

Duopoly: an oligopoly consisting of 2 firms

Collusion: Sellers cooperate to raise their joint profits

Cartel: an agreement among several producers to obey output restrictions to raise joint profits

Interdependence :

when a firm's decision significantly affects the profits of other firms

Game theory : study of behavior in situations of interdependence

Payoff : reward received by a player

The Prisoners' Dilemma Game

		Louise	
		No Confess	Confess
Thelma	No Conf	L. 5 yrs T. 5 yrs	L. 2 yrs T. 20 yrs
	Conf	L. 20 yrs T. 2 yrs	L. 15 yrs T. 15 yrs

Dominant strategy: Confess

Nash Equilibrium:

each player takes the action that is best for her given the actions taken by other players, and vice versa

Tit for tat: playing cooperatively at first, then do whatever the other player did in the previous period

Repeated interactions
can support tacit
collusion

e.g. by playing tit for
tat

Ajinomoto

30m lbs

40m lbs

	30m lbs	40m lbs
30m lbs	A \$180m ADM \$180m	A \$200m ADM \$150m
40m lbs	A \$150m ADM \$200m	A \$160m ADM \$160m

- Both better off if choose lower output
- but in each firm's individual interest to choose higher output

- Nash equilibrium or noncooperative equilibrium (40m lbs, 40mlbs)

Overcoming Prisoners'

Dilemma: Repeated Interaction and Tacit Collusion

- Under some conditions, can tacitly collude

Ajinomoto

Tit for Tat Always cheat

ADM

Tit for Tat	<p>A \$180m annual</p> <p>ADM \$180m annual</p>	<p>A \$200m 1st y, \$160m later</p> <p>ADM \$150m 1st y, \$160m later</p>
Always cheat	<p>A \$150m 1st y, \$160m later</p> <p>ADM \$200m 1st y, \$160m later</p>	<p>A \$160m each y</p> <p>ADM \$160m each y</p>

• When oligopolists expect to compete with each other over an extended period of time, each will often conclude that it is in its own self-interest to cooperate

Tacit Collusion harder:

- large # of producers

- Complex products and pricing schemes

- Differences in interests

e.g. differences in
MC

differences in
original positions
(market shares)

• large bargaining
power of buyers