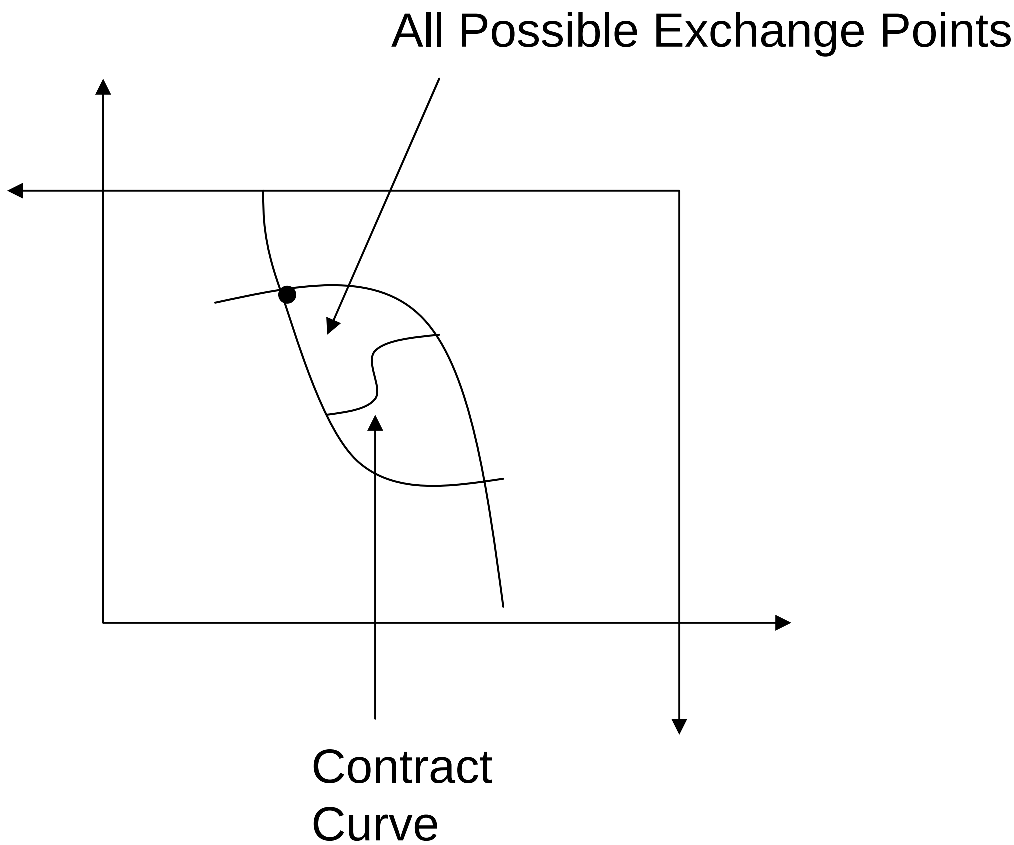
Overview

Consumer Theory

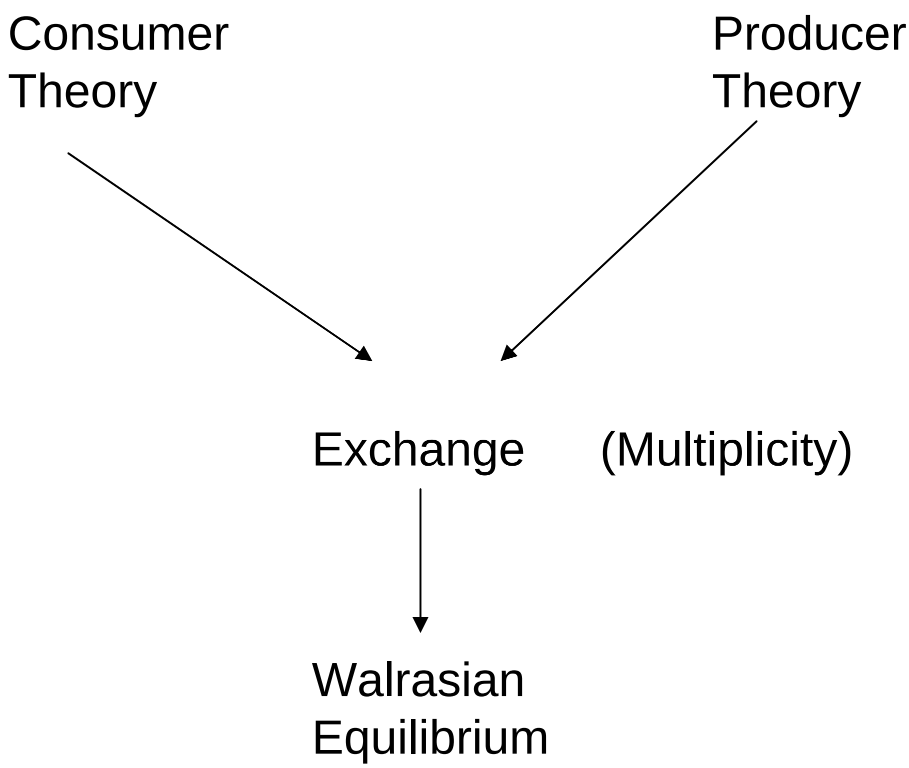
Producer Theory

Exchange

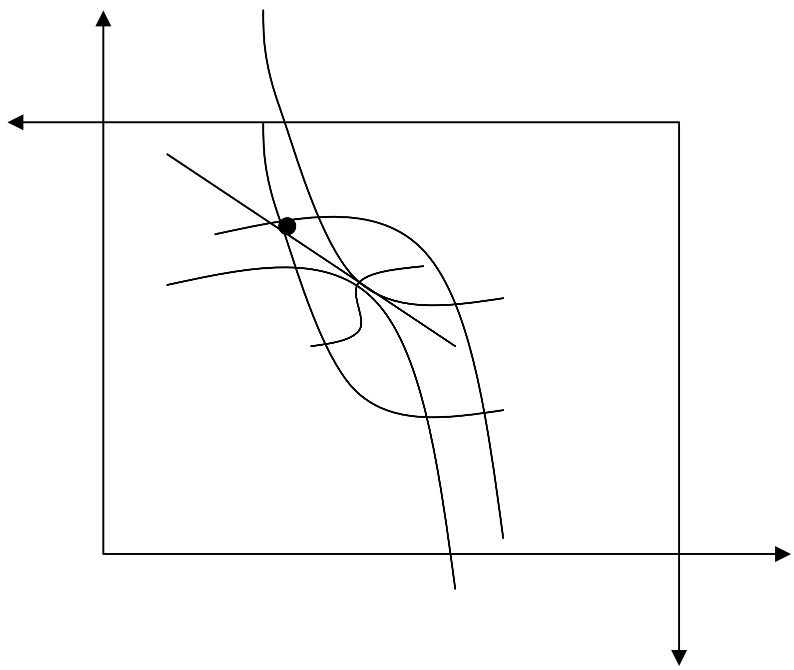
Edgeworth Box



Overview


Consumer Theory
Producer Theory
Exchange
(Multiplicity)
Walrasian Equilibrium

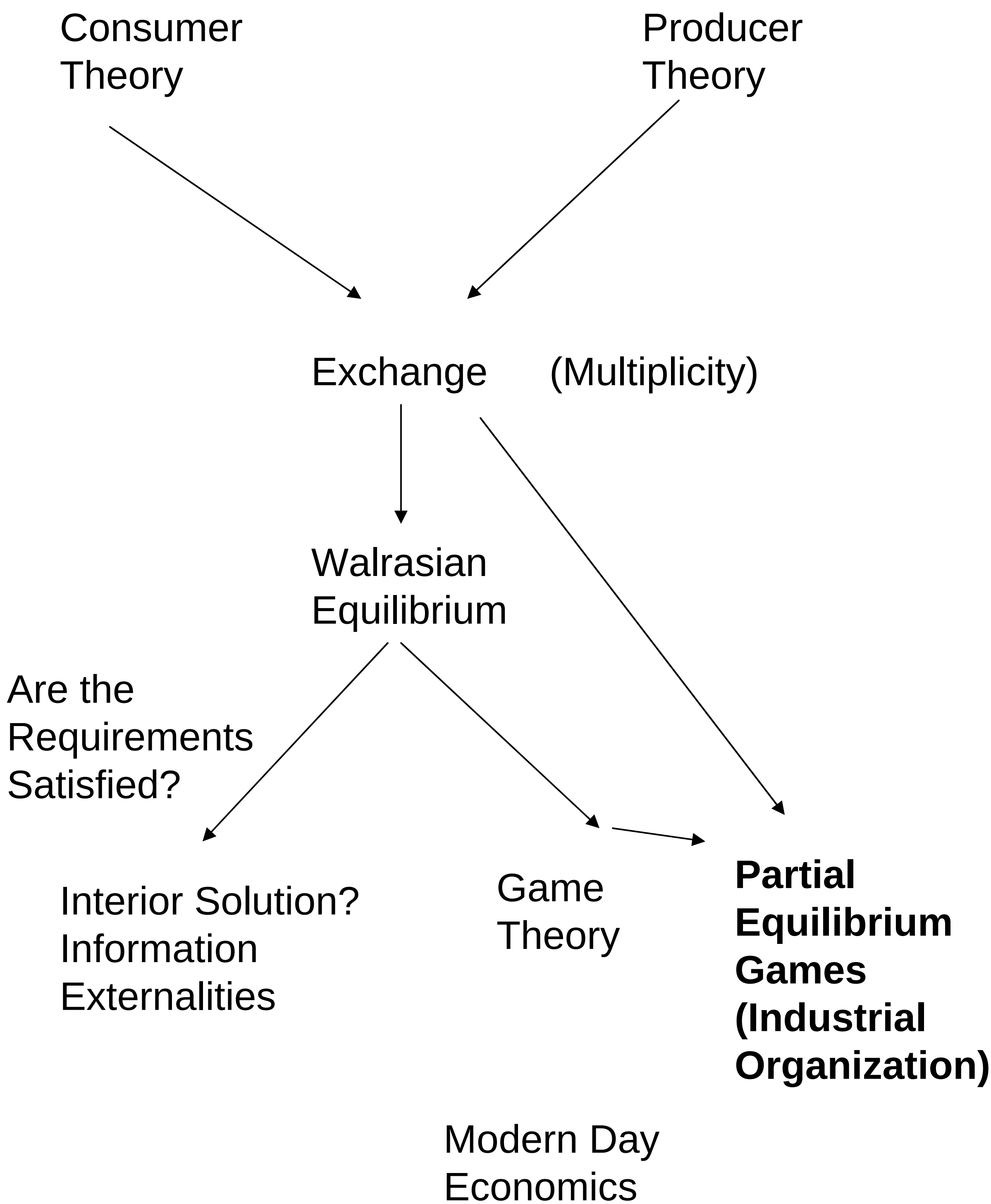
Walrasian Equilibrium



Requirements:
1) Full information
2) “Smooth Indifference Curves”
(Convex, continuous, monotonic)
3) Interior Solution
4) No Externalities

Outcome: Welfare Thoerems
1) If (x,p) is a Warasian equilibrium, then x is Pareto Efficient
2) Suppose x is a PE allocation in which each agent holds a positive amount of each good. If preferences are convex, continuous, and monotonic, there exists an initial endowment for which x is a Walrasian Equilibrium.

Overview



Consumer Theory
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Are the Requirements Satisfied?
Interior Solution?
Information
Externalities
Game Theory
Partial Equilibrium Games (Industrial Organization)
Modern Day Economics

Game Theory

A Careful model of how agents interact with one another.

Nash Equilibrium: A strategy profile in which no one has an incentive to change strategies

Dominant Strategy Equilibrium: A strategy profile in which your optimal strategy does not change with any undominated strategy of a competitor.

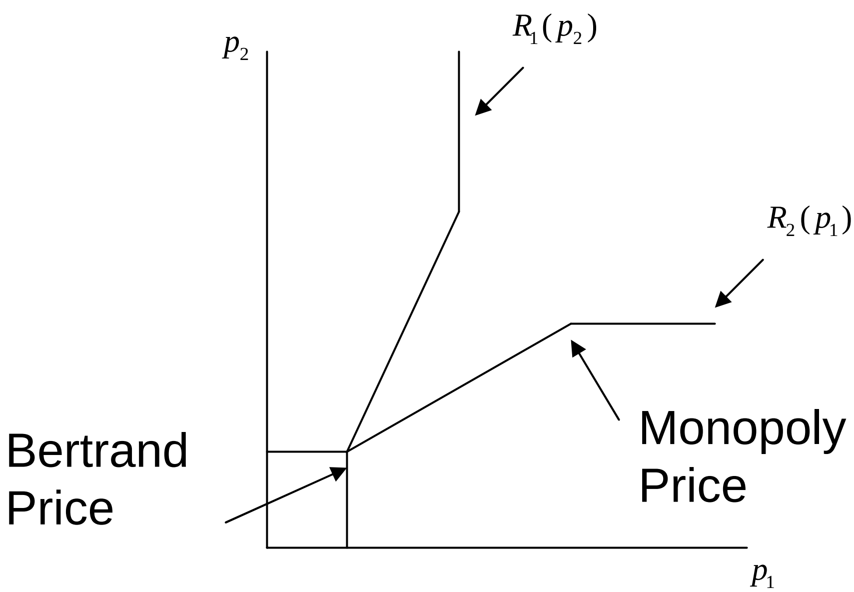
Mixed Strategy Equilibrium: A strategy profile in which players are randomizing between actions. Note: Any action that we randomize between must have the same expected payment.

Nash Theorem: There exists at least one Nash equilibrium for any finite action space game.

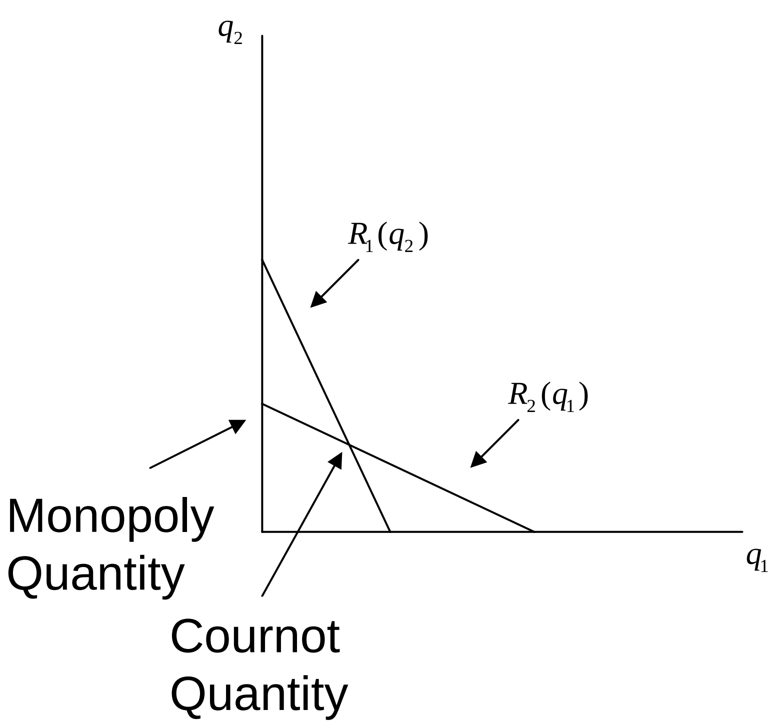
Industrial Organization

	Simultaneous	Sequential
Price	Bertrand	Second Mover Adv
Quantity	Cournot	Stackleburg (1st Mover Advantage)

Reaction Curves

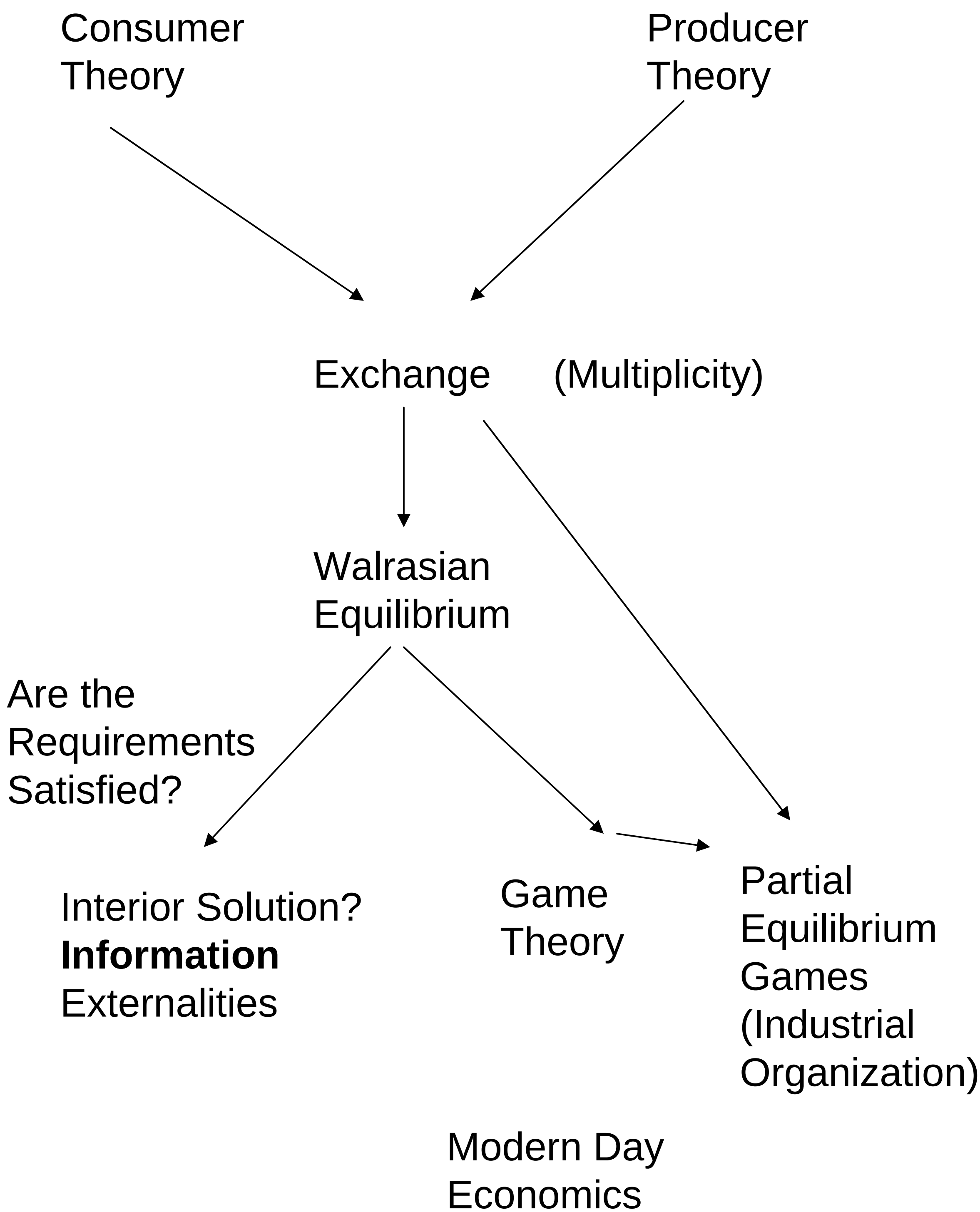


- Upward Sloping Reaction Curves (Compliments)
- Prices Driven Down to MR=MC
- Prices driven to zero with constant Margeinal Cost



- Downward Sloping Response Curves (Substitutes)
- Quantities between the CE and Monopoly levels
- Profits are positive and decreasing with the number of players

Overview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Information

Private Information:

Proposer Uniformed	Proposer Informed
Screening	Signaling
Revelation Principal	Bayesian Nash Equilibrium
Distortion of goods At the low end to protect Profits at the high end	Structure of Off Equilibrium Beleifs influence Final Outcome
Often No Equilibrium In Pure Strategies	Too many Equilibrium

Private Information: Moral hazard – I have an action that affects the outcome that you can't see.

2^{nd} Degree PD

2nd Degree PD: I know people have different utility functions

Two types: $\mathrm{u}_1(x_1), u_2(x)$. Can't tell the difference between them

Assume $\mathrm{u}_1(x) > u_2(x)$

IR constraints:

$\mathrm{u}_1(x_1) \ - r(x_1) \geq 0$

$\mathrm{u}_2(x_2) - r(x_2) \geq 0$

IC Constraints:

$\mathrm{u}_1(x_1) - r(x_1) \geq \mathrm{u}_1(x_2) - r(x_2)$

$\mathrm{u}_2(x_2) - r(x_2) \geq \mathrm{u}_2(x_1) - r(x_1)$

2nd Degree PD

Step 3: Solve the simplified problem

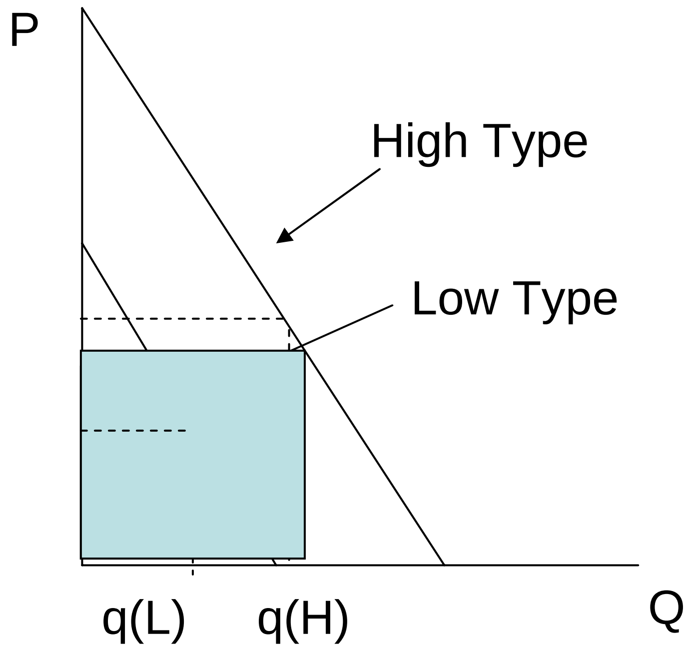
$$\text{Max } r_1(x_1) + r_2(x_2)$$

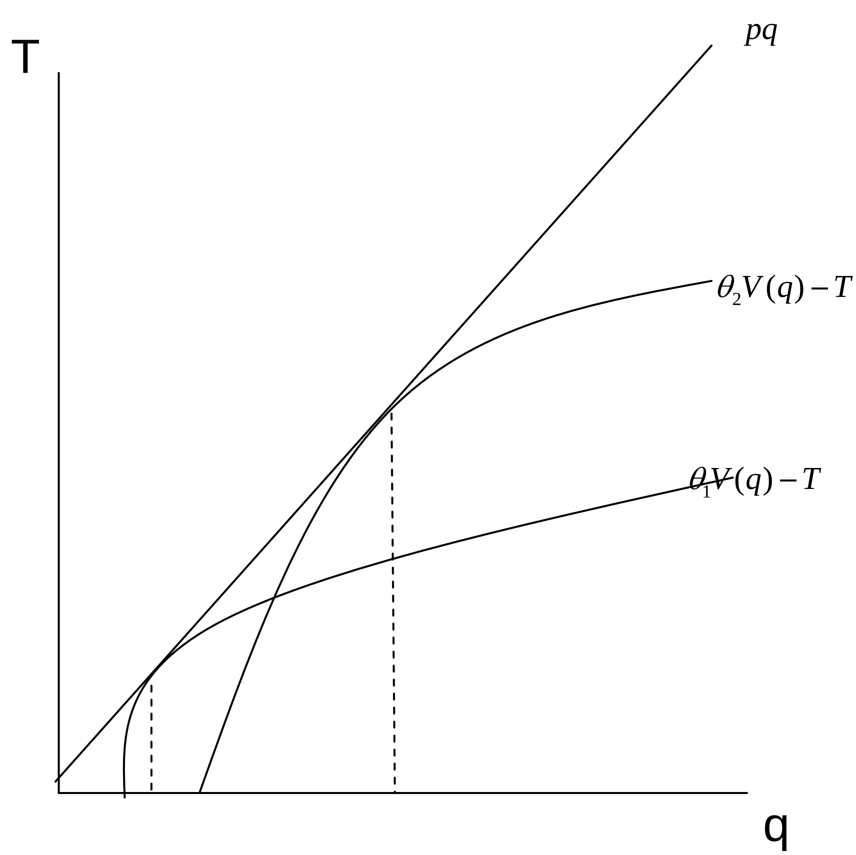
Subject to:

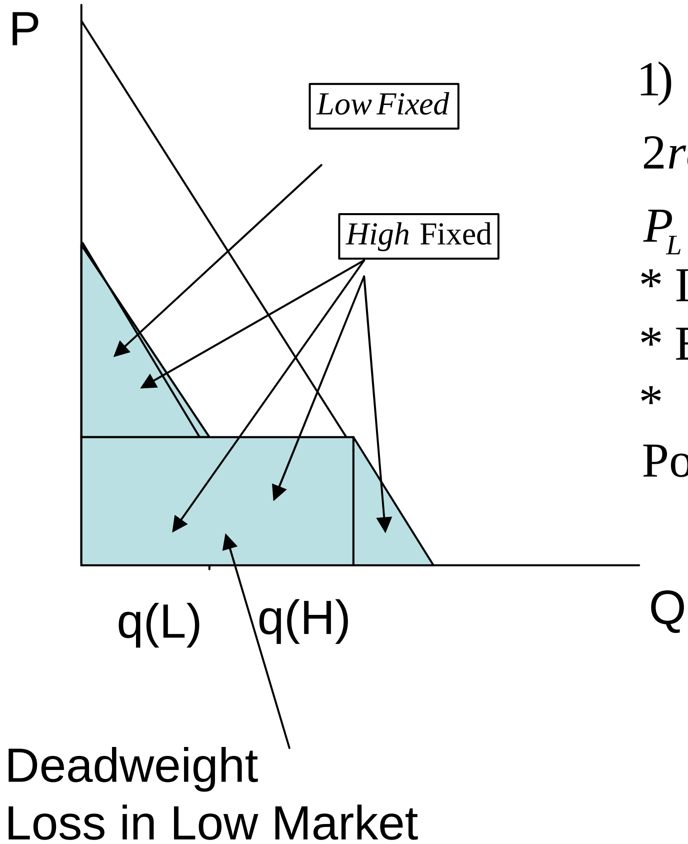
$$u_2(x_2) - r(x_2) \geq 0 \quad \text{(IRL)}$$

$$u_1(x_1) - r(x_1) \geq u_1(x_2) - r(x_2) \quad \text{(ICH)}$$

Review: Single Price





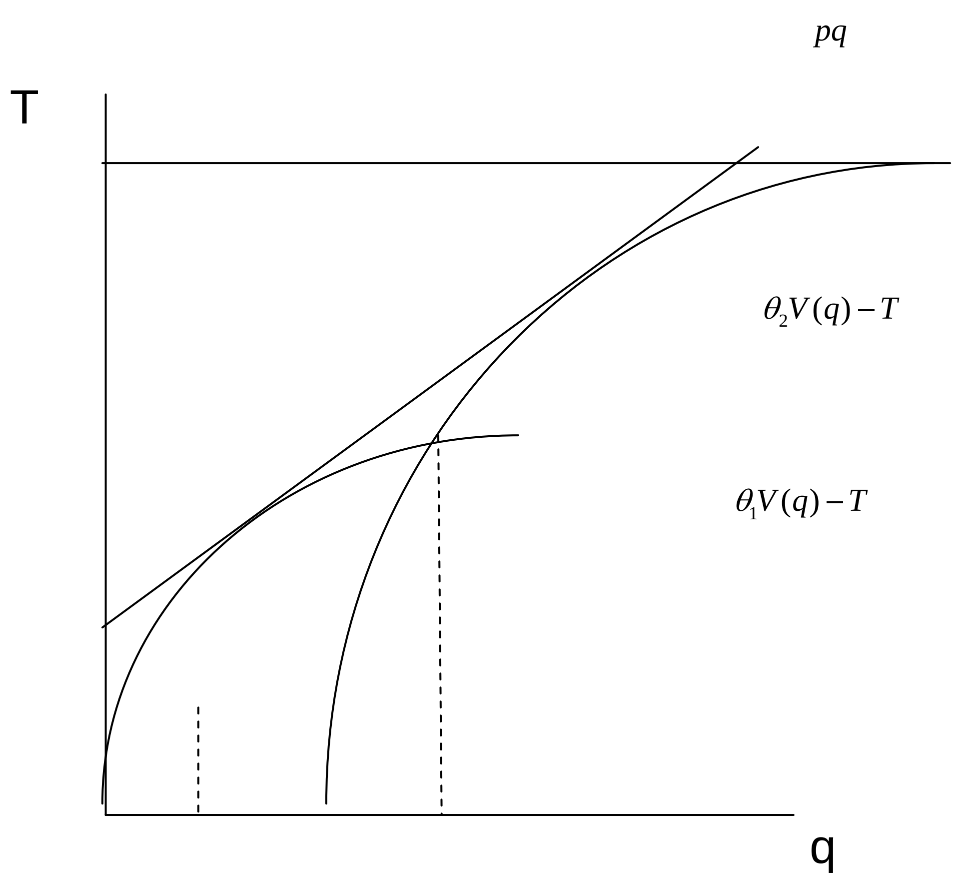


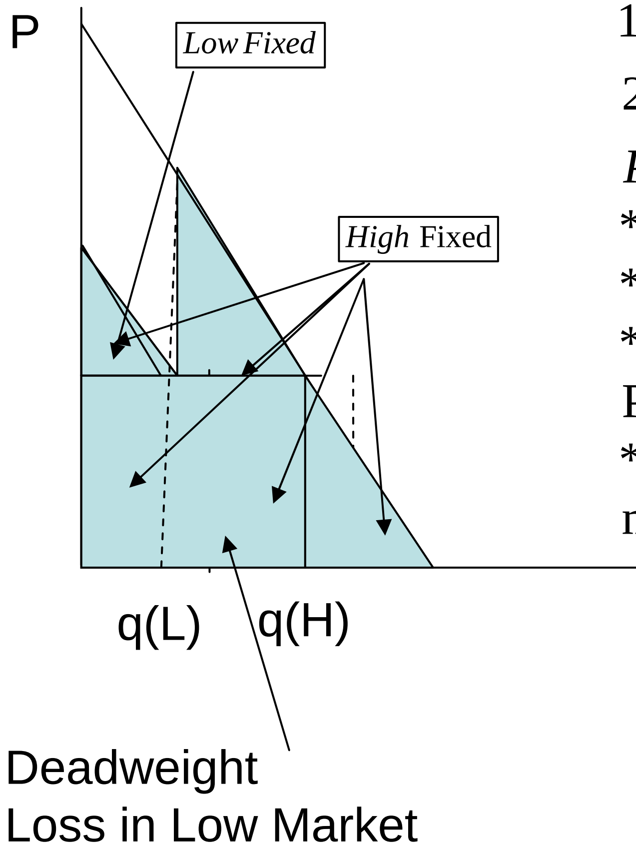
1) Part b (ii).

2*rd* Degree Price Discrimination

$P_L \neq P_H$, $\mathrm{K_L} \neq K_H$

* Inefficiency in low market
* Efficiency in high market
* IC constraint gives High market Positive Rents



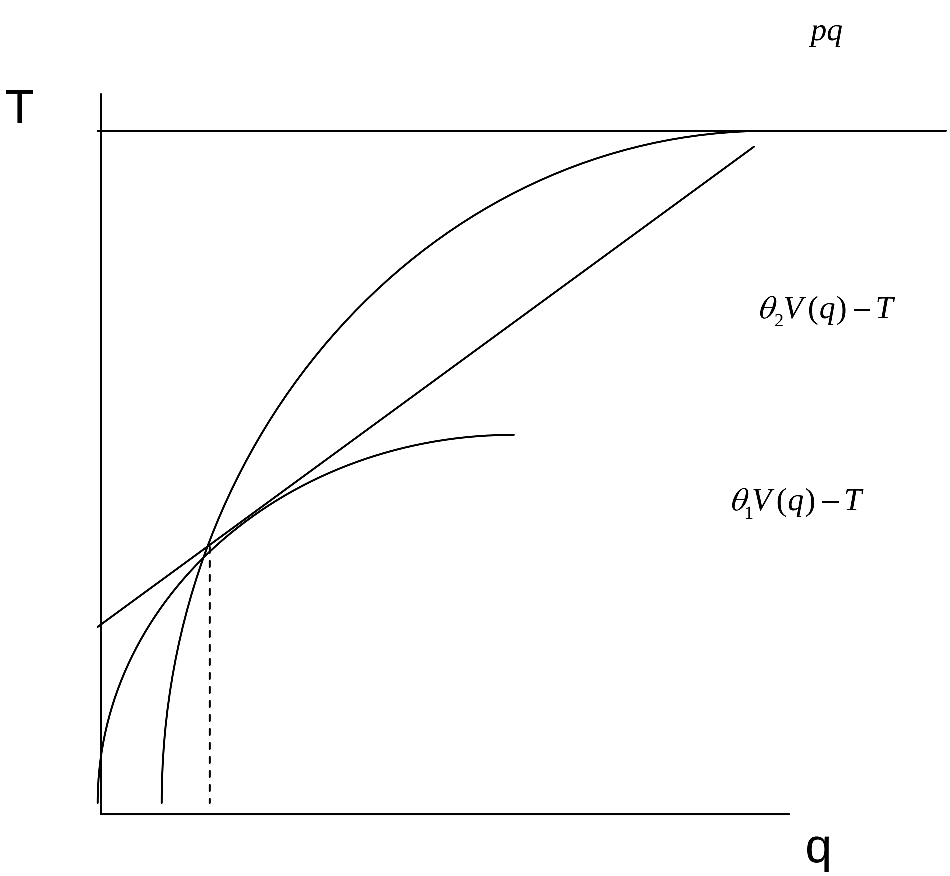


1) Part b (iii).

$2rd$ Degree Price Discrimination

$P_L \neq P_H$, $K_L \neq K_H, Q_L$ constrained

* Inefficiency in low market
* Efficiency in high market
* IC constraint gives High market Positive Rents
* Quality constraints increases monopolists Rents



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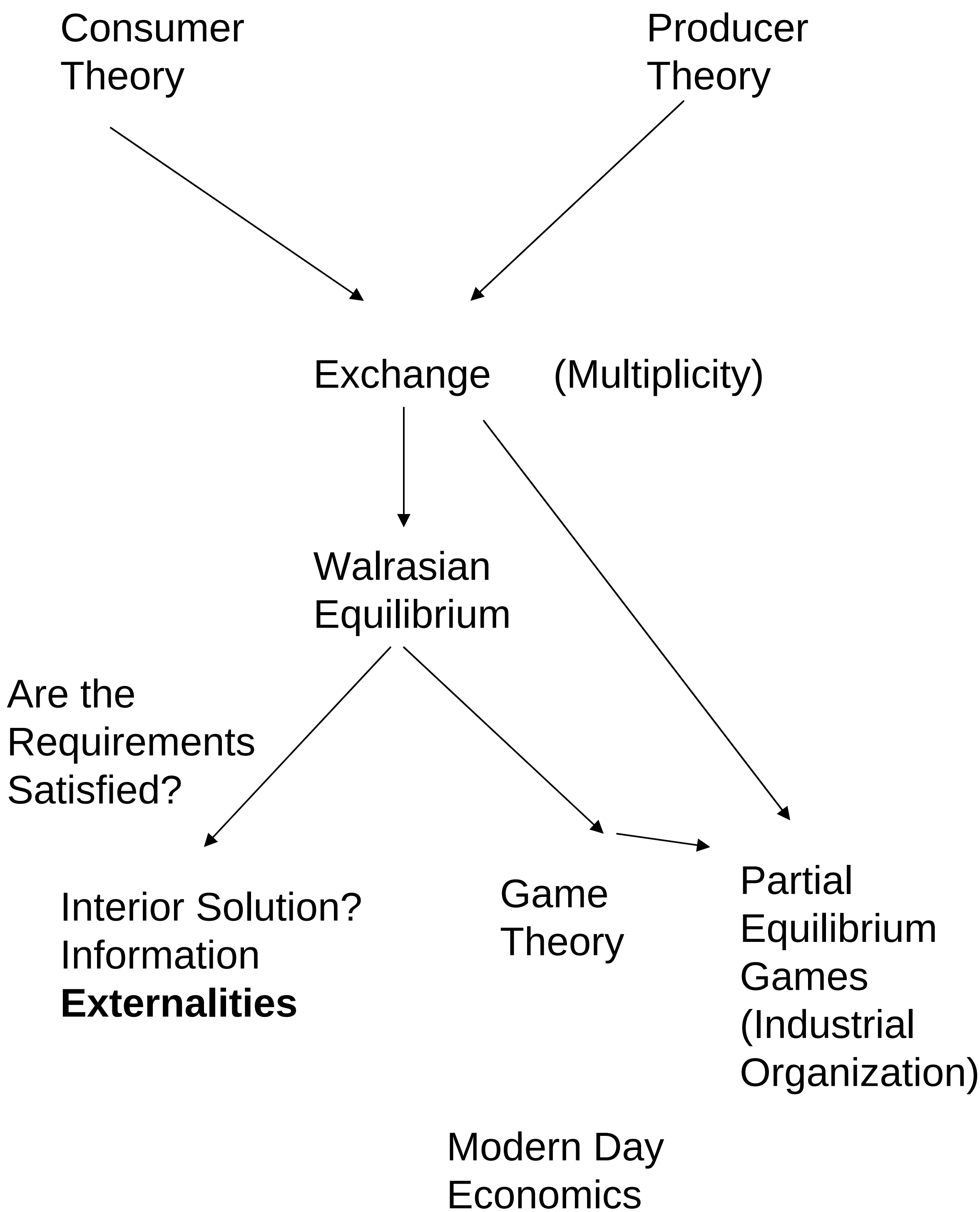
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Externalities

My Actions Impact the Outcomes of Others

Example :
Suppose there are two firms. Producing 1 unit of firm ones output reduces the size of the market for the second firm:

$\mathrm{D}_{q_1}(\mathrm{q}_1, q_2) = 10 - q_1$

$D_{q_2}(q_1, q_2) = 10 - q_1 - q_2$

Firm 1 with zero MC will choose $\mathrm{q}_1 = 5$. Firm 2 now will choose $\mathrm{q}_2 = p_2 = 2.5$.
If firm 1 and 2 were the same and took into account externalities, he would charge different amounts.

Externalities are often called missing markets. If Firm two could contract on the externality, we would be back in the WE world.