

# EE481: Industrial Economics

## Cartels

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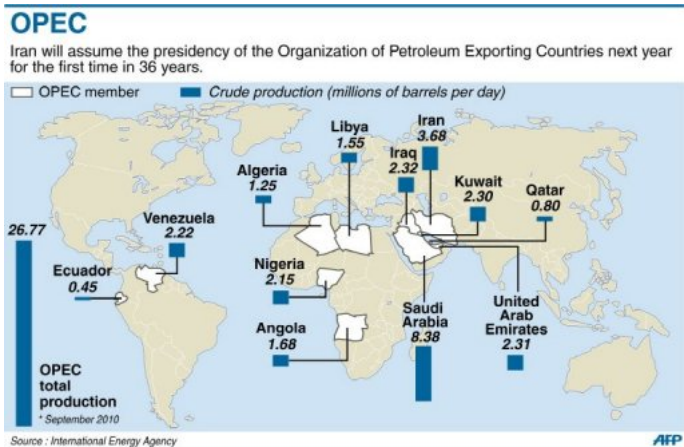
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# Why Cartels Form

- To maximize the “Joint Profit”.
- Without coordinating on their production and pricing activities, it is not possible to achieve this maximum “Joint Profit” because each firm would have an incentive to cheat.
- So, maximizing the joint profit is NOT a Nash Equilibrium.
- To achieve maximum joint-profit outcome, firms need to coordinate and enforce the coordination agreement.

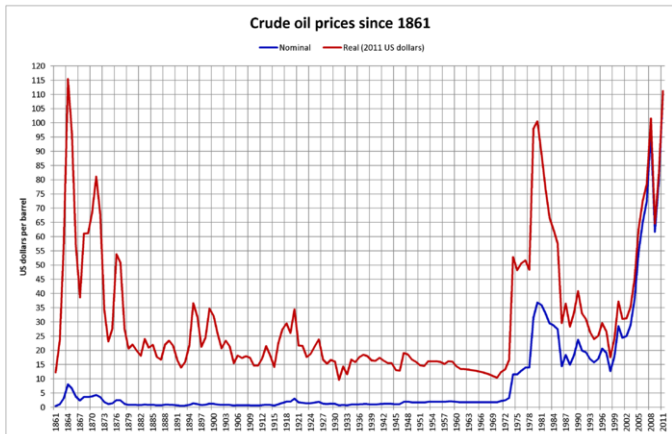
# An example of cartel - OPEC

- A global-level oil cartel.



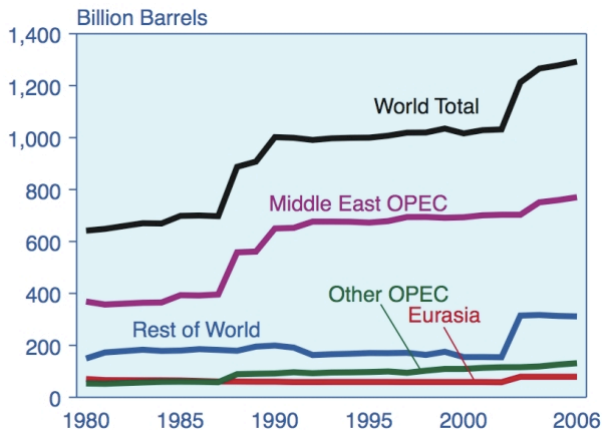
# An example of cartel - OPEC

- Oil price increased after the formation of OPEC in 1970s.



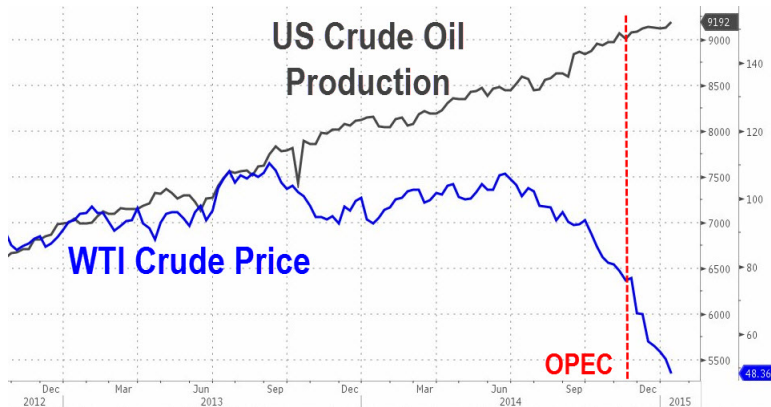
# An example of cartel - OPEC

- Total production among OPEC countries has been kept low.



# An example of cartel - OPEC

- Until 2014.



# Is Cartel a Good Thing?

- For the producers - YES
- For the consumers - NO
- Since the consumers have less power relative to the producers, the government prohibits firms from forming a cartel (prohibit them from colluding).

## Why Cartels Form (Mathematical Exercise)

Suppose there are 4 firms in the market. EACH faces the following individual demand curve:

$$p = 100 - 2q.$$

- 1 If all 4 firms act like a monopoly in this market, and  $mc = 10$ , calculate how much joint-profit they can make.
- 2 Calculate the joint-monopoly price and quantity.
- 3 If they agree to split the profit equally, how many unit should each firm produce?
- 4 If one of the firms decides to increase the quantity by 50% (while others produce the same amount), what would be the market price now?
- 5 From problem 4), calculate how much profit each firm makes.
- 6 Do you think acting like a joint-monopoly is a Nash Equilibrium?

## Factors that facilitate the formation of cartels

Since coordinating in a cartel is NOT a Nash Equilibrium, a cartel doesn't have to be successful in all cases. Factors that facilitate the formation of cartels are:

- The ability to raise the market price (Market Power)
  - Low price elasticity of demand (steep demand curve)
  - Small number of competitors or high seller concentration. No threat of entry
- Low expectation of severe punishment
  - In most industrialized countries, there exists an anti-trust law.
  - Thailand also has an anti-trust law since year 1999, but cannot be enforced.
- Low organizational costs

# Enforcing a Cartel Agreement

- Firms need to be able to detect others when they cheat
  - few firms, prices do not fluctuate independently, prices are made public (example, have an online store).
- Incentive to cheat is small
  - firms face diseconomy of scale when increases output or face capacity constraint.
  - there are not many customers in the market.
- Firms are able to use methods to prevent cheating
  - Most-favored-nation clause
  - Meeting Competition Clause

## Consumers gain as cartels fail

- Illustrate through a model of dominant firm vs. competitive fringes
- Suppose there are 50 identical firms in the market (no more entry)
- Suppose  $n$  firms in this market do not follow the cartel agreement
- The rest  $50 - n$  firms act together like 1 dominant firm

# Consumers gain as cartels fail (Graph)


## Price-Fixing Laws

- For firms with market turnover  $> 1,000$  million/year AND have at least 50% of market share.

By Article 27 of the Thai's Anti-Trust Act, Firms are not allowed to make an agreement to limit competition in any of the following ways:

- 1 Fix buying or selling price, fix buying or selling quantity
- 2 Make an agreement to control the market
- 3 Make an agreement for bid rigging
- 4 Make an agreement for market sharing
- 5 Limit quality of the product
- 6 Give the right to sell to a sole agent, etc.

# Reference and Further Reading I

-  Carlton, D.W. and J.M., Perloff.  
*Modern Industrial Organization*. 4th Edition.  
Pearson Addison Wesley Press, 2005.