

2.5: Collusion

Collusion in general / Key concepts:

- Tacit agreements
- Price leadership
- Multi-market contact

Cartel: An institutional form of collusion, with explicit or implicit agreements among cooperating parties.

Conditions conducive to the formation and maintenance of collusive arrangements:

- Significant market power
- Stable market conditions – industry growth (g) and a high probability of continued interaction (h)
- Frequent interaction among firms – either within a single market or across many different markets
- Low transaction cost of cooperation – how easy or difficult is it for members of a collusive arrangement to “enforce” the arrangement?

One common form of tacit collusion is price leadership.

Price wars sometimes represent the “disciplinary action” to help re-establish collusive arrangements.

A convenient way of thinking about collusion is as an attempt by firms to “escape” from a prisoners’ dilemma.

Collusive pricing is more likely to be an equilibrium the greater the probability of continuation and growth of the industry. (Cabral also adds a variable, f , to represent the frequency of interaction among firms.)

Collusion
Conditions Conducive to Collusion
<input type="checkbox"/> Significant market / monopoly power (opportunity for monopoly profits) <input type="checkbox"/> Stable market conditions <input type="checkbox"/> Frequent market interactions among firms <input type="checkbox"/> Low transaction costs of cooperation: <ul style="list-style-type: none"> > Small number of firms > High levels of market concentration > Symmetry between firms > Frequency of interaction among firms > Low levels of product differentiation

Collusion
Some Famous (Infamous?) Cartels
<input type="checkbox"/> OPEC <input type="checkbox"/> DeBeers (Diamonds) <input type="checkbox"/> Paris luxury hotels <input type="checkbox"/> Vitamins <input type="checkbox"/> Archer Daniels Midland (Lysine)

Collusion
Price Leadership and Price Wars
<input type="checkbox"/> To “escape” from the Prisoner’s Dilemma, some method of communication between players is crucial. <input type="checkbox"/> <i>Collusive price leadership</i> : When the pricing decisions of a few firms in a concentrated industry are systematically followed by others in the industry. Such price leadership has taken different forms over the years: <ul style="list-style-type: none"> > Dominant firm price leadership > Barometric price leadership > Basing point pricing > Low-price guarantees <input type="checkbox"/> Information sharing through trade and professional associations often facilitates tacit collusion through pricing strategies. <input type="checkbox"/> From the perspective of industry participants, price wars are a “bad” equilibrium, and sometimes result from the attempt of one party to “punish” another party in order to induce cooperation.

Collusion	
The Stability of Cartels	
<input type="checkbox"/> Recall that in evaluating the benefits of competing aggressively versus “less than aggressively”, a firm will discount the costs and benefits of future cooperation or defection. Consider a <i>discount factor</i> , $\delta = \frac{1}{1+r}$, where r is a <i>discount rate</i> . <input type="checkbox"/> Recall that the critical discount rate, $r^* = \frac{(\pi^c - \pi^c)}{(\pi^d - \pi^c)}$. Thus, $\delta^* = \frac{1}{1+r^*}$ <input type="checkbox"/> Generalizing, $\delta = \frac{1}{1+r} [h + g]$, where <table style="display: inline-table; vertical-align: middle;"> <tr> <td style="border-left: 1px solid black; padding-left: 5px;"> h = Probability that interactions will continue into the future g = Growth rate of the industry </td> </tr> </table>	h = Probability that interactions will continue into the future g = Growth rate of the industry
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Relevant exercises: Problem Set 2, exercises 8 and 9.