Market Structure and Adverse Selection

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Observation: different restrictions on trade suggest different outcomes.

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- Health Insurance in France: a basic coverage + an additional premium
- Senior Security: exclusively senior security (collateral) + other securities
- Bank lending in corporate finance: multiple but limited numbers of banks are the norm

Task for theorists: characterize equilibria that arise for different **market structures**

Definition (Market Structure)

A market structure $\mathcal{M}$ is a (non-empty) collection of subsets of sellers ($\{1, \ldots, K\}$) with whom a buyer can jointly trade: $\mathcal{M} \subseteq \mathcal{P}(\{1, \ldots, K\}) \equiv \mathcal{P}(\{\text{all sellers}\})$ [1].

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Unified Framework with Market Structure

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Partition competitive market structures into **partially exclusive** and **never exclusive** structures.

- Partial exclusive: exists seller can exclusively trade with the buyer.
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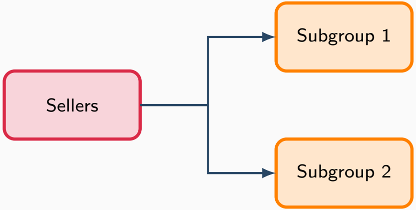
Unified results

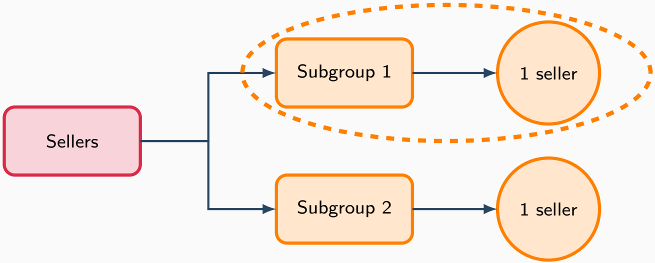
- Any equilibrium allocation in **partially exclusive** structures is the equilibrium allocation in **Exclusive structure**.
- Any equilibrium allocation in **never exclusive** structures is an equilibrium allocation in **"1+1" market structure**

Key of This Paper

▶ The "1+1" Market Structure



- Divide sellers into two groups



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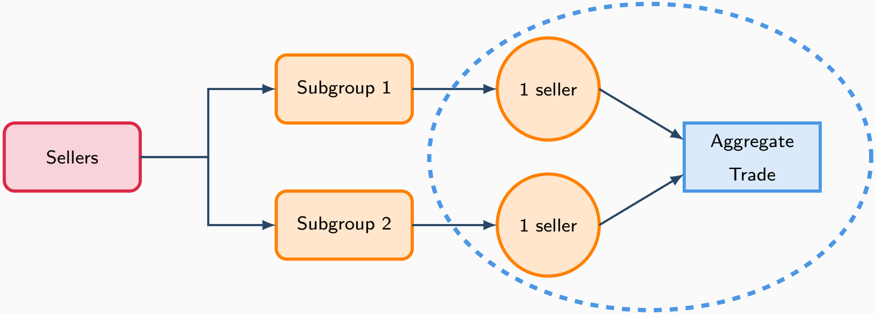

- Divide sellers into two groups
- Trade **inside** each group is **exclusive**
- Trade **between** groups is **nonexclusive**.
- **“1+1”**: $\mathcal{M} = \underbrace{\{\emptyset, \{1\}, \{2\}, ..., \{K_1\}\}}_{\substack{\text{Subgroup 1} \\ \text{Exclusive}}} \times \underbrace{\{\emptyset, \{K_1+1\}, \{K_1+2\}, ..., \{K\}\}}_{\substack{\text{Subgroup 2} \\ \text{Exclusive}}}$

Preview of Results

▶ 2, Equilibria Allocations in Never Exclusive Market Structures

- Equilibrium candidate (Theorem 1)
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- Welfare comparison
  - If RS separation entails a lot of rationing, pooling + separation Pareto dominates
  - "1+1" sometimes implements the second-best allocation

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- Buyers trade with group of sellers $M \subseteq \{1, ..., K\}$ → Utility: $U_\theta(\sum_{k \in M} q^k, \sum_{k \in M} t^k)$
  - Utility function is twice differentiable and strict quasi-concave

- **Single-Crossing:**
  - → High types have a greater propensity to consume:
  - For all (q, t) and (q', t') so that $q' > q$ it holds that
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- **Flatter Curvature:**
  - Type H's indifference curve is 'flatter' than type L's indifference curve, e.g. CARA, Quadratic utility

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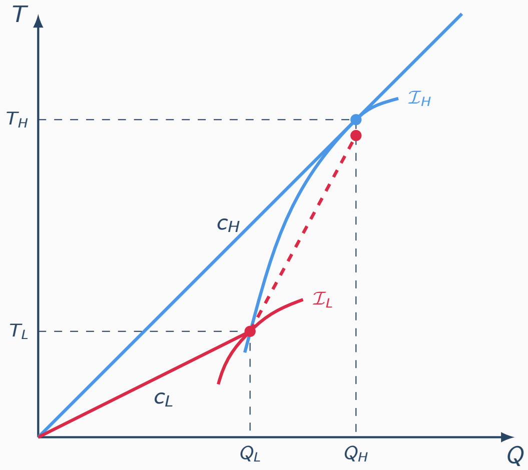
- **Equilibrium**: Sellers maximize expected profit, buyers maximize utility (PBE in pure strategies)

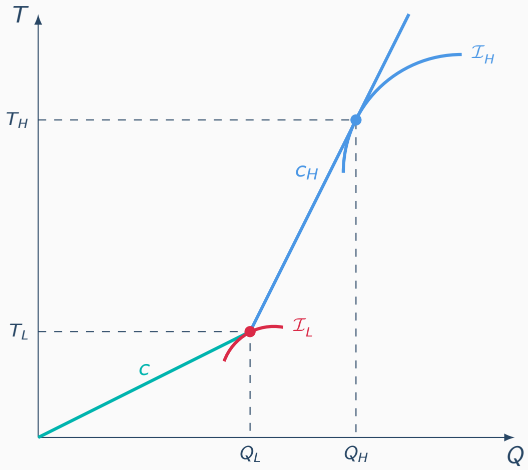
Market Outcomes for Two-Polar Structure

▶ **Exclusive Competition: RS Allocation**



- Zero-profit line when trading w/ Low (L) and High (H) risk type
- **In equilibrium**
  - The high-risk type purchases the efficient amount of quantity given that the unit price is c_H.→ **full insurance**
  - The low-risk type purchases less than the efficient amount of quantity given that the unit price is c_L: he is being **rationed**
- **Relax Exclusivity**

  → RS allocation is not an equilibrium, a seller can propose a deviating contract to attract type H



- Zero profit lines for
  - serving both types (pooling $c = m_H c_H + m_L c_L$)
  - serving for high types
- In equilibrium
  - the pooling quantity is the efficient quantity for the low type if the unit price is the zero-profit pooling price c
  - the top-up quantity is the efficient quantity for the high type if the unit price is c_H. → **cross-subsidy from low to high types**
  - It is impossible for low types to purchase a separating contract

The Outline for Equilibria

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- **Characterization:** Identify 4 necessary conditions that pin down candidates for equilibrium
  1. **Global Incentive Compatibility**
  2. **Competitive Pricing**
  3. **Conditional Efficiency** (MRS=marginal cost)
  4. **Large Pooling**

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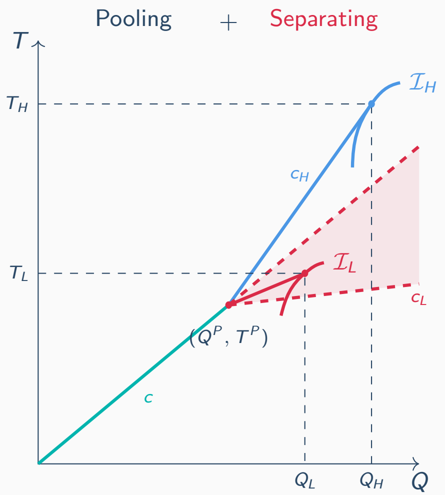
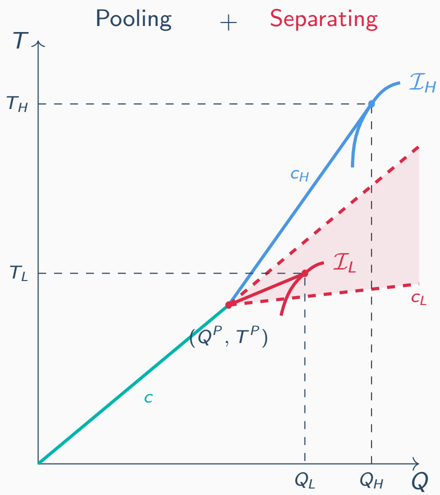
- Sufficient condition:
  - Latent contract blocks the cream-skimming deviations



- Competitive Pricing
  - Pooling trade with break-even unit price c
  - High type separating with unit price c_H
  - Low type separating with unit price $[c_L, c]$



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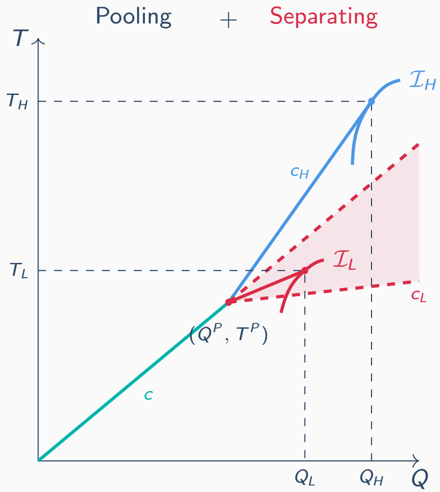
- Conditional efficiency: $MRS_H = c_H$, $MRS_L = c$



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- Conditional efficiency: $MRS_H = c_H$, $MRS_L = c$
- Large Pooling: the pooling should be large to deter pivoting deviation (at most two trade)

Equilibrium

Theorem:

Given an allocation (Q_L, T_L) and (Q_H, T_H) that satisfies the four necessary conditions,

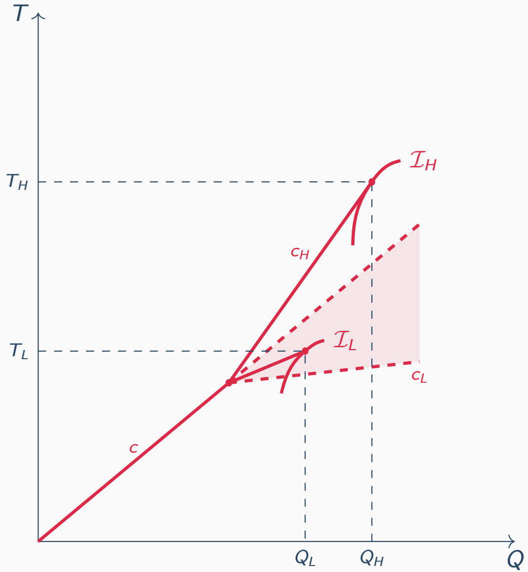
Moreover, aggregate active trades are

1. incentive compatible,
2. competitively priced,
3. conditionally efficient,
4. large pooling .

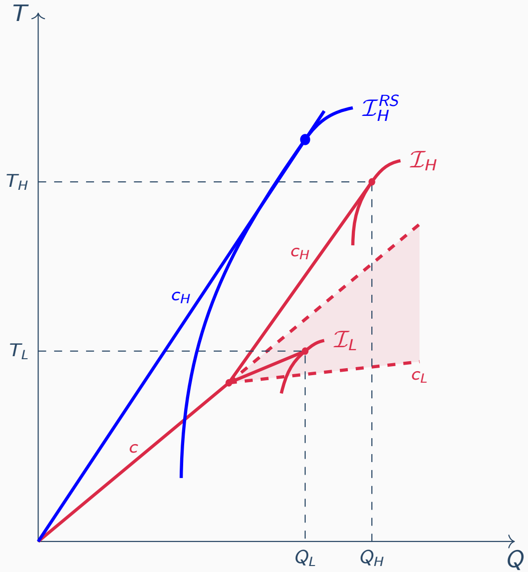
there exist finitely latent contracts that sustain this allocation as an equilibrium under the "1+1" market structure.

Note: this theorem requires the flatter curvature assumption to block cream-skimming deviations (i.e. type L no longer buys the pooling contract).

One Example of Flatter Curvature: $U_\theta = A_\theta Q - BQ^2 + C_\theta - T$



- The "Pooling+Separating" allocation in "1+1" Market structure



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- RS allocation in exclusive market structure
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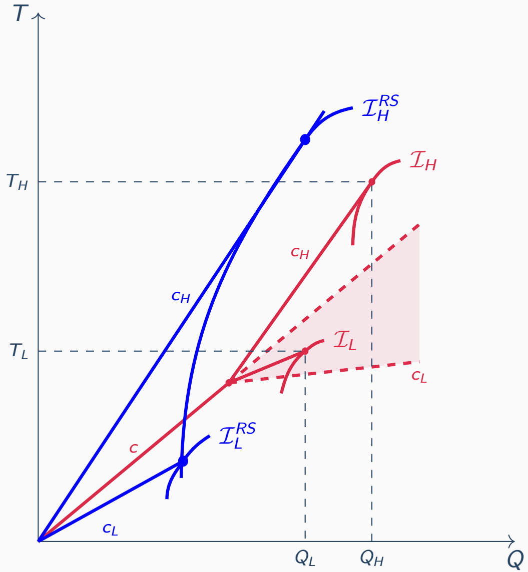

- The "Pooling+Separating" allocation in "1+1" Market structure
- RS allocation in exclusive market structure
    - High types are always better off with " 1+1"
    - Low types are better off with "1+1" in some cases

Conclusions

“1+1” market structure → Divide sellers into two disjoint groups, buyers can trade with at most one seller from each group but can nonexclusively trade between groups

Unified result:

Any equilibrium allocation in a never exclusive structure (No seller can exclusively trade with buyers) is an equilibrium allocation in **“1+1” market structure**

Novel result:

New equilibria with **“Pooling + Separating”** form

Sustain some competitive positive profit equilibria

Desirable result:

Pareto Dominates Rothschild-Stiglitz allocation when rationing is severe

Sometimes sustain Second-best allocation

Extention

Weak Mandates: buyers should purchase enough quantity in group 1

- All the equilibria can still be equilibrium in the new setting
- New Pareto-efficient allocations exist: can Pareto Dominates JHG allocation