Advanced Microeconomics: Lecture Note 1

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1. General equilibrium theory/the theory of value (一般均衡理论/价值理论):

   - It attempts to explain the exchange value or price of goods and services.

     尝试解释商品和服务的价值/价格。

   - Key questions include why goods and services are priced as they are, how the value of goods and services comes about, and how to calculate the correct price of goods and services (if such a value exists).

     关键问题包括：为什么商品和服务像实际中那样定价，商品和服务的价值是如何产生的，以及如何计算商品和服务的正确价值/价格。

   - Léon Walras (莱昂・瓦尔拉斯), 1874, *Elements of Pure Economics*.

     Kenneth Arrow (肯尼斯・阿罗), Gérard Debreu (杰拉德・德布鲁), Lionel McKenzie (莱昂内尔・麦肯齐), 1950–1960.

     Robert Aumann (罗伯特・奥曼), Werner Hildenbrand (维尔纳・希尔登布兰德), 1960–1970.

   - General equilibrium theory was capable of producing powerful generalizations and able to deal with uncertainty, time, externalities, and extending the validity of the invisible hand as long as the appropriate competitive markets could be set up.

     对于完全竞争的市场行为的分析，一般均衡理论被证明是强有力并且普适（不确定性、时间、外部性）的工具，并能延拓"看不见的手"原理。

2. Problems:

   - Strategic interactions between agents are heavily constrained.

     个体间的策略互动未被充分重视。

     - Agents only interact through the price system. The pure competition assumption means that each individual cannot influence the price.

   - The organization of many institutions that govern economic relationships is entirely absent.

     忽视机构的内在组织结构，无法解释机构是如何为成员设置目标/安排任务的。

     - General equilibrium theory treats the firm as a black box.
     - The theory remains silent on how the owners of firms succeed in aligning the objectives of its various members (such as workers, supervisors, and managers) with profit maximization.

   - Only consider the situations with symmetric information (complete information, incomplete information).

     仅考虑对称信息（包括对称的完全信息、对称的不完全信息）。

3. Incentive issues:

- The theory of teams (Marschak and Radner, 1972) recognizes the decentralized nature of information but postulates identical objective functions for all team members.

  团队理论揭示了企业中信息分散的本质。理论通过假定企业的成员按照一个共同的目标组成团队，研究如何通过正确的管理和控制信息而使团队各成员的行动协调一致。并未涉及激励问题。

  - Informational asymmetry + Identical objectives $\Longrightarrow$ Incentive issues do not appear.

- If the agent had a different objective function but no private information, the principal could propose a contract that perfectly controls the agent and induces the latter's actions to be what he would like to do himself in a world without delegation.

  如果代理人具有不同的目标函数但没有私有信息，那么委托人就可以提供一个完全合约控制代理人的行为，并使其按委托人的目标去行动，于是代理过程中的激励问题不存在。

  - Informational symmetry + Different objectives $\Longrightarrow$ Incentive issues do not appear.

- Delegation of a task to an agent who has different objectives than the principal who delegates this task is problematic when information about the agent is imperfect.

  当代理人具有私有信息，而委托人无法完全监控代理人的行为时，激励问题就成为影响代理任务效率的一个核心因素。

  - A *homo œconomicus* who possesses private information can be expected to try to manipulate that information $\Longrightarrow$ Possible market failure.
  - Examples: Lemon market (Akerlof, 1970), Job signaling (Spence, 1974), Insurance (Rothchild and Stiglitz, 1976), etc.

4. Two basic ingredients of incentive theory/contract theory:

   Conflicting objectives + Decentralized/Asymmetric information $\Longrightarrow$ Incentive issues.

   当事人之间的目标不一致和信息的分散化（非对称）是导致激励问题的两个基本因素。

5. We should forsake general equilibrium models and resort to game-theoretic tools.

   We focus on models that take into account the full complexity of strategic interactions between privately informed agents in well-defined institutional settings.

   The starting point of incentive theory corresponds to the problem of delegating a task to an agent with private information (principal-agent problem or agency problem).

   激励理论的出发点一般在于委托代理问题。

6. The principal-agent problem (or agency problem) occurs when one party (the "agent" 代理人) makes decisions on behalf of (and takes actions that affect) another party (the "principal" 委托人).

   当一方代表另一方做出决定（并影响）后者时，就会出现委托代理问题（或代理问题）。

   The interaction process (or bargaining process) between two parties calls for a simplistic device known as the principal-agent model, where the principal delegates an action to a single agent through the take-it-or-leave-it offer of a contract.

   委托代理问题中的交互过程（谈判过程）被建模为委托代理模型，其中委托人分派给代理人某项任务，并与其签订"要么接受，要么走人"的合约（没有任何谈判余地和议价能力）。

   We will see that one can apply these principal-agent models in many economic activities including:

- monopoly pricing, financial contracts, public-good procurements, auctions, sharecropping contracts, insurance contracts, wage contracts etc.

7. The most of models are partial equilibrium models. They isolate the markets for one good or two goods from the rest of the economy.

   委托代理模型一般针对局部市场，仅考虑一种或两种商品。

   The models describe the intersections of a small number of agents.

   委托代理模型一般考虑小规模参与者。

   The models make an intensive use of noncooperative game theory with asymmetric information.

8. The models sum up the constraints imposed by the prevailing institutional setting through a contract.

   委托代理模型借助“合约”来描述机制设置中的各种约束。

   The contract may be

   - explicit and in the form of a written agreement,
     - an explicit contract will be guaranteed by a third party or by the desire agents to maintain a reputation.
   - implicit and depend on a system of behavioral norms.
     - an implicit contract is sustained by an equilibrium tacitly observed in the interactions between the agreeing parties.

9. Types of principal-agent problems.

   The asymmetric information can be of two types:

   - either the agent can take an action unobserved by the principal, the case of moral hazard or hidden action (道德风险/隐藏行为);

     委托人无法观察到代理人的行为。

   - or the agent has some private knowledge about his cost or valuation that is ignored by the principal, the case of adverse selection or hidden knowledge/characteristic (逆向选择/隐藏特征).

     委托人无法获知代理人所拥有的关于成本或价值等的私有信息。

   Objective: When this private information is a problem for the principal, what is the optimal way for the principal to cope with it.

   委托人如何取得最优的资源配置结果。

   Another type of problem is the case of nonverifiability (不可验证性), which occurs when the principal and the agent share ex post the same information but no third party and, in particular, no court of law can observe this information.

   信息在事后是不可验证的：在事后委托人和代理人拥有相同的信息，但除此之外不存在任何第三方（如权威机构）能够观察到该信息，因而委托人和代理人共同拥有的信息在本质上是不可验证的。在很大程度上，信息的事后不可验证性成为合约不完全的主要因素。

   Objective: One can study to what extent the nonverifiability of information is also problematic for contractual design.

10. Two implicit assumptions:

    The study of bargaining under asymmetric information is very complex. The principal-agent model is a simplifying device that avoids these difficulties by allocating all bargaining power to one of the parties (putting aside the bargaining issues).

    Principal will propose a take-it-or-leave-it contract and therefore request yes-or-no answer; Agent is not free to propose another contract.

    通过假设委托人提供一个“要么接受，要么走人”的合约给代理人，我们暂时搁置了博弈论中的谈判问题——委托人拥有所有的议价能力。

    We also assume the availability of a benevolent court of law that is able to enforce the contract and impose penalties if one of the contractual partners adopts a behavior that deviates from the one specified in the contract.

    假设存在一个公正的法庭可以确保合约的强制执行，并且对违约方给予足够严厉的惩罚。

11. In general, these informational problems prevent society from achieving the first-best allocation of resources that could be possible in a world where all information would be common knowledge.

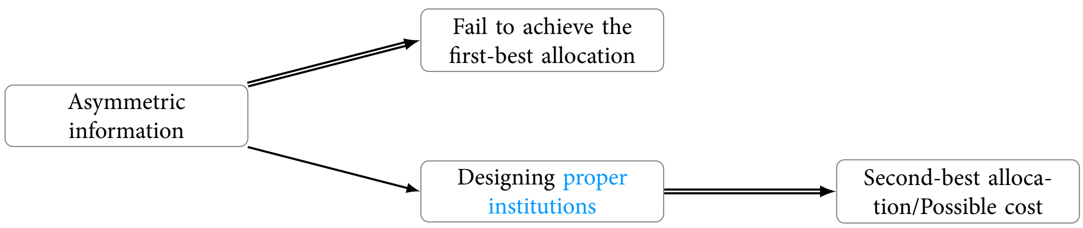
    在一般情形下，不对称信息问题构成委托人实施帕累托最优资源配置的主要障碍，而这种最优配置在完全信息下是很容易达成的。

    The additional costs that must be incurred because of the strategic behavior of privately informed economic agents can be viewed as one category of the transaction costs. Economists have been successful in modeling and analyzing these types of costs and providing a good understanding of the limits set by these on the allocation of resources.

    具有私有信息的代理人的策略行为会带来所谓的“代理成本”，它可以被视为一种交易成本。借助委托代理模型，经济学家成功地为不对称信息所带来的交易成本找到了很好的分析框架。在此框架下，我们能够正确地理解不对称信息下资源配置效率的局限性。

    This work shows that the design of proper institutions for successful economic activity is more complex than one could have thought a priori.

    这些研究表明要为一项经济活动设计一个恰当的组织结构比我们预想的要复杂得多。

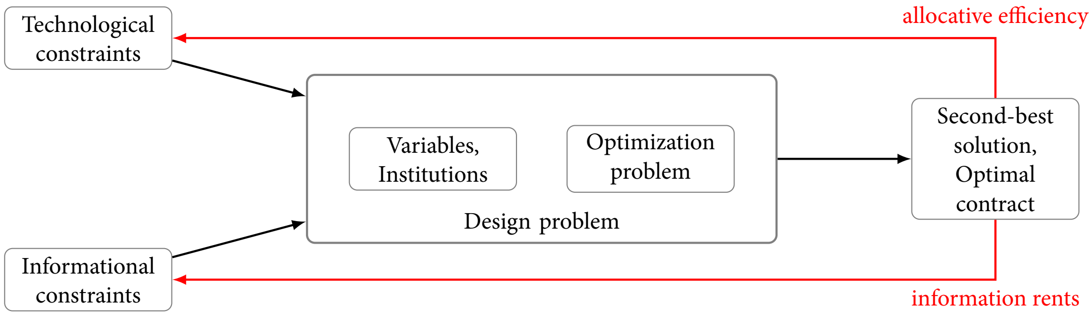
12. Mechanisms: Three types of information problems will be considered—adverse selection, moral hazard, and non-verifiability. Each of those informational problems leads to a different paradigm and, possibly, to a different kind of agency cost.

    On top of the usual technological constraints of neoclassical economics, these agency costs incorporate the informational constraints faced by the principal at the time of designing the contract.

    在新古典主义的技术性约束下，代理成本结合了委托人在签约之时所面临的信息约束。

    The design of the principal's optimal contract reduces to a simple optimization problem. This simple focus will turn out to be enough to highlight the various trade-offs between allocative efficiency and the distribution of information rents arising under asymmetric information. The mere existence of informational constraints may generally prevent the principal from achieving allocative efficiency. The main objective of the analysis is therefore the characterization of the allocative distortions that the principal finds desirable to implement in order to mitigate the impact of informational constraints.

委托人的最优合约设计被化简为一个简单的最优化问题。这一处理足以强调不对称信息下代理人的信息租金抽取与资源配置效率的冲突。由于存在信息上的制约，委托人无法有效地配置资源。我们的主要任务是阐述委托人为了减少信息约束的影响而不得不承担配置效率上的扭曲。



13. The principal-agent model discussed in this module will be cast in terms of a manager-worker relationship. Examples of such agency relationships abound both in terms of their scope and their economic significance.

Task

- Reading: Introduction in [LM] (required), Chapter 1 in [S] (required), 第 3 讲 in [聂] (required).
- Understanding:
  - Why we need principal-agent model?
  - What are the features of principal-agent model?