Chapter 8: Market Power Oligopoly

Market Power: Oligopoly

Definition:

Oligopoly is a market structure that features a small number of firms.

Market Power: Oligopoly

Small number of firms → strategic interactions:

The actions of one firm has direct effects on the other firms (and vice-versa)

→ in making its own decision, a firm tries to anticipate what the other firms are about to do!

Game Theory



Market Power: Oligopoly

Definition:

A **Dominant Strategy** represents a strategy that is preferred by a player irrespective of the strategy selected by the other player.

Simultaneous Games

Definition:

A **Simultaneous Game** is a type of game in which players move simultaneously or, alternatively, they are unaware of the other players' actions.



A Simple Entry Game: Social Network Industry (1)

	Entry	No Entry
Stay	8, -20	10,0
Exit	0, -10	0,0

Table 8.1: Table of payoffs of Facebook and AceBook (in billion dollars). AceBook's payoffs and strategies are depicted in *italics*.

A Simple Entry Game: Social Network Industry (2)

	Entry	No Entry
Stay	8 ,-2	10,0
Exit	0,10	0,0

Table 8.2: Table of payoffs of Facebook and Google (in billion dollars). Google's payoffs and choices are depicted in *italics*.

A Simple Entry Game: Social Network Industry (2)

	Entry	No Entry
Stay	8 ,-2	10,0

Table 8.2: Table of payoffs of Facebook and Google (in billion dollars). Google's payoffs and choices are depicted in *italics*.

A Simple Entry Game: Social Network Industry (2)

	Entry	No Entry
Stay	8,-2	10,0

Table 8.2: Table of payoffs of Facebook and Google (in billion dollars). Google's payoffs and choices are depicted in *italics*.

Assumes Rationality: Google believes that Facebook is *acting rationally* (Facebook acts with the objective of max. its profit)

Prisoner's Dilemma Game

Advertising (ANZ) No Advertising (ANZ)

Advertising (NAB) No Advertising (NAB)

70 , 70	120,50
50 , 120	100 , 100

Table 8.4: Table of payoffs of ANZ and NAB (in million dollars). ANZ's payoffs and strategies are depicted in *italics*.

Prisoner's Dilemma Game

Advertising (ANZ) No Advertising (ANZ)

Advertising (NAB) No Advertising (NAB)

	<i>O</i> ' '
70 , 70	120,50
50 , 120	100 , 100



Table 8.4: Table of payoffs of ANZ and NAB (in million dollars). ANZ's payoffs and strategies are depicted in *italics*.

"(Adv., Adv.)" is realized outcome (total earnings = \$140bil.)

cooperation outcome

(total earnings = \$200bil.)

Not Pareto Optimal (3)



Prisoner's Dilemma Game

The individual quest for profit does not lead to socially optimal allocation of resources

Adam Smith's Invisible Hand Principle fails!



Definition:

Cartels represent private agreements aimed at increasing the profit of the cartel members by reducing competition in the market.

by controlling prices or preventing entry

Cartels are illegal nearly everywhere (prohibited under competition law)

→ cartel members cannot write enforceable contracts to keep the other members in line

prisoner's dilemma



Price Cut

Firm B

No Price Cut

300, 100

200, 200

Firm A Price Cut 150, 150
No Price Cut 100, 300

Table 8.5: Table of payoffs of firm A and B (in million dollars). Firm B's payoffs and choices are depicted in *italics*.

"(No Price Cut, No Price Cut)" is collectively optimal BUT...



Firm B

 Price Cut
 No Price Cut

 Firm A
 Price Cut
 150, 150
 300, 100

 No Price Cut
 100, 300
 200, 200

Table 8.5: Table of payoffs of firm A and B (in million dollars). Firm B's payoffs and choices are depicted in *italics*.

"(Price Cut, Price Cut)" is the realized outcome



Coordination Games

Definition:

Coordination Games are a type of games that capture those situations where the *players* benefit from coordinating their decisions.

Battle of the Sexes

Definition:

Battle of the Sexes is a game in which players differ over which activity they would prefer to engage in, but they still prefer engaging in the same activity over going alone.

	Theatre	Stadium
Theatre	20,10	0,0
Stadium	0,0	2,15

Table 8.6: Table of payoffs of A and B (in utils). B's payoffs and strategies are depicted in *italics*.

Battle of the Sexes

Definition:

A **Strategy Profile** denotes a set of strategies, one for each player.

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(Theatre, Stadium); (Stadium, Theatre); (Stadium, Stadium); (Theatre, Theatre)
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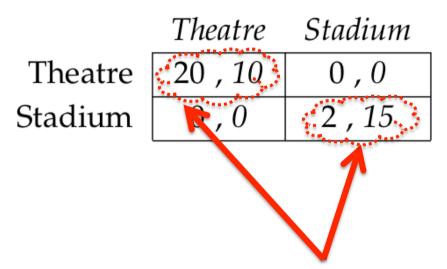


Table 8.6: Table of payoffs of A and B (in utils). B's payoffs and strategies are depicted in *italics*.

Both strategy profiles are possible outcomes of the game

- → A/B do no benefit by *unilaterally* changing their strategies
 - → Both strategy profiles are *Nash equilibria* of the game!

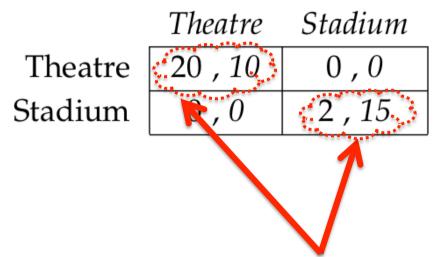


Table 8.6: Table of payoffs of A and B (in utils). B's payoffs and strategies are depicted in *italics*.

Both strategy profiles are *Nash equilibria* of the game!

How to choose?

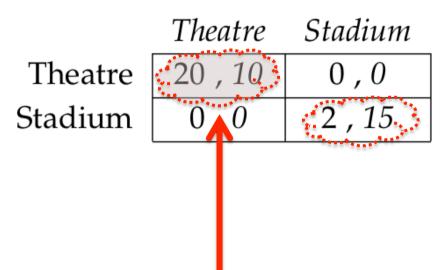


Table 8.6: Table of payoffs of A and B (in utils). B's payoffs and strategies are depicted in *italics*.

more fair in terms of the distribution of utils & gives *collectively* more (30 vs. 17) BUT ... (it's an open question)

