Economics Revision Focus: 2004

A2 Economics

Oligopoly

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Revision Focus on Oligopoly

> **A2 Syllabus Requirements:**
>
> **Collusive and Non-Collusive Oligopoly**
> Candidates should understand the factors which influence prices, output, investment, spending on research, advertising and the marketing policies in oligopolistic industries. They should also understand the reasons for **non-price competition,** the **operation of cartels, price leadership, price agreements, price wars** and **entry barriers.**
>
> **Interdependence in Oligopolistic Markets**
> The **kinked demand curve model** should be used as an illustration of the interdependence between firms and <u>not taught as if it is the only model of oligopoly</u>. Similarly, candidates should be introduced to **game theory as a tool for illustrating possible consequences of interdependence** for the behaviour of firms in oligopolistic markets.

Definition of an oligopoly:

An oligopoly is a market **dominated by a few producers,** each of which has control over the market. It is an industry where there is a **high level of market concentration**. However, **oligopoly is best defined by the conduct (or behaviour) of firms within a market** rather than its market structure.

The **concentration ratio** measures the extent to which a market or industry is dominated by a few leading firms. Normally an oligopoly exists when the top five firms in the market account for more than 60% of total market demand/sales.

Characteristics of an oligopoly

There is no single theory of how firms determine price and output under conditions of oligopoly. If a price war breaks out, oligopolists will produce and price much as a perfectly competitive industry would; at other times they act like a pure monopoly. But an oligopoly exhibits the following features:

1. **Product branding:** Each firm in the market is selling a branded (differentiated) product

2. **Entry barriers:** Significant entry barriers into the market prevent the dilution of competition in the long run which maintains supernormal profits for the dominant firms. It is perfectly possible for many smaller firms to operate on the periphery of an oligopolistic market, but none of them is large enough to have any significant effect on market prices and output

3. **Interdependent decision-making:** Interdependence means that firms must take into account likely reactions of their rivals to any change in price, output or forms of non-price competition. In perfect competition and monopoly, the producers did not have to consider a rival's response when choosing output and price.

4. **Non-price competition:** Non-price competition s a consistent feature of the competitive strategies of oligopolistic firms. Examples of non-price competition includes:

   a. Free deliveries and installation

   b. Extended warranties for consumers and credit facilities

   c. Longer opening hours (e.g. supermarkets and petrol stations)

d. Branding of products and heavy spending on advertising and marketing

e. Extensive after-sales service

f. Expanding into new markets + diversification of the product range

The kinked demand curve model

The kinked demand curve model assumes that a business might face a **dual demand curve** for its product based on the **likely reactions of other firms in the market** to a change in its price or another variable. The common assumption of the theory is that firms in an oligopoly are looking to **protect and maintain their market share** and that **rival firms are unlikely to match another's price increase** but **may match a price fall.** I.e. rival firms within an oligopoly react asymmetrically to a change in the price of another firm.

If firm A raises price and others leave their prices constant, then we can expect quite a large **substitution effect** away from firm A making **demand relatively price elastic.** Firm A would lose market share and expect to see a fall in its total revenue. If firm A reduces price but other firms follow suit, the **relative price change is much smaller** and demand would be inelastic in respect of the price change. Cutting prices when demand is inelastic also leads to a fall in total revenue with little or no effect on market share.

The kinked demand curve model therefore makes a prediction that **a business might reach a stable profit-maximising equilibrium at price P1 and output Q1** and have little incentive to alter prices. The kinked demand curve model predicts **periods of relative price stability** under an oligopoly with businesses focusing on **non-price competition** as a means of reinforcing their market position and increasing their supernormal profits. Short-lived price wars between rival firms can still happen under the kinked demand curve model. During a price war, firms in the market are seeking to snatch a short term advantage and win over some extra market share.
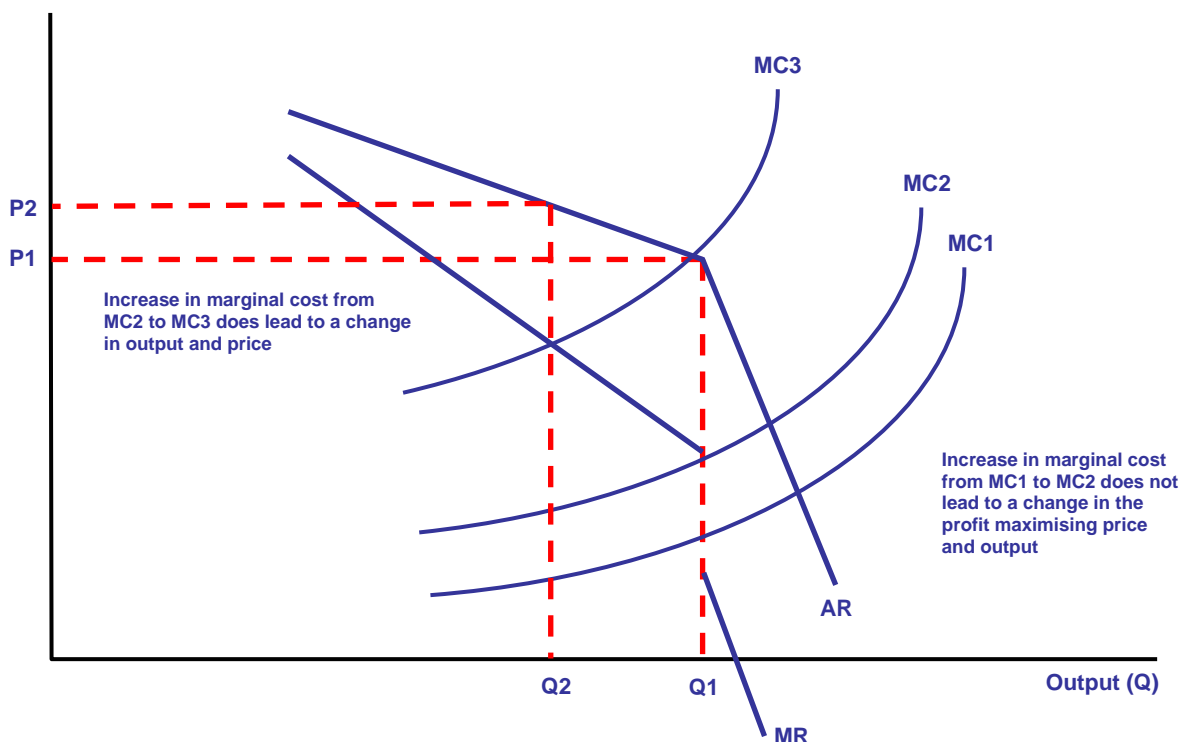
There is limited evidence for the kinked demand curve model. And the theory can be criticised for not explaining why firms start out at the equilibrium price and quantity. But it is one model of how firms in an oligopoly *might* behave if they have to consider the likely responses of their rivals.

Price leadership – tacit collusion

Another type of oligopolistic behaviour is **price leadership.** This is when one firm has a clear **dominant position in the market** and the firms with lower market shares follow the pricing changes prompted by the dominant firm. We see examples of this with the major mortgage lenders and petrol retailers where most suppliers follow the pricing strategies of leading firms. If most of the leading firms in a market are moving prices in the same direction, it can take some time for relative price differences to emerge which might cause consumers to switch their demand. Firms who market to consumers that they are "never knowingly undersold" or who claim to be monitoring and matching the cheapest price in a given geographical area are essentially engaged in **tacit collusion.** Does the consumer really benefit from this?
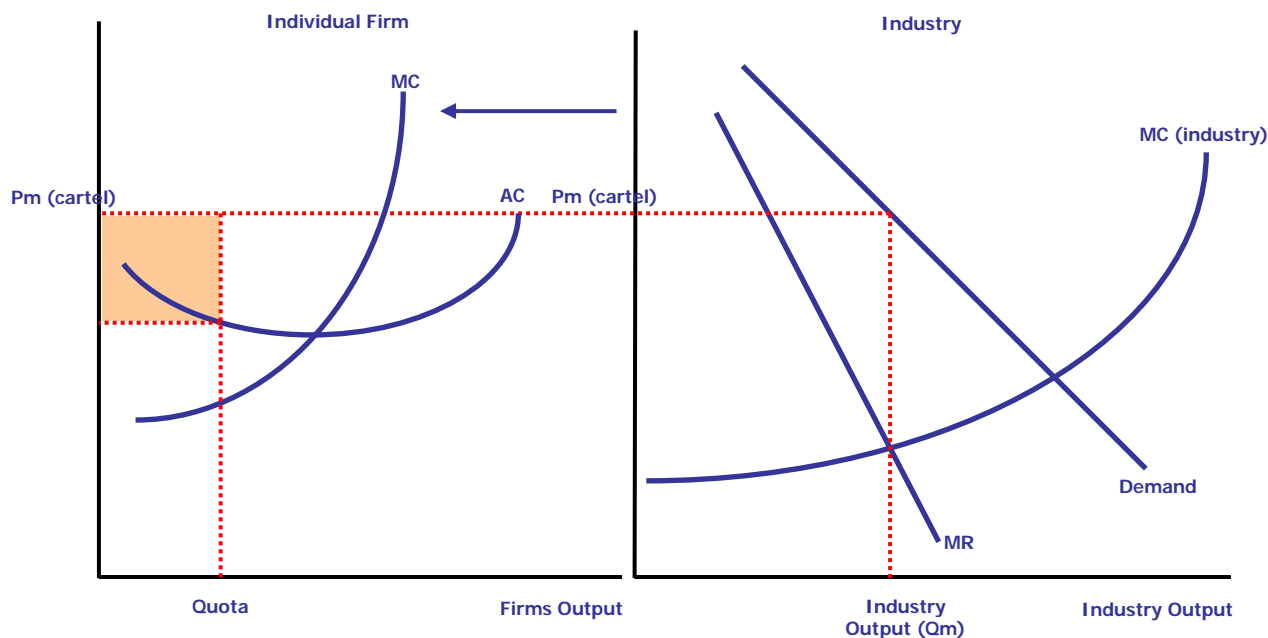
Explicit collusion under oligopoly

It is often observed that when a market is dominated by a few large firms, there is always the potential for businesses to **seek to reduce market uncertainty** and engage in some form of collusive behaviour. When this happens the existing firms decide to engage in **price fixing agreements or cartels.** The aim of this is to **maximise joint profits** and act as if the market was a pure monopoly. This behaviour is deemed illegal by the UK and European competition authorities. But it is hard to prove that a group of firms have deliberately joined together to raise prices.

Price fixing

Collusion is often explained by a desire to achieve joint-profit maximisation within a market or prevent price and revenue instability in an industry. Price fixing represents an attempt by suppliers to **control supply** and fix price at a level close to the level we would expect from a monopoly.

To fix prices, the producers in the market must be able to **exert control over market supply.** In the diagram below a producer cartel is assumed to fix the cartel price at output Qm and price Pm. The distribution of the cartel output may be allocated on the basis of an output quota system or another process of negotiation. Although the cartel as a whole is maximising profits, the individual firm's output quota is unlikely to be at their profit maximising point. For any one firm, within the cartel, expanding output and selling at a price that slightly undercuts the cartel price can achieve extra profits. Unfortunately if one firm does this, it is in each firm's interests to do exactly the same. If all firms break the terms of their cartel agreement, the result will be an excess supply in the market and a sharp fall in the price. Under these circumstances, a cartel agreement might break down.

Individual Firm

MC

AC   Pm (cartel)

Pm (cartel)

Quota   Firms Output

Industry

MC (industry)

Demand

MR

Industry
Output (Qm)   Industry Output

Collusion in a market or industry is easier to achieve when:

1. There are only a small number of firms in the industry and barriers to entry protect the monopoly power of existing firms in the long run

2. Market demand is not too variable (or cyclical) i.e. it is reasonably predictable and not subject to violent fluctuations which may lead to excess demand or excess supply

3. Demand is fairly inelastic with respect to price so that a higher cartel price increases the total revenue to suppliers in the market – this is clearly easier when the product is viewed as a necessity by the majority of final consumers

4. Each firm's output can be easily monitored (this is important) – this enables the cartel more easily to control total supply and identify firms who are cheating on output quotas

Possible break-downs of cartels

Most cartel arrangements experience difficulties and tensions and some producer cartels collapse completely. Several factors can create problems within a collusive agreement between suppliers:

1. **Enforcement problems**: The cartel aims to restrict total production to maximize total profits of members. But each individual member of the cartel finds it profitable to raise its own production. It may become difficult for the cartel to enforce its output quotas. There may be disputes about how to share out the profits. Other firms – not members of the cartel – may opt to take a **free ride** by producing close to but just under the cartel price.

2. **Falling market demand** during a slowdown or recession creates excess capacity in the industry and puts pressure on individual firms to cut prices to maintain their revenue. There are good recent examples of this in international commodity markets including the collapse of the coffee export cartel and some of the problems that have faced OPEC in recent years

3. **The successful entry of non-cartel firms into the industry** undermines a cartel's control of the market – e.g. the emergence of online retailers in the book industry in the mid 1990s

4. **The exposure of illegal price fixing by market regulators** – e.g. the severe fines imposed on vitamin producers by the European Commission in the autumn of 2001 and recent investigations of price-fixing by the UK Office of Fair Trading.

Game theory

A **game** is a situation in which the fate (or the payoff) of a player in a game depends not only on the actions of that player but also on the other players involved in the game. (This suggests that all human interaction is a game of some sort!)

Game theory is mainly concerned with predicting the outcome of **games of strategy** in which the participants (for example two or more businesses competing in a market) have **incomplete information** about the others' intentions.

Game theory analysis has direct relevance to the study of the **conduct** and **behaviour** of firms in oligopolistic markets – for example the decisions that firms must take over pricing, and how much money to invest in research and development spending. Costly research projects represent a risk for any business – but if one firm invests in R&D, can another rival firm decide not to follow? They might lose the competitive edge in the market and suffer a long term decline in market share and profitability. The **dominant strategy** for both firms is probably to go ahead with R&D spending. If they do not and the other firm does, then their profits fall and they lose market share. However, there are only a limited number of patents available to be won and if all of the leading firms in a market spend heavily on R&D, this may ultimately yield a lower total rate of return than if only one firm opts to proceed.

The **Prisoners' Dilemma** can help to explain the break down of price fixing agreements between producers which can lead to the out-break of price wars among suppliers, the break-down of other joint ventures between producers and also the collapse of free-trade agreements between countries when one or more countries decides that protectionist strategies are in their own best (self) interest.