Dewatripont (2005) are good in this material. Sannikov (2004) derives long–term contracts in continuous time.

- Optimal long term contracts: No access to credit.
- Optimal long term contracts: Monitored savings.
- Justifying linear contracts.
- Helping statistical inference: One action, many outputs.
- Moral hazard and renegotiation.
- Relational contracting.

Topic 5: Single Agent Mechanism Design

Source: Most of the material can be found in Bolton and Dewatripont (2005) or any other book. See Myerson (1981) for ironing, Milgrom and Segal (2002) for the envelope theorem and Laffont and Martimort (2002) for common value problems.

- Common vs. private values
- Revelation principle.
- Discrete type problem.
- Milgrom–Segal Envelope Theorem.
- Continuum type problem.
- Ironing.
- Applications: regulation, insurance, workers of unknown ability, implicit labour contracts, credit rationing, contracts as barriers to entry.
- Costly state verification.

Topic 6: Multiple Agent Mechanism Design

Source: Mas-Colell, Whinston, and Green (1995) or any other.

- Dominant strategy implementation: VCG mechanisms.
- Bayesian implementation.
- Optimal Auctions.
- Bilateral trading mechanisms.

Topic 7: Dynamic Mechanism Design

Source: Stole (1993) uses the price discrimination model to analyse commitment, no–commitment and renegotiation–proof contracts. Laffont and Martimort (2002) only look at the commitment case, but allow types to be correlated (also see Courty and Li (2000)). Bolton and Dewatripont (2005) consider a bunch of classic applications with commitment, no–commitment and renegotiation. Board (2005) analyses varying distributions of agents.

- Price discrimination with commitment, no–commitment and renegotiation.

- Commitment contracts with correlated types.
- Commitment contracts with varying distributions.
- Application: Justifying debt contracts.
- Application: Consumption smoothing with wealth shocks.
- Application: Durable–goods monopoly.
- Application: Soft budget constraints.

Topic 8: Mechanism Design with Multidimensional Types

Source: Laffont and Martimort (2002) and Bolton and Dewatripont (2005) analyse the 2×2 example. Rochet and Stole (2003) and Armstrong and Rochet (1999) are more in depth. Krishna (2002) analyses efficiency in auctions.

- Incentive compatibility constraints.
- 2×2 example.
- Separable environments.
- Multidimensional types and efficiency in auctions.

Topic 9: Mixed Models

Source: Laffont and Martimort (2002).

- Generalised revelation principle.
- False moral hazard: optimal taxation.
- Adverse selection and moral hazard.

Topic 10: Incomplete Contracts

Source: Bolton and Dewatripont (2005) and Segal and Tadelis (2002).

- Holdup and the employment contract.
- Holdup and ownership.
- Achieving the first–best by reallocating bargaining power.

- Holdup and mechanism design.
- Externalities and mechanism design.
- Complexity
- Strategic contractual incompleteness.

References

Armstrong, M., and J.-C. Rochet (1999): "Multi-Dimensional Screening: A User's Guide," *European Economic Review*, 43(4–6), 959–979.

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Courty, P., and H. Li (2000): "Sequential Screening," *Review of Economic Studies*, 67(4), 697–717.

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Salanie, B. (1997): *The Economics of Contracts: A Primer*. MIT Press, Cambridge, Massachusetts.

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Segal, I., and S. Tadelis (2002): *Lectures on Contract Theory*. Stanford University.

Stole, L. (1993): *Lectures on Contracts and Organizations*. Chicago University.

Topkis, D. M. (1998): *Supermodularity and Complimentarity*. Princeton University Press, New Jersey.