Eco 340 Industrial Economics
Market Structures: Cartels / Cooperative Oligopoly

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Oligopolistic Markets and the Cartel

• Competitive market: firms operate independently
• In other markets, total the firms may collude / cooperate to jointly determine the total output and price. This is called a cartel.
• The objective of that behavior is to maximize total industry profits and then to share it.
• This generally occurs in markets where there are few companies; i.e. in oligopolistic markets.
Why cartels are formed?

• Cartels are formed in order to increase firm profits from the level determined by a competitive market.

• In the competitive market, individual firm sets output at where MC equals $p_c$. The market supply schedule is the sum of firm supply schedules. So the market equilibrium is set at the point where total market supply cuts the $p_c$. 
Why cartels are formed?

• If the firms form a cartel, they act like a monopoly, they together face the entire market demand (i.e., not the individual residual demand curves). The joint profit maximization behavior leads to the point where the quantity is set at the point where $MC=MR > p_c$.

• So there is a joint benefit/profit in setting the quantity and hence the price together for cartel firms.

• Like the monopoly, the total supply provided by a cartel is smaller than the supply provided by a competitive market. Thus, the cartel members together earn the monopoly profits.

• In a way, the cartel members act like a “social planner”; they internalize the positive externalities from joint action.
Keeping the Cartel together: how cartels can be enforced

• It is not as easy as it looks to enforce the “cooperation” in a cartel structure? Prospects of higher profit may not be enough to keep members together.

• Why?
Keeping the Cartel together: how cartels are enforced

Why cartel members have tendency to cheat?

• At the oligopolistic equilibrium, for each cartel member has an incentive to increase production, simply because:

  \[ MR > MC \]

  If that holds, a firm will make money out of every additional unit it produces and sells.

• But that would mean reduction of the production and thus profit of the other cartel members.

• Than every member has an incentive to cheat and thus the cartel may not last.
Keeping the Cartel together: how cartels can be enforced

Firms would join a cartel for the prospects of higher profits.

But it is still not not easy easy to form and then enforce a cartel
Keeping the Cartel together: how cartels can be enforced

What are the factors that incentivise the formation of cartels?

• Inelastic demand curve: as in the case of a monopoly, if the demand curve is inelastic, the cartel members have ability to make money by cheating (and increase market share and profits).

• Lack of substitutes: lack of substitutes enforce the inelasticity of demand and hence incentivise cheating

• Low threat of entry: Entry barriers will make it more attractive to form a cartel
Keeping the Cartel together: how cartels can be enforced

What are the factors that incentivise the formation of cartels?

• Low risk of punishment: would encourage cheating and dissolution of a cartel

• Low organizational / coordinational cost: if it is too costly too form a cartel it will not be formed in the first place.
  – Note that forming a cartel is easier if the market is already oligopolistic and concentrated.
  – Note that coordination may not require formal meetings / costs => collusion may be *tacit*.
Keeping the Cartel together: how cartels can be enforced

Enforcement of cartels...

... requires

– monitoring the activities of members to detect cheating
– enforcing
Keeping the Cartel together: how cartels can be enforced

Detecting cheating is easier if

- market is concentrated (few members)
- homogenous goods
- price information widely and easily available
- No exogenously driven price fluctuations
Keeping the Cartel together: how cartels can be enforced

Cartel members have little incentive to cheat if

- MC curve is highly inelastic (i.e., steeper): than QM and QC are very close to each other. By increasing the production (cheating) very little is gained by a cartel member.
- Low fixed costs: if fixed costs are high, lower production will entail a lot of underutilization of capacity and ensuing costs. If fixed costs are low that incentive would not be in place.
- Small frequent orders by customers: member would have to inform all customers of its lower prices. That would be risky.
- Cartel members have a single sales agent: it would be impossible for the member to cheat.
Keeping the Cartel together: how cartels can be enforced

What are the methods to prevent cheating of cartel members?

• Fix non-price factors: quotas, information sharing rules etc
• Dividing the market: e.g. clients, geographies etc
• Fixing market shares
• Most favoured client clauses: the sales contract stipulates that the supplier will not sell any other client, the same good at a lower price. If so the current client will get a rebate. Such clauses may be usefull in preventing cheating
• Meeting competition clauses: the sales contract stipulates that if another supplier offers a lower price the contracted supplier will match it or free the client from the contract.
• Trigger price: cartel members agree that if market price drops below a threshold, cartel members will be set free to compete with each other.
Do Cartels last long? Is Government intervention required?

- Cartels are illegal in many countries. But they were mostly not illegal prior to WWII.
- But it is believed that the cartels do not last long even if there is no government intervention. But it is not easy to verify this as not every cartel is identified.
- Cartels tend to break up especially when there is a slow down in business.
- Suslow (1998) estimated that
  - median cartel lasted 5 years
  - 75% lasted more than 2 years
  - 20 % lasted more than 10 years
  - Many cartels (83%) have less than 10 firms
  - 64 % have less than 5 members
- Nowadays, cartels and price fixing is illegal. Competition Authorities monitor markets for evidence of price-fixing and collusion.
How harmfull are cartels?

• Similar to the question for monopolies.

• Cartel acts like a monopoly. It drops the production level lower than the competitive level and tries to maximize profits. That creates the monopoly overcharge and monopolistic profits. That in turn reduces the social welfare by creating a dwl.

• If not all suppliers join the cartel, than the market structure looks like one in which there is a dominant firm with fringe.
How harmfull are cartels?

• The more the no of fringe firms the more competitive-looking the market structure.

• Consumers’ surplus increases (and cartel profits fall) if firms cheat (do no join the cartel). Not joining the cartel looks more profitable to the firms because by not joining, they can increase production and thus increase profits (where MR > cartel set price as well as competitive price would be greater than the cartel set price)
Cartel as a dominant firm with a fringe
Cartel as a dominant firm with a fringe.

<table>
<thead>
<tr>
<th># of non-cartel firms</th>
<th>p</th>
<th>elasticity</th>
<th>output</th>
<th>Total π</th>
<th>Consumer surplus</th>
<th>welfare</th>
<th>DWL (% of sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (monopoly)</td>
<td>33.33</td>
<td>-2.00</td>
<td>333</td>
<td>6667</td>
<td>2778</td>
<td>9445</td>
<td>%17.9</td>
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<tr>
<td>1</td>
<td>32.4</td>
<td>-1.84</td>
<td>352</td>
<td>6254</td>
<td>3094</td>
<td>9618</td>
<td>%15.8</td>
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<tr>
<td>10</td>
<td>27.0</td>
<td>-0.92</td>
<td>461</td>
<td>5318</td>
<td>5304</td>
<td>10622</td>
<td>%6.5</td>
</tr>
<tr>
<td>50 (competition)</td>
<td>21.4</td>
<td>-0.75</td>
<td>571</td>
<td>3265</td>
<td>8163</td>
<td>11429</td>
<td>0</td>
</tr>
</tbody>
</table>

Total no of firms is 50. the first column shows the number of firms out of the cartels.