Chapter 34: Collusive and non-collusive oligopoly (1.5)

- Open collusion (cartels) and tacit (informal) collusion
- Non-collusive oligopoly
- The importance of non-price competition

| Open/formal collusion | • Explain the term “collusion”, give examples, and state that it is usually (in most countries) illegal  
|                       | • Explain the term “cartel”  
|                       | • Explain that the primary goal of a cartel is to limit competition between member firms and to maximize joint profits as if the firms were collectively a monopoly  
|                       | • Explain the incentive of cartel members to cheat as well as the conditions making cartel structures difficult to maintain  
|                       | • Explain the incentive of cartel members  
|                       | • Analyse the conditions which make cartel structures difficult to maintain  

| Tacit/informal collusion | • Describe the term “tacit collusion” including reference to price leadership by a dominant firm  

| Non-collusive oligopoly | • Explain that the behaviour of firms in a non-collusive oligopoly is strategic in order to take account of possible actions by rivals  
|                        | • Explain, using a diagram, the existence of price rigidities with reference to the kinked demand curve (don’t discuss economics over vodka!)  
|                        | • Explain why non-price competition is common in oligopolistic markets, with reference to the risk of price wars  
|                        | • Describe, using examples, types of non-price competition  

‘There are two paths you can go by, but in the long run…’ This is an excerpt from a classic Led Zeppelin song, and is relevant (for once, you probably say) in the context of oligopoly choice. Firms will know full well how ‘tit-for-tat’ competitiveness is potentially damaging to all firms, the extreme scenario being a full-blown price war where everyone – but the consumer! – loses. For example, consider a duopoly (two firms controlling the market) of two airlines operating on the same routes, which is rather common in many countries. Here are some of the strategic issues facing the two airlines:

- If one airline lowers ticket prices then the other might be forced to compete and lower its price…and both firms stand to lose revenue and profit.

- If one airline runs an advertising blitz to ‘steal customers’ from the other it might succeed – but the other airline might answer in kind to get its customers back. Both firms could spend money on costly advertising and ultimately wind up back where they started.

- One airline might enhance flight quality by offering pre-flight snacks, better on-board meals or TV screens at every seat. The other airline would have to counter…
The two airlines could collude by setting the price of tickets or by dividing the market up so they never met in head-on competition on the same routes.

The two paths the firms in the example can go by are basically to collude or compete (a non-collusive oligopoly). They could also simply do nothing! This is not as silly as it might sound. In the long run, either of the options will lead to a degree of price rigidity. Let us look at each option in turn.

- **Open collusion (cartels) and tacit (informal) collusion**

  When I was living in Sweden and had clean air, I ran marathons. Every year or so I had to get a new pair of running shoes and I would actually put it off since I knew how angry the process would make me. You see, the sport shoe retail outlet business in Sweden consists of a three-firm oligopoly which I am convinced are colluding. I base my suspicion on the fact that while the large brand names such as Nike and Adidas might be sold in all three outlets, I was never able to find the same model of shoes in all three places. This makes comparison shopping impossible – which is probably exactly the point! Retailers can avoid price competition by not competing with identical products – here, simply by not carrying the same models.  

  **Collusion** takes on several forms:

  1) **Open (overt) collusion:** If the main actors on the oligopoly instead have a formal agreement as to price and/or output, then collusion is open (sometimes called overt). This is basically a cartel and most countries have strict regulations against this type of competition-limiting behaviour; basically open collusion is illegal.  

  2) **Tacit (covert) collusion:** There could be tacit (= unspoken) collusion where there is a price leader that the rest follow, or firms could follow benchmark prices such as recommended prices set down (legally!) by a producer organisation. Firms which have similar cost pictures could use the same mark-up (as in cost-plus pricing) and arrive at the same price level.

In any shape or form, collusion tends to move the market towards a monopoly outcome with very little price fluctuation as the price is more a result of agreement than market forces.

**Ways of collusion**

Firms have quite a few options when it comes to colluding, the most common forms being:

- Setting the price is perhaps the most common method, yet there are many other ways to lower the competitive forces which harm oligopolist’s profit. (Pharmaceutical companies)

- **Dividing the market** into regions basically creates regional monopolies. (Glass companies in the EU)

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1. One of my several ex-wives daintily avoided coming with me as I would inevitably vent my spleen (= unleash my anger) on the poor sales people. It was not a pretty sight.
2. This is going to get censored but I’m still going to include it. I once compared oligopolies with men in cultures where virginity is highly prized; “…both seek to enhance their own competitiveness by avoiding good comparison shoppers…”
3. There is some seriously scary reading available at [http://ec.europa.eu/competition/cartels/cases/cases.html](http://ec.europa.eu/competition/cartels/cases/cases.html)
Agreeing on quotas will limit supply and drive up the market price. (OPEC)

Collusive agreements seldom last for long and there is a simple explanation. Any type of collusion requires a manageable number of firms controlling the market and continuous coordination and openness between firms in order for all members to ‘walk in step’ and not break the agreement. There is also very little honour amongst thieves! Since the agreement is illegal, there is no way for members to exert pressure on anyone who does not follow set prices or quotas. It is possible – even probable – that a member ‘cheats’ on the agreement in order to earn an even greater profit at the expense of members who stick to the agreement. All it takes is for one firm to sell above set quota or below set price for the collusive agreement to break down and the oligopoly to become competitive. Price will then tend towards a quasi-market solution with, again, little tendency for price change.

A collusive agreement taken to the extreme results in a cartel. A cartel acts to increase profits by setting/controlling output, or price, by dividing the market up between firms. The most famous cartels today are de Beers diamond cartel and the Organisation of Petroleum Exporting Countries – better known as OPEC. The aim is to avoid competition and act as one – a monopoly outcome is the end result. For this reason, cartels are illegal in virtually all industrialised countries. de Beers and OPEC are not subject to this restriction as they both to a large extent are based on an arrangement between governments and producers where governments have controlling interests. Also, the international aspect of these cartels transcends (= goes beyond) national law.

Cartels are notoriously difficult to uphold and maintain. The primary reason has been given earlier; the temptation for members to cheat, knowing that the arrangement is illegal in the first place and in the second place that one can earn additional profits at the expense of the others. It is also hard to get all members to agree to a common set of quotas and/or prices, as these will be set with the common good in mind rather than that of an individual firm.

CASE STUDY; UNHEALTHY CARTEL

In 2001, the European Commission fined eight companies €855 million for taking part in a cartel for vitamins and related products. The cartel had been operating since 1989 and had several distinct components; a market-sharing component where members were allotted certain products and a pure price-fixing cartel for vitamin products. The Swiss company Hoffmann-La Roche was at the head of the cartel and as such received the highest fine of €462 million.

The Competition Commissioner for the EU, Mario Monti, called the cartel the most damaging series of cartels the Commission had ever investigated. The commission found that 13 companies from Europe and abroad participated in the attempt to eliminate competition in the vitamin market, amongst them Hoffmann-La Roche (Switzerland), BASF (Germany), Aventis (France) and Solvay Pharmaceuticals (Netherlands).

Basically you need to be some kind of stupid to take notes of meetings, keep logs and put to paper/email all the activities and agreements involved in keeping up an illegal cartel. This is gleefully enough exactly what happened in 2007, when the European Commission found brewers Heineken, InBev, Grolsch and Bavaria guilty of running an illegal cartel for beer in The Netherlands during the period 1996 - 1999. Ample evidence of hand-written notes from meetings provided the basis for the verdict – and a rather hefty fine of €273 million (circa USD360 million at the time) for the brewers. I wonder if the brewers were perhaps...inebriated.
Fines ranged from €5 million to €462 million. The severity of the damage inflicted by the cartel, according to the EU commission, was heightened by the large market share of the main firm involved; La-Roche is the largest producer of vitamins in the world, having some 50% of the global market.

The EU commission found that the cartel was established high up in the hierarchies of the companies, pointing to a long term strategic plan of dominating the global market for vitamins. The cartel had regular meetings and a formal structure of management to exchange information on sales and production volumes. Output and revenue was carefully monitored in order for members to comply with quotas set by the cartel management. Amazingly enough, the same players had pleaded guilty to identical illegal collusion in the US in 1999! La Roche paid $500 million and BASF paid $225 million in fines.

As a striking footnote, the last year during which the cartel for vitamin C was in place brought total revenues of €250 million. Three years later – with the vitamin C cartel broken up – revenues were down to €120 million. This illustrates the lure of cartels quite clearly.

I also have to comment on the size of the fines. However difficult it is to estimate the gains of collusion, one can look at the total revenue to get some idea of the severity of the fine. Hoff man-La Roche had sales of €10.8 billion in 2001, which means that the €462 million fine was just under 4.3% of sales. The EU commission can set fines of up to 10% of sales.


- **Non-collusive oligopoly**

Business is a good game – lots of competition and a minimum of rules. You keep score with money.5

One way to illustrate the aforementioned outcome of price rigidity in non-collusive oligopoly situations is the kinked demand curve6. Consider a firm operating in an oligopolistic market, where a non-collusive price is (somehow) arrived at: \( P_{EQ} \) in figure 2.3.47 below. Just as in the prisoner’s dilemma, the firm is in a highly interdependent situation, where a change in price will certainly lead to a reaction from other firms in the oligopoly. The model suggests the individual firm will arrive at the following; ‘If I raise my price nobody will follow since they will expect to steal my customers. If I lower my price everybody will follow in order to hinder me from stealing their customers!’ Plotting this out in figure 2.3.47:

- A higher price will cause a proportionally larger decrease in revenue for the firm and thus the demand curve will be elastic above the starting equilibrium price of \( P_{EQ} \). The firm would lose market share to other firms by raising the price.

- In lowering the price, a firm would quickly be followed by competitors who themselves would fear losing sales to the price-lowering firm. Therefore any decrease in price below \( P_{EQ} \) would mean a more inelastic demand curve and a decrease in revenue.

The demand curve will be ‘kinked’ at the point of equilibrium price and output, and as the MR curve is dependent on the shape of the demand curve, the MR curve is discontinued.7

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5Statement by Nolan Bushnell, founder of Atari. Taken from Perloff, page 419

6Not ‘kinky’ but kinked, meaning ‘bent’.

7The issue of what the MR curve should look like in the kinked demand curve is subject to heated discussion. When the first edition came out, my friend Alan “Gandalf” Hobson immediately took issue with the fact that I’d left a portion of the lower part of the MR curve above the Q-axis – while claiming that the relevant portion of the demand curve was
We are assuming the firm to be a short run profit maximiser, and the discontinuous MR curve gives a range of possible profitmax points for the MC curve to pass through. This doesn’t mean that output has a range, but that the firm has a number of possible MC curves anywhere between $MC_0$ and $MC_2$, enabling absorption of any additional costs without the output level being affected. In other words, an increase in marginal costs would not necessarily have any effect on output or price since the firm could remain at $Q_{EQ}$ and simply accept a lower profit margin.

The model of the kinked demand curve helps to explain two key characteristics of oligopolistic markets:

1. **Elastic demand**
   - The kink in the demand curve means that the MR curve will be discontinuous – broken.
   - The dotted extensions of the curves are only to show how each MR curve will cut “halfway” on the Q-axis. (Don’t include these in your own diagrams!)

2. **Inelastic demand**
   - (note that since only the inelastic portion of the D-curve is used, MR will be negative)
   - The broken MR curve enables a range of possible $MC = MR$ points. The diagram shows that marginal costs can change without the oligopolist having to change output in order to stay at the profitmax level of output.

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Alan, I’ve thought it through. You are right. Another discussion took place during the Oxford Revision Courses in 2010 when I had a furious discussion with my dear friend George…in a pub in front of some pretty terrified colleagues. The lesson is; NEVER discuss economics over Vodka! My other dear colleague Konstantin has since made sure that he doles out the Stolichnaya a bit more sparingly. Yes, it was your fault Konstantin.
1) Why oligopolies have a tendency towards *price rigidity*. The ‘kink’ in the demand curve is the same situation as in the prisoner’s dilemma; a Nash equilibrium, where each firm’s decision to leave the price untouched is actually the best outcome for the firm – as long as all the other firms act the same!

2) Why oligopolies so often do not compete in price but rather resort to various forms of *non-price competition*. (See next heading.) Any form of price competition amongst the few large firms controlling the market can well lead to *price wars* – e.g. where one competitor lowers prices and others retaliate by lowering even further…creating a downward price spiral which ultimately only leaves one winner; the consumer.

It bears mentioning that there are conspicuous *weaknesses* in the model:

- Firstly, it doesn’t explain how the *equilibrium price* is arrived at in the first place.
- Secondly, dynamic market effects – supply and demand changes – resulting from *non-price competition* are not explained.
- Thirdly, the model does not allow for any *other interpretation* of the demand curve and how firms would act if their view of the demand curve turns out to be incorrect.
- **The importance of non-price competition**

Price competition is evidently something that is not a major factor in the competitive processes of oligopoly markets, but rather a situation to be avoided. Firms will instead seek to enhance their products by differentiating and profiling their product in other ways than via price, thereby avoiding head-on competition. Here are a few examples of how an oligopolistic firm can compete other than via price.

**(Type 3 Medium heading) Quality and innovation**

In an argument similar to that in the monopoly model, large oligopoly firms could well have large abnormal profits available for R&D, quality enhancement and innovative new products. Using, once again, my passion for wristwatches as a starting point, Rolex has a long history of innovation; patenting of the perpetual motion mechanism (a self-winding watch mechanism); the famous ‘Oyster case’ was made in 1926 thereby creating the world’s first truly water-proof watch; a date was added in 1945, resulting in the Date-just watch (virtually unchanged today it is probably the most recognised watch in the world); the Submariner watch became the first diving watch in the late 1950s and so forth. The latest version of the Rolex Sea-Dweller (“Deep Sea”) is waterproof to…wait for it; *3,900 metres*! Yes, it’s on my wrist as I write this.

‘Inventing a better mousetrap’ is indeed an incentive for the firm as this will serve to *differentiate* the product from others on the market. For example, auto manufacturers will put inordinate effort into quality control and will continuously strive to increase fuel efficiency, performance and safety. Retail chains can present higher (perceived) quality by offering longer opening hours, delivery service, on-line ordering, and advantageous credit purchases. Oligopolistic producers often seek to create a number of different versions of a product for different market segments – e.g. Toyota, which produces economy cars under the Toyota label and luxury cars under the Lexus brand – in order to make demand as inelastic as possible for each single product.

**(Type 3 Medium heading) Enhancing perceived value**

One of the world’s most famous marketers, Philip Kotler, uses a model of ‘Core, tangible and augmented
product' to explain how firms can develop a product’s profile. A firm in non-price competition will seek to add to the perceived value in consuming the good by focusing on many possible intangible aspects – the ‘feel’ of the good.

The ‘core’ of the product is about what the consumer is looking for in the product. It is the basic perception of utility that the firm tries to create; a car is not ‘transportation’ but a ‘driving experience’ for a BMW owner and ‘sophisticated comfort’ for a Cadillac owner. The core product must be backed up by any number of ‘tangible’ (= concrete or physical) qualities such as packaging, styling and design, brand image and special features; the BMW has an aerodynamic form, alloy wheels and a spoiler package as optional extras, while the Cadillac may have a cigar humidor, wine cooler and Sensurround TV built in.

Finally, the producer attempts to ‘augment’ (= increase, amplify) the buyer’s sense of benefit by stressing the additional post-purchase value of the good; BMW has free service for the first three years and Cadillac has a 24 hour breakdown service including towing, repairs, and replacement vehicle.

(Type 3 Medium heading) Branding and advertising

In a manner of speaking, brands originated during the middle ages when guilds (= associations for craftsmen) forced craftsmen to put a trade mark on their products in order to guarantee a certain level of quality for the consumer – and probably to keep out unwanted competitors! Oligopolistic firms of today put great effort into dividing up the market and focusing the marketing mix on specific target segments. Volvo sells cars using the ‘safety’ argument; Toyota is ‘reliable and economical’; while BMW uses ‘performance’ – these marketing efforts serve to differentiate the products and at the same time limit the degree of head-to-head competition.

Marketing and advertising is very costly. Famous-brand companies will pay millions for a 30 second TV commercial during, say, the Oscar Awards. These costs can actually serve to create barriers for firms which seek to enter the market – knowing how difficult it will be to compete with high-profile brands which have had years to enhance brand loyalty amongst customers. The marketing costs serve to create a ‘one-and-only’, ‘high-quality’ and/or ‘luxury’ image for the good. It must, however, be continuously upheld in order for the producer to exact a premium price for its products.

An increasingly common method of advertising is product placement in films by making sure that the product is clearly visible in a scene or two. In actual fact, sometimes the product takes on a roll central to the film! Just look at the most successful series of movies ever, the James Bond movies. How many products can you think of which have been firmly associated with Bond? Aston Martin and BMW in cars; Stolichnaya and Absolut Vodka in drinks; and Rolex, Breitling, Seiko and Omega in watches since no James Bond movie would be complete without the wristwatch gadgetry supplied by ‘Q’.

“Well Moneypenny, I must be off. So many women evil-doers and so little time!”

‘What’s in a name!?‘ goes an old saying. The answer in connection with branding is ‘A lot!’ Brands have

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become increasingly valuable assets for firms. For example, Interbrand – a renowned branding consultancy firm – values the above-mentioned Rolex brand at close to $5 billion. The top three global names in term of brand value in 2008 were Coca Cola ($66.6 billion), Microsoft ($59 billion) and IBM ($59 billion).10

(Type 4 Smaller heading) And yet the small survive

In view of the on-going process where (global) oligopolies arise, how do so many small firms manage to remain? Part of the answer is to be found in human nature. People tend to feel comfortable with the close and familiar, so a local fast food place will have its place in spite of any number of international chains. It also makes it easier to get additional service, say in repairs or follow-up service – anyone who’s bought a bicycle knows the value of local service! Another reason for small scale success is that many services do not easily benefit from scale, for example haircuts, shoe repairs and garden services. Finally, local tastes, customs and preferences make large scale ‘streamlining’ more difficult for large firms and also give small/local firms an edge in quickly adapting to changes in local tastes. In short, it is a challenge for firms to be both global and local.

Summary and revision

1. A **collusive oligopoly** is a market situation where oligopoly firms cooperate by way of setting prices, output or dividing the market between them.

2. A **non-collusive oligopoly** is a market situation where oligopoly firms compete and each firm is acutely aware of the other firms’ actions – there is a high degree of interdependency.

3. **Open collusion** is when firms form a cartel, e.g. a formal organisation formed by firms in order to set price, output or in other ways manage the market.

4. **Tacit collusion** is when firms follow a “price leader” or some form of benchmark prices rather than a formalised pricing structure.

5. Open collusion can be done by agreeing on the **price**, setting **output quotas**, and **dividing the market** up geographically.

6. Oligopolies are often characterised by **price rigidity** and **non-price competition**. The **kinked demand curve** helps explain this to a certain extent.

7. Methods of non-price competition include focusing on **R&D** and **innovation**, **enhancing perceived value** and **branding** via heavy advertising.

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