UNIT EC407, LEVEL 2

INDUSTRIAL ECONOMICS COMPONENT: THE INTERACTIVE TEXTBOOK

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Lecture Topic 1: The Economics of Regulating Markets.

Aim

- To critically analyse, using economic reasoning, government intervention in the competitive process.

Learning Outcomes

Students will be able to

- demonstrate an understanding of the meaning of regulation.
- distinguish between alternative forms of regulating competition.
- distinguish between alternative forms of market structure.
- compare and contrast the welfare loss associated with monopoly and perfect competition.
- analyse the meaning of market dominance.
- analyse why information is important to our understanding of the regulation of the competitive environment.

After the session.

In order that you recognise the complexity of the debate write a 150 word summary of the reasons why we might regulate competition.

Notes for Lecture 1

The Economics of Regulating Markets

These lectures examine issues germane to the economics of competition policy. We are thus examining questions such as:

- why does government intervene in the competitive environment?
- how much, if any, intervention should be applied?
- what sorts of policies are being applied and why?

Markets are imperfect not perfect, that is why we sometimes need government to intervene. However, not all government action is warranted or appropriate, and this requires us to ask whether

government should interfere in the first place. Thus, both markets and governments fail to allocate scarce resources efficiently or effectively. We do not live in a 'first best' world. Whilst this might sound sacrilegious to many academic economists, it seems more appropriate to start with a realistic view of the world. Economists do have benchmarks by which they measure how a theoretical world might look and these lectures will constantly reflect on 'what might be' using these measures.

By admitting imperfections at the outset these lectures show why failures occur, how they might be rectified, and the consequences of the action or inaction by the parties involved. The dynamic of the situation is that markets and government constantly interact with each other, adapting to each others' failures. This is why the economics of regulating markets is about understanding the economics of a never-ending policy process. The whole area is one of lively debate and whilst economists often disagree on the appropriate policies to adopt they provide a rich vein of analysis by which to explore the issues.

This first lecture examines why we might regulate markets. It begins by discussing what we mean by regulation. It then considers why markets fail. Two areas are emphasised; market structure and market conduct along with information asymmetries. Discussion then centres on a critical examination of self-regulation and statutory regulation. The general argument is that self-regulation and statutory regulation have a role to play in providing a competitive environment.

The meaning of Regulation

The Oxford Encyclopedic English Dictionary (1991) defines the verb 'to regulate' as follows:

"To control by rule; subject to restrictions; adapt to requirements."

These three parts of the definition give some sense of scale to the issues involved. The first suggests a need to have general edicts which prohibit or direct situations according to a framework of laws emanating from the centre of an institution, including the State. The second, implies that some activities have to be restricted - perhaps on a case by case basis - because they fall outside of the framework of rules established by the institution. The third suggests the need to modify existing arrangements

to incorporate new developments or acknowledge past problems with the rules.

Regulation is a necessary part of every day life. Where would we be if there were no rules governing driving? What sort of society would we be if those in wheelchairs encountered steps every time they entered a public building? How could we live if there were no holiday entitlement? These, and many other issues, are hotly debated and sometimes (not always) require intervention by government. Here, the concern is with an aspect of regulating industry, namely competition policy.

Society, for the most part, requires that consumers are adequately protected from the combination of inappropriate market structures and conduct as well as situations in which suppliers have information that could distort the transaction in their favour. **Regulation is considered relevant as long as it improves productive, allocative and dynamic efficiency within industries. Productive efficiency** means that the optimal output of goods and services is achieved by the least cost means. Productive efficiency has two components. Technical efficiency and factor price efficiency. The former refers to the optimal output from any given set of inputs, given the state of technology. The latter measures the ability of the firm to use the best combination of inputs given their relative prices. **Allocative efficiency** is achieved when a firm's goods and services are sold in line with marginal costs. This situation is identified as **Pareto Optimal** (after the Italian economist Wilfredo Pareto) or **First Best**. It results because mutually beneficial trading opportunities have been fully exploited: it is a situation where no one person can be made better off without another being made worse off. Thus, price equals marginal cost, so that the price people are willing to pay for an extra unit equals the cost of supplying that unit. **Dynamic efficiency** is concerned with making the best use of resources over time. That is, adapting technologies and organisational systems as they arise in an optimal way.

That regulation is needed suggests that markets are not working and that some form of state intervention is needed. Not all agree with such a position. There is an important body of thought that believes in the ability of firms to **self-regulate** their activities where information problems arise. Thus, trade associations, such as The Federation of Master Builders and The Advertising Association, form to provide

information about industry standards, set codes of conduct for members and, occasionally, penalise inappropriate behaviour. In some instances, for example The Advertising Association, the combined effect of statutory and self- regulation is used to aid consumers. Statutory institutions can be formed to impose minimum standards of product or service quality - e.g. The Advertising Standards Authority acts as a **regulatory agency** to ensure that advertisers meet statutory guidelines. **Licensing** of products, as in the case of telecommunication equipment, also informs consumers of minimum standards required by Statute. Finally, Government can provide **certificates** to firms with regard to particular aspects of supply quality, e.g. Investors in People, Quality Management Systems, Food Safety. Thus, the State has a role to play where information asymmetries favour the seller and the industry has difficulties in self-regulating it's members but it is not sacrosanct.

Statutory regulation of certain industry structures and of the conduct between firms in the industry is also considered as unnecessary by some. The **Austrian school** of economic thought, for example believe that competition should be considered a process. Monopoly should not be penalised because it is largely indicative of entrepreneurial endeavour and risk taking. Innovation is profitable and is rightly protected by the establishment of intellectual property rights in the form of patents and trademarks, but these are susceptible to competitive forces over time. In such an environment government should be involved in deregulating markets and creating opportunities for risk taking. In a similar vein, the **'Chicago School'** suggests that collusive behaviour, whilst possible, is a temporary phenomenon, as the parties involved in the cartel have powerful incentives to cheat on any agreement.

However, even Adam Smith once wrote

> "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."
> (1970, p.232)

These lectures will show that there are problems arising from market structures and conduct within the market which lead to anti-competitive outcomes. In these circumstances the State may have a role to play.

This does not mean that regulation should be pervasive. The appropriate maxim should be **'competition where possible, regulation where necessary'**. Striking the right balance as to when and how to intervene is difficult. Some economists would suggest that it should occur as long as the marginal benefits equal the marginal costs of intervention, but the data problems involved are enormous. And, of course, there are those who note that intervention may bring with it more problems. Political judgement based upon economic reasoning is the best way forward.

In the following section the analysis concentrates upon the structure of and conduct within industries. Then discussion centres upon information problems as they affect consumers.

The Regulation of Industry Structures and Market Conduct

Economic theory categorises markets as follows:

- **perfectly competitive market structure**. This is where there are a large number of buyers and sellers all with perfect information. Firms can easily enter and, if they charge a price over a long period above that which would just earn them a normal return, they will easily exit. Consumers are 'sovereign' in such an environment.

- **monopolistically competitive market structure**. Here there are a large number of buyers and sellers. Each individual firm sell products that are marginally different from a competitor but which the customer perceives as being substitutable with another firm. Pricing in excess of the norm will again attract entry. Customers trade off possible efficiency gains for some 'uniqueness'.

- **monopoly**. There is a single seller and many buyers. Firms act as price takers or quantity setters depending on the make up of costs and demand. Entry is blockaded because an individual firm has created a unique product that it protects by patent or is protected by a government statute. Customers will find themselves as 'price takers' unless the market is regulated or potential competition is present.

- **oligopoly**. This is by far the most prevalent market form in society. It has been described as a situation where there is "competition among the few". When there are only two firms, the oligopolistic market is noted as a duopoly. In the simplest oligopoly models firms may sell identical products and compete on price, in which case the market is identical to perfect competition. Alternatively, firms may sell identical products but compete using sales volume in which case firm numbers matter. There are markets in the UK, notably sugar and salt, which exhibit some of the characteristics of these simple models. However, there are other important elements of oligopoly models, notably that most firms in these firms compete using differentiation as the main weapon of competition.

  Oligopolistic markets involve interdependence between the players and the models introduce conjectures. This provides realism for it shows that firm's react to it's rivals price, output, advertising campaigns and it shows that market structures and behaviour are interdependent. Such complexity requires that we take care in assessing whether an industry is liable to anti-competitive behaviour.

It is possible to show, in simplistic terms, that market structure per se is detrimental to economic welfare. Unidirectional theory predicts that, given **basic conditions** of demand and supply in an industry, there is a link between the characteristics of an industry's **structure**, the **conduct** of firms in the industry and the likely **performance** of that industry, that is it's effect upon economic welfare. Table 1 sets out some of the ideas concerning the Structure, Conduct, Performance (SCP) framework, as it has become known, whilst Figure 1 illustrates the traditional unidirectional way of viewing causality between structure, conduct and performance.

Table 1: Structure, Conduct and Performance

Basic Conditions

To understand an industry structure and the conduct within it is necessary to know

- the demand and supply side factors that influence the industry.
- the regulatory framework within which organisations have to operate

For example, an industry may only be able to sustain 5 firms operating efficiently because of the cost and technology conditions that currently prevail. Or, the Government may grant a monopoly right to provide a particular product, e.g. Camelot who run the National Lottery.

What is structure?

- Describes the characteristics and composition of markets and industries in the economy.
- Refers to the number and size distribution of firms in the market.

What is conduct?

Refers to the behaviour (actions) of firms in a market; the decisions they make and also the way in which these decisions are taken.

What is meant by performance?

Do the firms enhance economic welfare? E.g.

- Are they being productively efficient, avoiding wasteful use of available factors?
- Are they being allocatively efficient in producing the right goods in the right quantities?

How effective are they in enhancing employment and economic growth?

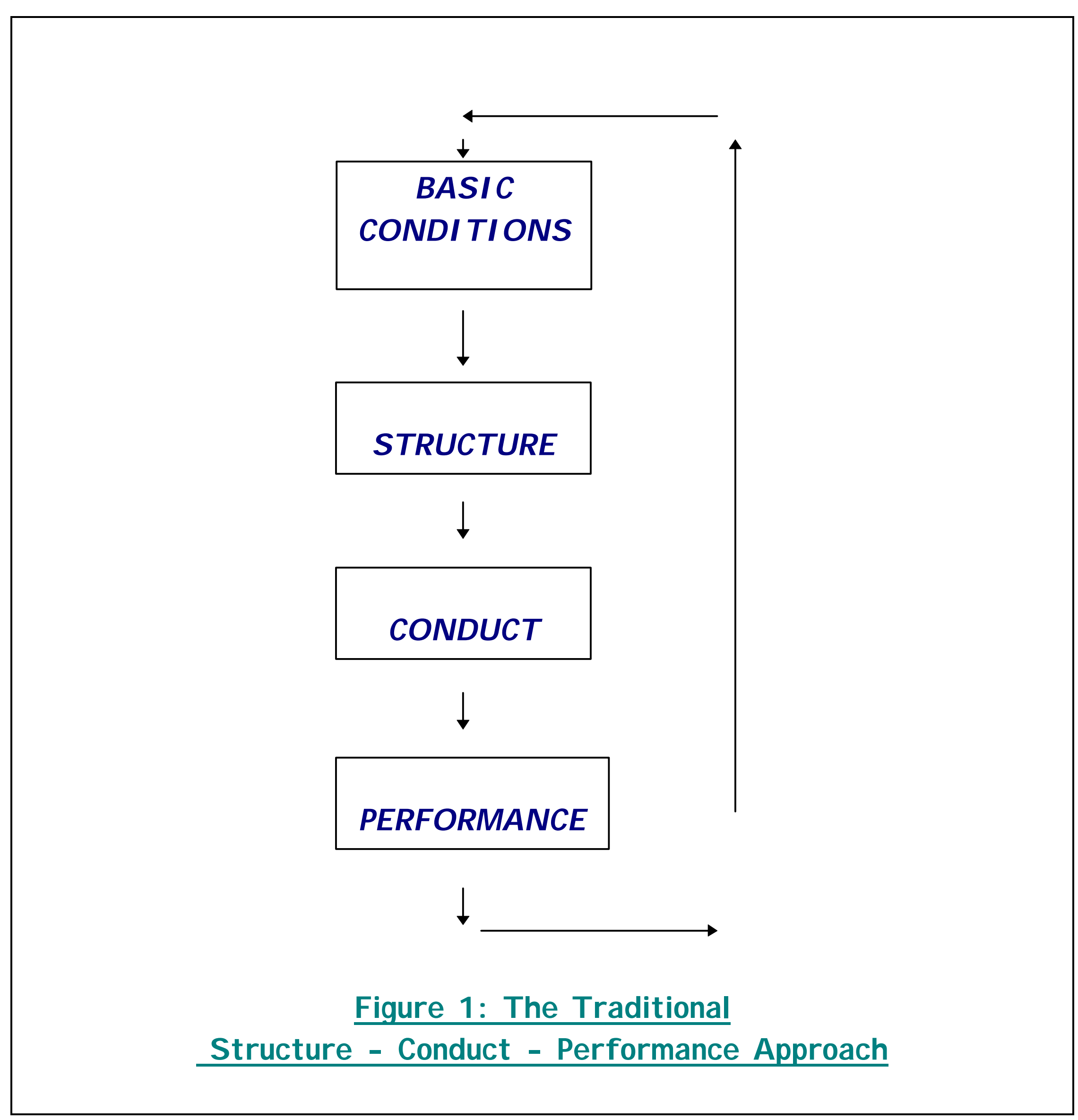

Figure 1: The Traditional Structure - Conduct - Performance Approach

The traditional unidirectional view of the SCP framework can be illustrated by comparing monopoly with perfect competition. For the moment consider the simple case of a perfectly competitive industry that becomes a monopolistic industry structure. We would expect that under perfect competition, where there is a particular market **structure**, characterised by free entry and exit, that firms will **conduct** themselves as price takers, and that would realise the optimal industry **performance.** Pareto optimality is achieved for the price people are willing to pay for an extra unit is equal to the cost of supplying that unit, i.e. price equals marginal cost. Or, demand (the price line or average revenue curve) equates with supply, for under perfect competition the supply curve represents the horizontal summation of the marginal cost curves. Equilibrium price and quantity is 0Ppc0Qpc.

Under monopoly, by contrast, the structure is characterised by blockaded entry and the incumbent firm's conduct is that of price maker or quantity setter. The firm maximises profits where marginal revenue equals marginal cost. Output is 0Qm and at this output consumers are willing to pay a price of 0Pm. Performance is pareto suboptimal as price is greater than marginal cost. Consumers are made worse off by the exchange process. They lose consumer surplus. Consumer surplus arises because consumers are willing to pay more for a good or service (as reflected by the demand curve) than they have to pay as reflected by the marginal cost (or supply) curve. Further, income is redistributed away from consumers and toward producers in the form of abnormal profit. Thus, some of the consumer surplus available when the market was perfectly competitive is transferred to producers because of their market power. Of course, producers are consumers too but this extra income arises not through the operation of input markets as in the case of other factors of production rather it is due solely to activity in the market for output. Figure 2 illustrates the issues and Table 2 summarises the welfare changes. Note that the higher price and lower quantities experienced under monopoly rather than perfect competition give rise to an area of consumer surplus that is lost forever - sometimes called a 'deadweight loss'. It is represented by the triangle in area 3 of Figure 2, and called 'Harberger's Triangle' after the economist, A. Harberger, who made the first attempt to measure the size of welfare loss resulting from Monopoly in 1954, using USA data from the 1920s.

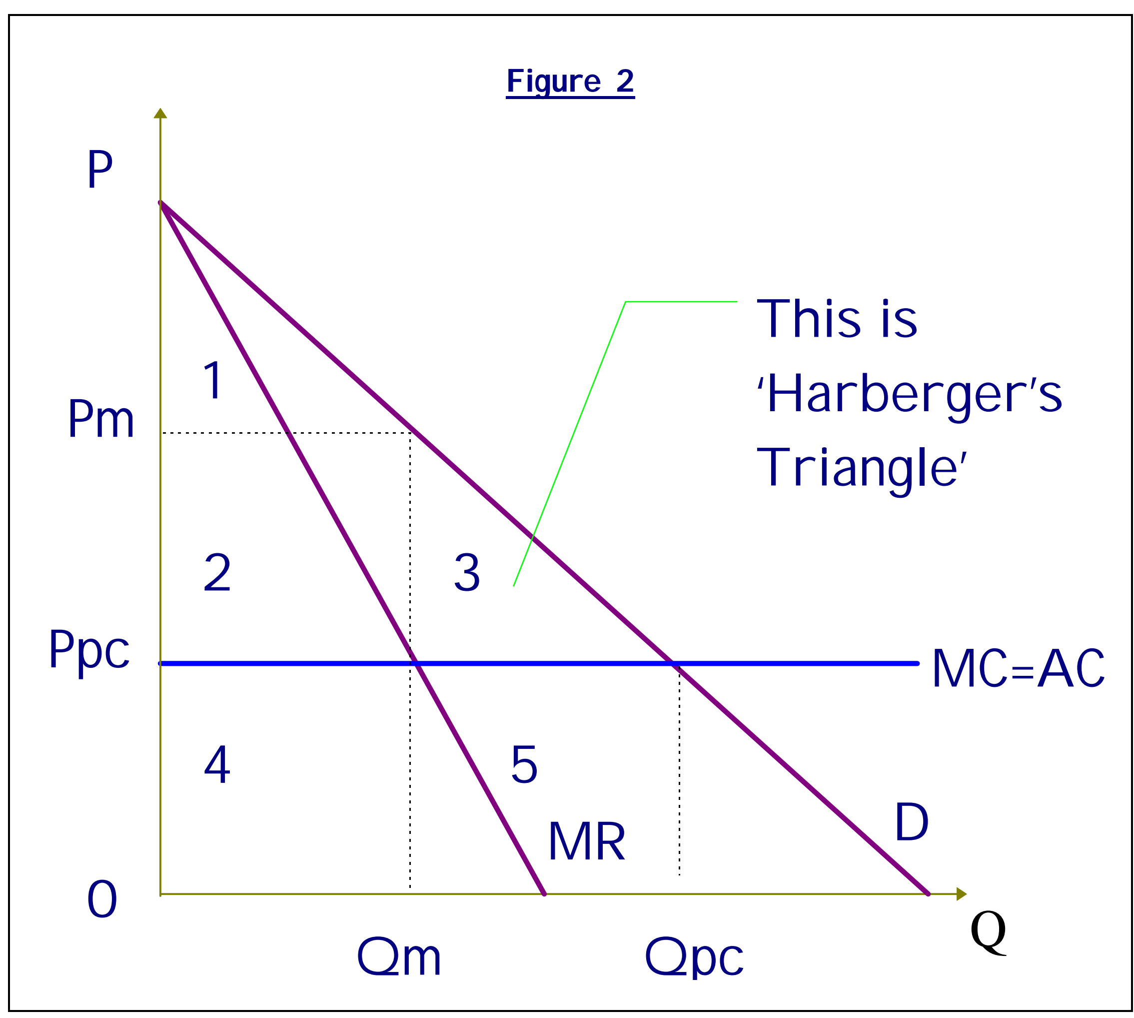

Table 2: Summary of welfare changes due to monopoly

Area	Perfect Competition	Monopoly
1	Consumer surplus	Consumer surplus
2	Consumer surplus	Abnormal profit
3	Consumer surplus	Deadweight loss
4	Input costs	Input costs
5	Input costs	Resources used elsewhere

It is worth recalling the comment made earlier. Monopoly structures may not be a 'bad thing'. For example, if an individual has developed a 'wonder drug' then their innovative behaviour requires some protection. Without the establishment of property rights there would be no incentive to invent. Thus, patents protect and reward inventors whilst society benefits from the advancement of science. Likewise, monopoly may embody lower marginal (and thus average) costs via real economies of scale which, of course, reflect innovative behaviour. This could give rise to a gain in productive efficiency which may more than offset any welfare loss depicted in the static comparison between perfect competition and monopoly of Figure 2.

More will be said about oligopolistic market structures in the next lecture. Whilst it is impossible to divorce behaviour from structure in analysing oligopoly it is quite possible to show that large welfare losses, at least in the static sense of Figure2, can occur if behaviour between the players in the market is 'naïve'.

Market Dominance and Concentration Ratios

Given the pervasiveness of oligopolistic market structures authorities usually examine market shares as a first approach to understanding dominance of the relevant market.

Governments use a technology based criteria to measure industry size, i.e. they group together those producers that have similar technological expertise in the supply of certain products. The UK's Standard Industrial Classification (SIC) for a few products using the 1992 revisions is shown in Table 3.

Shepherd (1991), for example distinguishes between 'tight' and 'loose' oligopolies with the former being more important to consider in respect of public policy because of the potential for collusive behaviour or monopolistic practices. The latter industry types are considered to involve effective competition.

The distinction as to what constitutes 'tight' and 'loose' is rather arbitrary but the concept of the **Concentration Ratio** gives some measurable dimension to the differences.

Table 3 Standard Industrial Classification in the UK

SIC92					Standard Industrial Classification - 1992 Revision
92sect	**92div**	**92group**	**92class**	**92subcl**	**description**
4					**D: Manufacturing**
	15				Manufacture of food products and beverages
		151			Production, processing and preserving of meat and meat products
			1511		Production and preserving of meat
				15111	Slaughtering of animals other than poultry and rabbits
				15112	Animal by-product processing
				15113	Fellmongery
			1512	15120	Production and preserving of poultry meat
			1513		Production of meat and poultry meat products
				15131	Bacon and ham production
				15132	Other meat and poultry meat processing
		152	1520		Processing and preserving of fish and fish products

There are many measures of the Concentration Ratio, two of the most important are

- The **n firm concentration ratio** where n refers to the top 5 firms in an industry usually measured by their sales. So

$$CR5i = \frac{\text{Sales of Top 5 firms in i}}{\text{Total Sales in i}} \cdot 100$$

where i represents industry i. This ratio can be adjusted to take account of trade to capture what is sold in the domestic market.

A 'tight' oligopoly might be an industry with a ratio of 60% or greater - This would certainly fit in with the current European Commission view of a dominant position but it does not mean that any firm in such an industry which comes under scrutiny by EC regulators will be automatically deemed as engaged in anti-competitive behaviour.

- The **Hirschman - Herfindahl index** is a measure of the sum of the squared market shares in an industry.

$$HHI = (\text{market share } 1)^2 + (\text{market share } 2)^2 + \ldots + (\text{market share } n)^2$$

Again, this index can be modified to take account of imports.

Some differences between the two measures show how HHI might be superior.

Firms	Market Shares	4 Firm Concentration	HHI
Ten firms	10%	40	1,000
Six firms	16%	64	1,660
Five firms	20%	80	2,000
Four firms	25%	100	2,500
Three firms	33%	100	3,300

HHI clearly shows that the index rises rapidly as the number of firms is reduced. Thus, a monopoly supplier would have an HHI number of 10,000.

We can calculate a numbers equivalent HHI using the following formula

$$\text{Numbers equivalent} = \frac{10{,}000}{HHI}$$

If HHI =2,000 this is equivalent to saying that 5 firms could each supply 20% of the market.

Its appeal is that it captures the market shares of all the firms in the industry. This measure of concentration is directly calculable from oligopoly models and so has a theoretical base.

Dominance in an industry may reflect efficiency of the firm(s) involved. Thus, a firm with a large market share may well have achieved this growth through entrepreneurial endeavour and if the market they operate in is relatively easy to enter then they should in no way be penalised. The profits of such firms would keep them in that activity; economists call such rewards **normal profit**. Profits which arise through market power, called **supernormal, abnormal or sometimes economic profit**, are due to anti-competitive activities. However, it is important not to be confused by this distinction. When profits are declared by a firm this does not mean that the firm is anti-competitive. The profits of most firms are the result of normal trading activities. If the firm has been **colluding** with others in the industry through an explicit or informal agreement, or engaging in other anti-competitive practices (perhaps deterring entry by some non-innovative behaviour or **predatory pricing**) then the prices charged and the profits earnt are higher than they should be. The authorities should then investigate the abuse of a dominant position. (See case on The Supply of Petrol)

Market Dominance and Alternative Sources of Supply

The main advantage of using a technology based approach to classifying industries is that it recognises the ability of firms to switch to the creation of new (differentiated) products (brands) like those supplied by firms with similar technologies, e.g. manufacturers of Rolls Royce producing a smaller car that would compete with the Mini. It also provides information about actual competition between suppliers. To understand market or industry dominance it is also important to embrace demand as well as potential supply side issues. For example, consumers do

not perceive a Rolls Royce and Mini as substitutes though they are included in the SIC as such. Similarly, some markets are open to the possibility of competing products from overseas or large firms in alternative activities at present.

Economists employ a concept which measures choice between competing alternatives from a customers point of view, namely **cross price elasticity of demand**. This is the proportionate change in the quantity demanded of a product resulting from a proportionate change in an alternative product's price. If the value is high then the market is very competitive, if it approaches (or is) zero, then the market is a monopoly - there are no substitutes. There are data issues in obtaining such a measurement and this leads regulators to examine other information to discover if consumers can purchase from alternative sources.

If the market is closed, that is there is no opportunity for imports or foreign investment, then consumers will have more limited choice than if a market is open. The growth of a customs union (soon to be monetary union) like the European Union, the development of free trade agreements, like NAFTA, incorporating the USA, Canada and Mexico, as well as the growth of Internet trading will all help to foster more choice for consumers. However, even in open markets there may be informational or transaction cost problems in bringing goods to the market and accessing them. For example, access to technology may be difficult (in some areas consumers do not have access to a telephone line). In some areas political pressure keeps local regulations in place thereby restricting market opportunities. These and other factors may inhibit consumer choice.

Regulators also examine the opportunities for **potential competition** that is alternative suppliers who appear in the market because of the perception of profitable opportunities. Thus, **ease of entry** is a crucial issue because potential competitors will keep incumbent prices at there lowest possible level. Most markets have dynamic properties. Small new firms enter an industry whilst incumbent firms exit, merge or grow through there own means. However, a good indicator of market openness is the opportunity provided for large firms from similar sectors who can easily transfer into other markets. For example, Virgin has shifted into air transport and financial investments which are new and developing markets after undergoing substantial deregulation. In other markets, on the other hand, entry by large competitors may be difficult. This may

reflect a lack of profitable opportunity for potential entrants or it could be because **entry is blockaded by the strategic behaviour of the incumbent**. Even the latter may not be deemed anti-competitive if it involves some innovative investment which is committing a firm to an industry and keeps prices low. (See Definiton of Relevant Market)

Information Asymmetry

Most market transactions between buyers and sellers involve fair exchange. Oliver Williamson (see, for example, 1985) noted that transactions have certain characteristics: they occur with varying degrees of frequency; they embody a certain level of resources on the part of the buyer and seller; and, the environment in which they are traded, entails some range of uncertainty. Where transactions are frequent, embody few resources and the market competitive, consumers will have sufficient information to make choices among alternatives. **The competitive market is a powerful regulator**. If a seller sells damaged goods then they will only be too willing to replace them or face the reputational problems associated with such actions. Indeed, firms often provide warranties and guarantees in order to enhance reputation. Of course, the exchange process breaks down occasionally in these circumstances but the general framework of law helps to redress imbalances.

Difficulties begin to arise where parties in the exchange have different levels of information, or information asymmetries. Typically, these transactions are less frequent, entail significant resources and may occur where the market involves only a few suppliers, or where parties involved in the transaction become 'locked in'. For example, assume a local newspaper invests in a specialised printing press (capital good) which takes time to install. Once 'locked in' to this infrequent transaction involving large outlays either party may act opportunistically. The newspaper might argue that, a downturn in demand has meant a fall in revenues and so would like to renegotiate the price for the press downwards. Similarly, the printing press firm might argue that a shortage of specific parts has meant they need to increase their supply price. If either party feels it would be too costly to back out how might they have stopped this situation occurring in the first place.

The problem arises because the parties do not have complete information concerning the other's activities. **One way of regulating the transaction is to draw up a contract with incentives and penalty clauses.** The courts can act as an 'Arbitrator' for disputes. However, **contracts that specify every contingency can lead to a degree of rigidity which destroys trust between the parties**. Flexibility is required by both sides. **In intermediate product markets** where resource costs are high but the number of transactions frequent **a number of organisations have moved to using 'relational contracts'**. This is a more flexible quasi-contractual arrangement between parties which usually involves either or both monitoring activities, possibly by having cross- board membership or jointly going to meet suppliers to negotiate prices. This is one reason why Just-in-Time stock control is successful.

Relational contracts build trust and represent an intermediate step (sometimes called a 'quasi-market' arrangement) between the market and **another method of regulating transactions** where information is imperfect between the parties, namely **integration via the extension of the organisational hierarchy**. However, such activity may be frowned upon by the authorities if it is considered to lead to an inappropriate industrial structure. An example of vertical integration illustrates the point. The brewers bought a number of public houses, possibly because this allowed them to overcome problems in arranging transactions via the usual market means but it also created an opportunity for brewers to insist that only their brands were distributed in the 'pubs'. Such restrictions on consumer choice were frowned upon by the authorities and subsequently there has been some vertical disintegration between the manufacturer and distributor of beer and the introduction of 'guest beers' in the remaining managed pubs.

Consumers do not have the option of integration as a form of regulating transactions. Consumers do enter into a contract with a seller but because of the incomplete nature of many of these contracts, they rely heavily on the trustworthiness of the supplier in obtaining goods and services of an appropriate quality. The Office of Fair Trading shows that for the 3rd quarter of 1997 (Fair Trading, Summer Issue, 20, 1998), consumer complaints had risen by 21% over the previous quarter. The largest number of complaints made by consumers involve the sale of second hand cars, and house maintenance and double glazing. In addition

there has been a good deal of concern in the press about the mis-selling of pensions.

Information problems arising from exchange are pervasive. They are generally classified into two types.

Moral Hazard, also known as Hidden Action, is an *ex post* contractual problem arising because either party may act differently after a contract has been determined. In this case one of the parties to the exchange cannot observe the activities of the other, e.g. poorly laid foundations lead to the collapse of a conservatory built 12 months ago and the firm has since gone into liquidation.

Adverse Selection, also known as Hidden Information, is an *ex ante* contractual problem arising because the seller has more information than the buyer. Thus, a potential purchase is more likely to attract a seller of a poorer quality product (a 'lemon') for a given return. For example, consider the market for double glazing. Assume that there is a 75% chance that the double glazing product and its fitting will be of a high quality and a corresponding 25% chance of buying substandard quality double glazing services. Further assume that the poor quality double glazing firms are willing to supply and fit at a price of £1800 for a 3 bedroom house whilst the high quality firm will charge a price of £2600. If the consumer has no information about the sort of double glazing firm they are going to get then their willingness to pay must reflect the probabilities of finding high and poor quality firms. Thus, their expected value of the job is

$$(0.75 \times £2600) + (0.25 \times £1800) = £2400$$

This will be very attractive to poor quality double glazing firms and force high quality firms from the market. However, if the consumer is rational then they will realise that they are going to get an inferior product and will not buy double glazing at all. The market therefore fails because information is hidden from consumers.

This problem can be overcome if **signalling** about quality occurs. Individual suppliers could offer guarantees or warranties, though this may not prohibit inferior quality firms from declaring bankruptcy and re-appearing at another time, under another name, to sell poor products once

more. An alternative method is for high quality firms to form an association, a **self-regulating industry body**, which screens members, perhaps by an examination of work done. Two problems arise with self-regulation. First, successful **screening** is expensive and these costs may raise the price to consumers above a level which they are not prepared to pay. Thus, in an effort to avoid excessive costs, some inferior quality firms may become members of the association (and, perversely, some high quality firms may fail the initial screening). Guarantees of quality may therefore become 'hollow' words if the costs of running an association prohibit adequate screening. Second, associations are **cartels**, the activities of it's members could constitute a multi-plant monopoly, raising industry prices above that anticipated under perfect competition and also reducing the numbers in the industry. Third, self-regulation may lead to a **profusion of institutes**, each with its own set of rules. Such confusion would not help resolve the possible adverse selection problems.

Self-regulation, according to Doyle (1997), **works best where** the organisations have relatively **simple structures** (a sole proprietor or partnership, perhaps), where **competition** is vigorous, where the **goods and services** are **well defined** and **information is** largely in the **public** domain. Finding industries which meet all these criteria is difficult but they do exist in many of the building trades.

Where **complex hierarchical structures** exist in industries, or perhaps where **transactions are complex** because of the nature of information or even transnational, then **statutory regulation will have a role to play** alongside self-regulation. The scandal over pension mis-selling in the UK has led to a fundamental overhaul of the financial services industry. This industry once relied heavily on self-regulation, but deregulation and globalisation altered the nature of the products and provided opportunities for 'rogue traders'. This has led to moves for a different regulatory framework with greater emphasis on statutory powers.

Institutional Problems with Regulation

Statutory regulation often involves the creation of agencies empowered by government to oversee regulatory duties. In the UK there are a number of such bodies: for example, OFTEL regulates the telecommunications industry; OFGAS supervises the gas industry; OFLOT oversees the National Lottery. However, the creation of agencies may

itself lead to a number of problems. One problem known as **'regulatory capture'** occurs where the regulator becomes so involved with the regulatee that they fail to carry out their statutory duty. A related problem is that of **regulatory inefficiency**, which results because the regulator is not appropriately accountable. Without appropriate accountability the regulator may be more interested in maximising the size of the bureaucracy rather than meeting the public interest. **Lobbying** by the regulated firms also creates difficulties for the regulator for it results in delays and thus increases inefficiency. Moreover, lobbying may occur to maintain the status quo, preventing new firms entering the regulated sector.

Even where the above problems can be controlled there is the general problem of information asymmetry between the regulator and the regulated. The former might be construed as a **Principal** whilst the latter is an **Agent** who has to carry out the Principal's wishes. However, if the Principle cannot fully observe the actions of the Agent then the Agent may shirk their responsibilities (a moral hazard problem). To overcome this the Principal must design appropriate incentives to make the Agent behave in an appropriate manner. By rewarding in this manner the Principal is sharing some of the risks of the desired activity and willing to obtain suboptimal outcomes because of the presence of information asymmetry.

Summary

Regulation of competition is necessary, whether the problem results from a market structure, a firm's behaviour in the market or an information problem. However, regulation also brings problems. Whilst many would advocate self-regulation there are membership screening problems and the possibility of either the formation of a cartel by those engaged in self-regulation or a profusion of different self-regulatory bodies in the industry. Statutory regulation by agencies also leads to problems: regulatory capture, regulatory inefficiency, lobbying and information asymmetry problems between the regulator (Principal) and the regulated (the Agent). The solution seems to be two-tier regulation with self and statutory regulation acting as mutually reinforcing mechanisms that encourage competition. Achieving such an end is not easy and requires political judgement based upon economic reasoning.

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The following are useful for understanding the market structure and conduct problems

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Useful World Wide Web Sources

Office of Fair Trading (http://www.oft.gov.uk) is the main statutory organisation charged with competition issues in the UK.

Monopolies and Mergers Commission (http://www.open.gov.uk/mmc) provides links to a number of the public utility regulators and links to competition authorities elsewhere in the world.

Advertising Standards Authority (http://www.asa.org.uk) gives details of the two tier framework by which advertising in the UK is regulated.

The Federation of Master Builders (http://www.fmb.org.uk) is the major self-regulatory body in building construction.

The Economic Regulation of Industry

EC 407

By Kevin Hinde

The meaning of Regulation

Dictionary Definitions

To regulate:

- To control by rule; subject to restrictions; adapt to requirements.

  – Oxford Encyclopedic English Dictionary (1991)

Forms of Regulation

- Self Regulation e.g. internal controls, institutes, trade associations.
- Statutory e.g. agency, licensing (i.e. Imposition of minimum standards), certification (information about supply quality)

Forms of Regulation (2)

- Note that regulation occurs because markets fail. Remember the legal process does give scope for redress in the case of some transactions. However, where there are externalities, monopoly power or information asymmetry then some form of control may be necessary.

Why Regulation?

- ‘Competition where possible, regulation where necessary’
- Regulation desirable as long as the (marginal) benefits equate with the (marginal) costs.
- Regulation corrects market failures. It improves allocative, productive and dynamic efficiency.

Types of Market Failure

1. Externalities

- Arise when the well being of one economic agent is directly affected by the actions of another.

Externalities (cont)

- *Pollution*
- Solved by
- regulation of the discharge or whatever. Set standards.
- Taxing the polluter
- The market? (it may be an example of a missing market)

Externalities(cont)

- In USA economic instruments (particularly permits) becoming more important than 'Command and Control'. Why?
- Command & Control helps existing producers. They can
  - dictate the technology (this increases lobbying)
  - deter potential competitors (high start up costs)
- Permits allow a certain amount of pollution but encourage searches for environmentally sensitive production techniques.

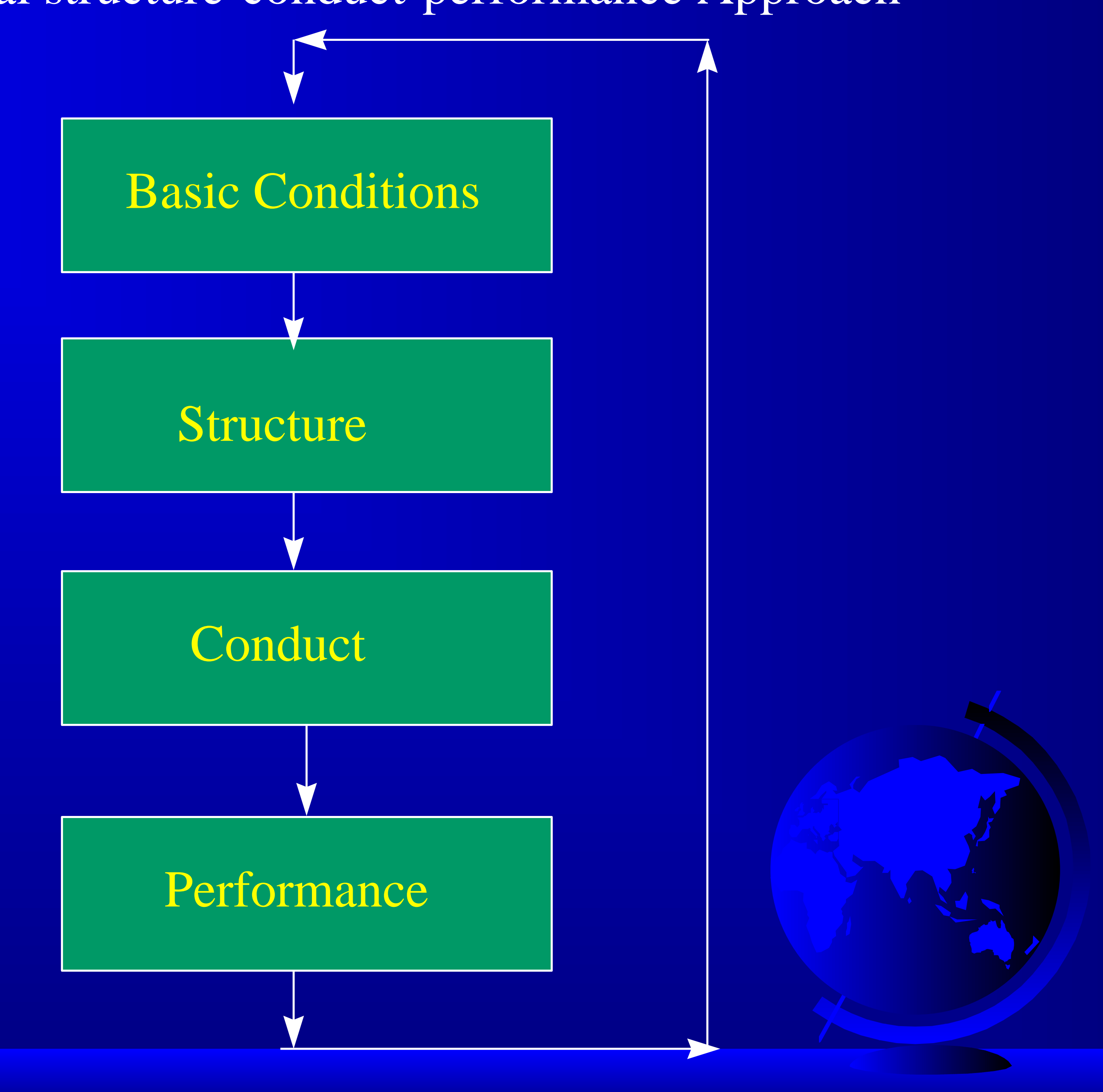
Externalities (cont.)

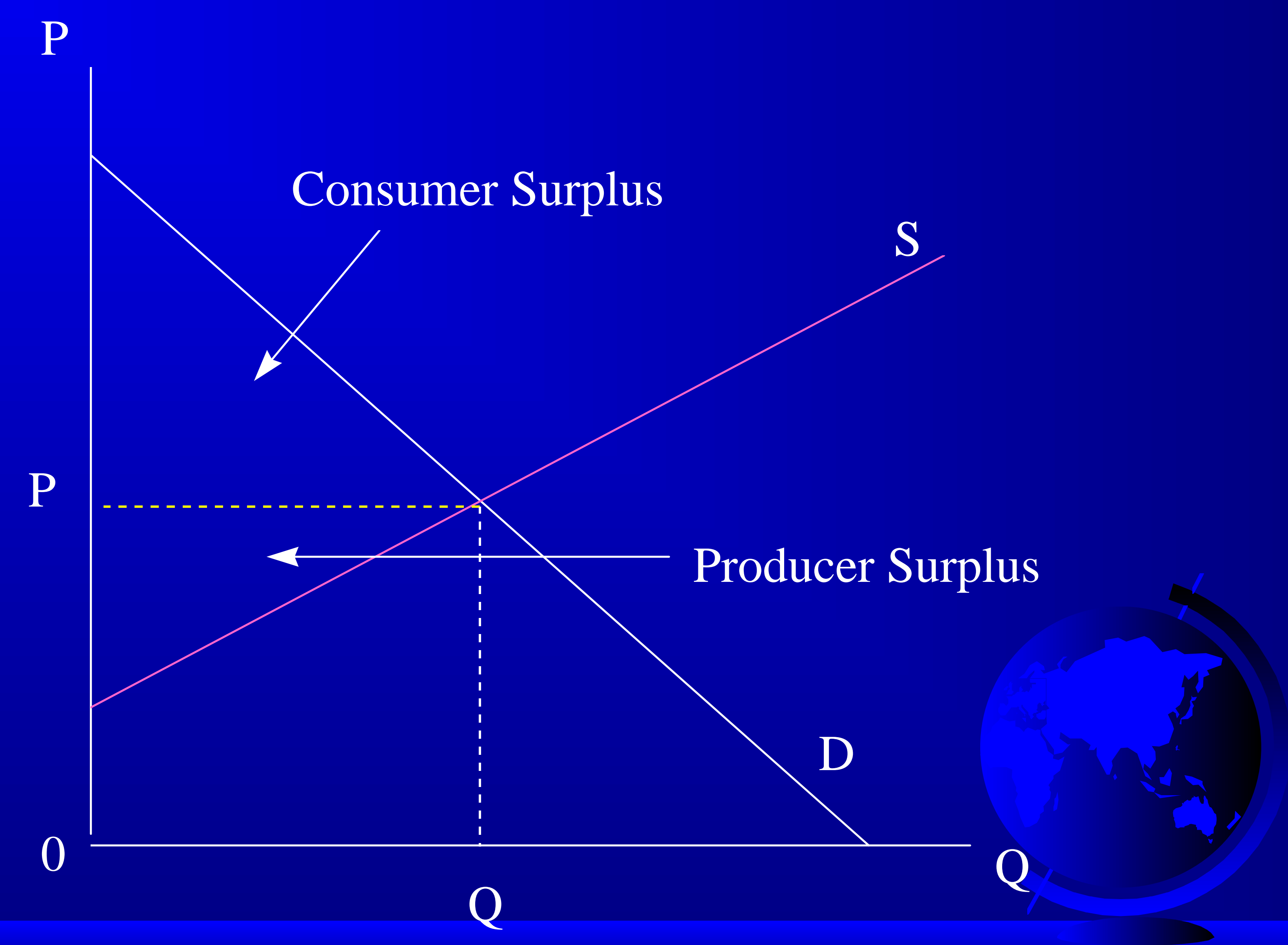
- *Another Externality : 'Network Effects'*
- benefit obtained by a subscriber depends upon who else subscribes to the network.
- This may justify
  - subsidised line rental for certain groups (though how much?)
  - a universal service.
  - Regulation where network owners distort competition.

2. Monopoly and Competition

- Is monopoly bad?
- Is competition always good?
- Most industry **structures** are beneficial and so do not need regulating per se.
- Notable Exception
  - Non-innovative monopolist.

The traditional structure-conduct-performance Approach

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Consumer Surplus
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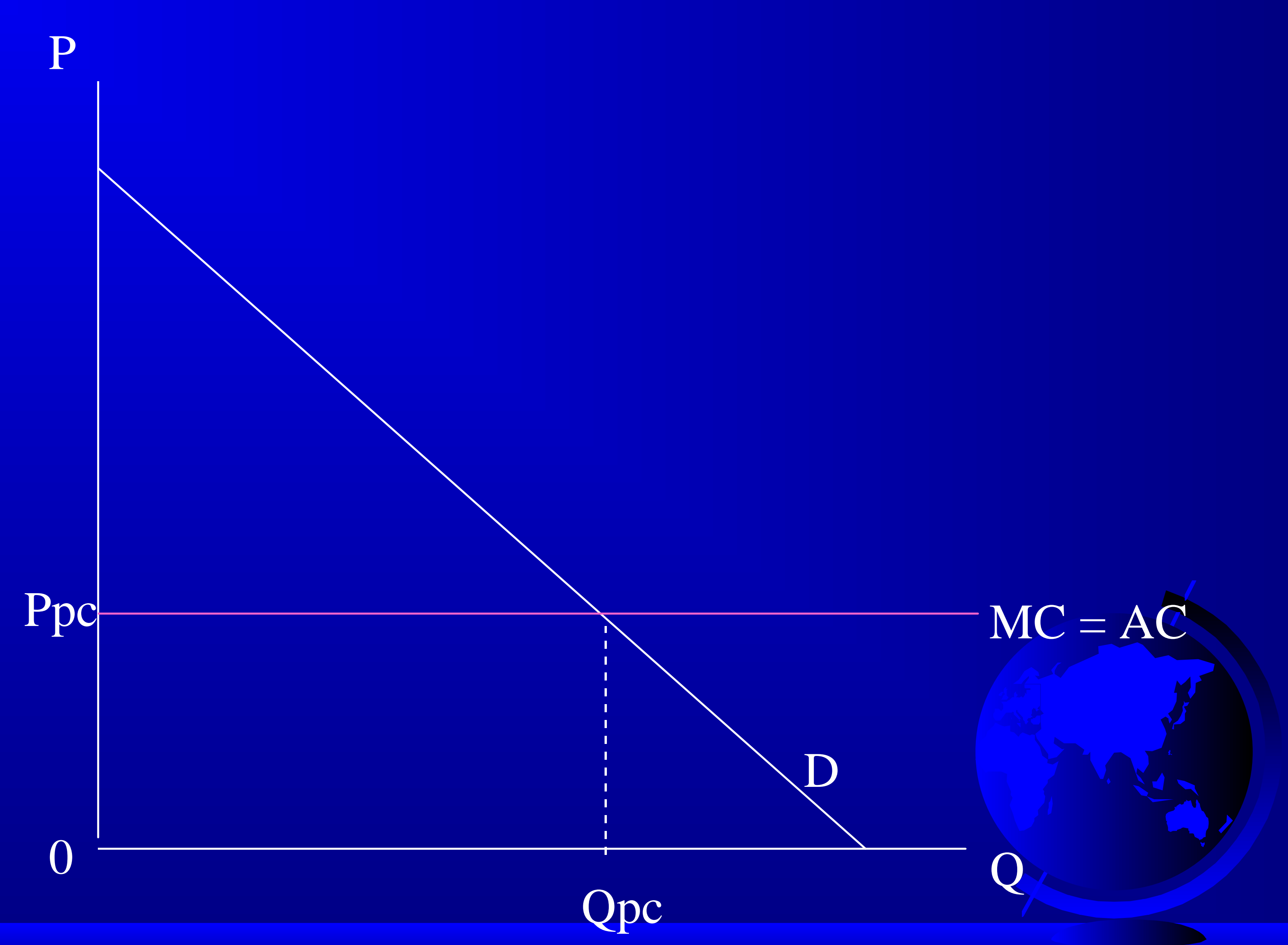
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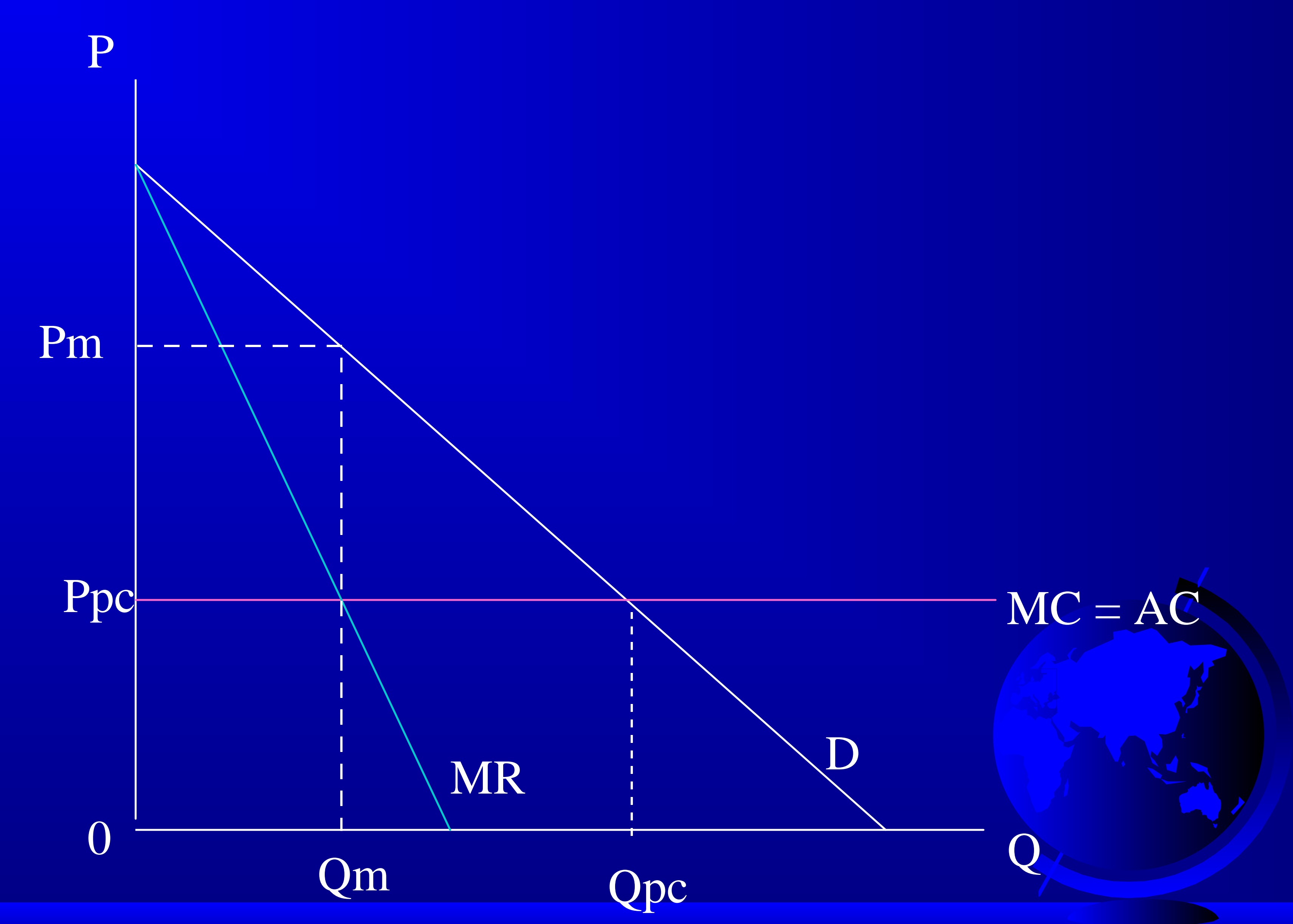

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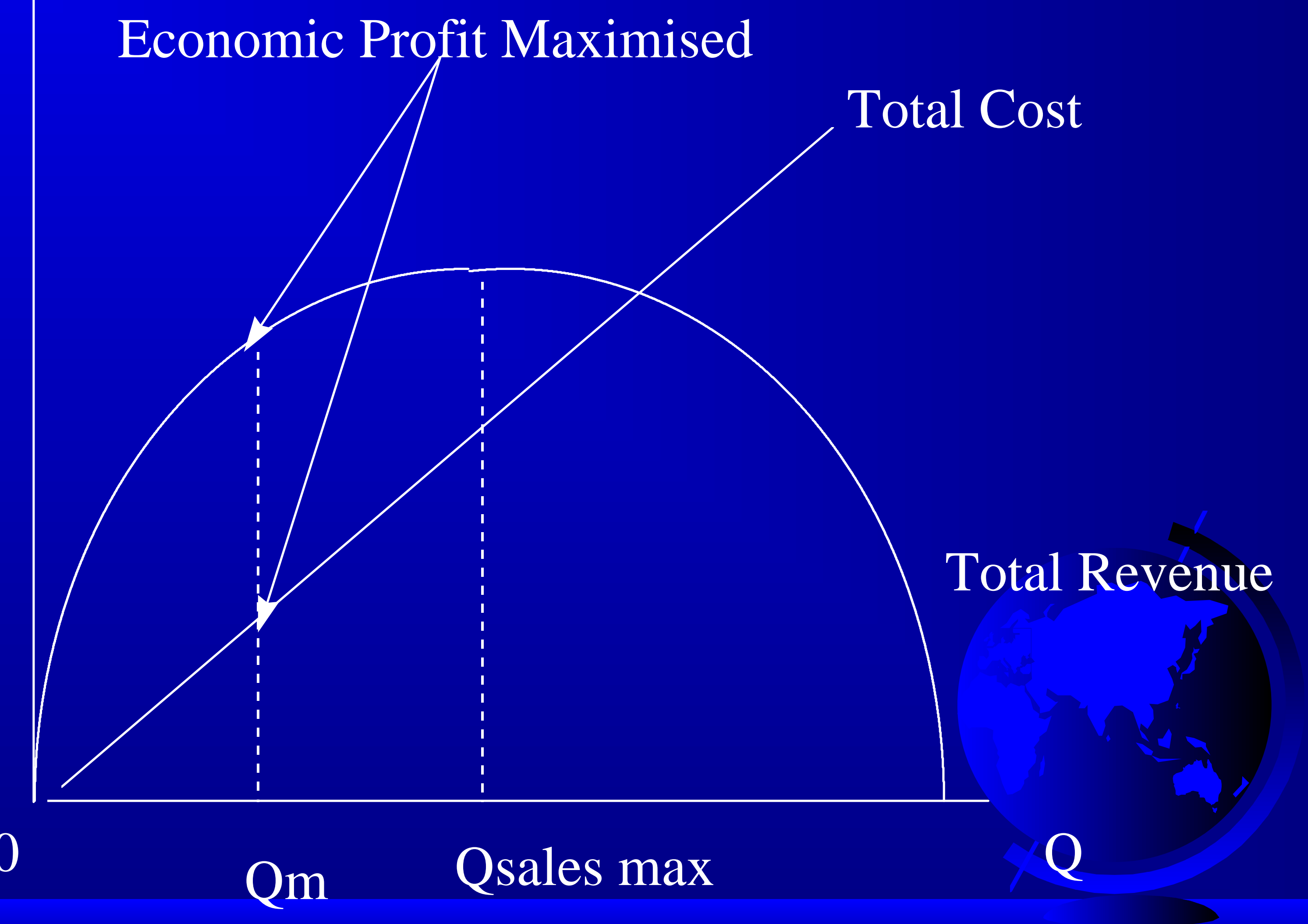
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Economic Profit Maximised
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Total Revenue
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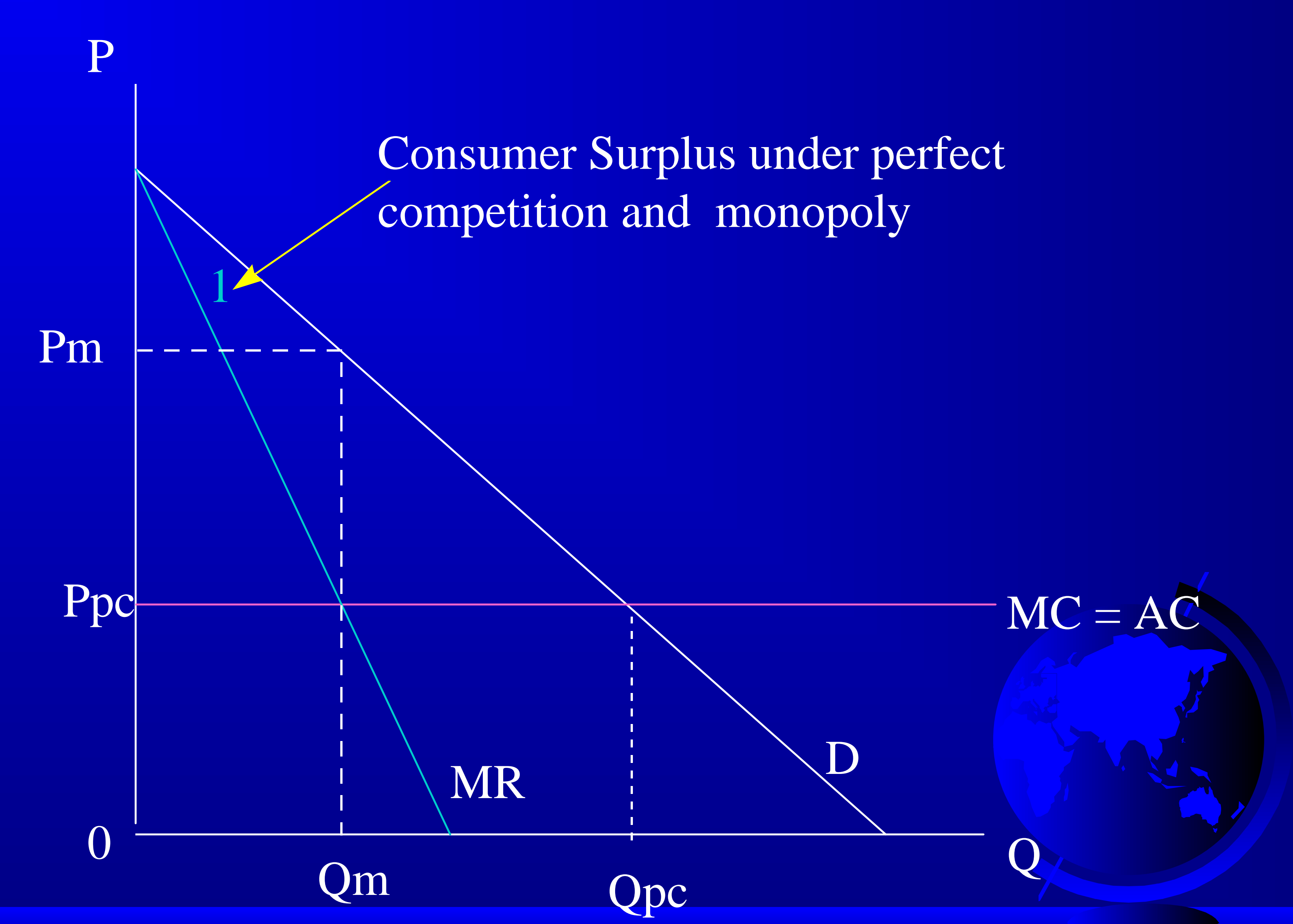
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Consumer Surplus under perfect competition and monopoly
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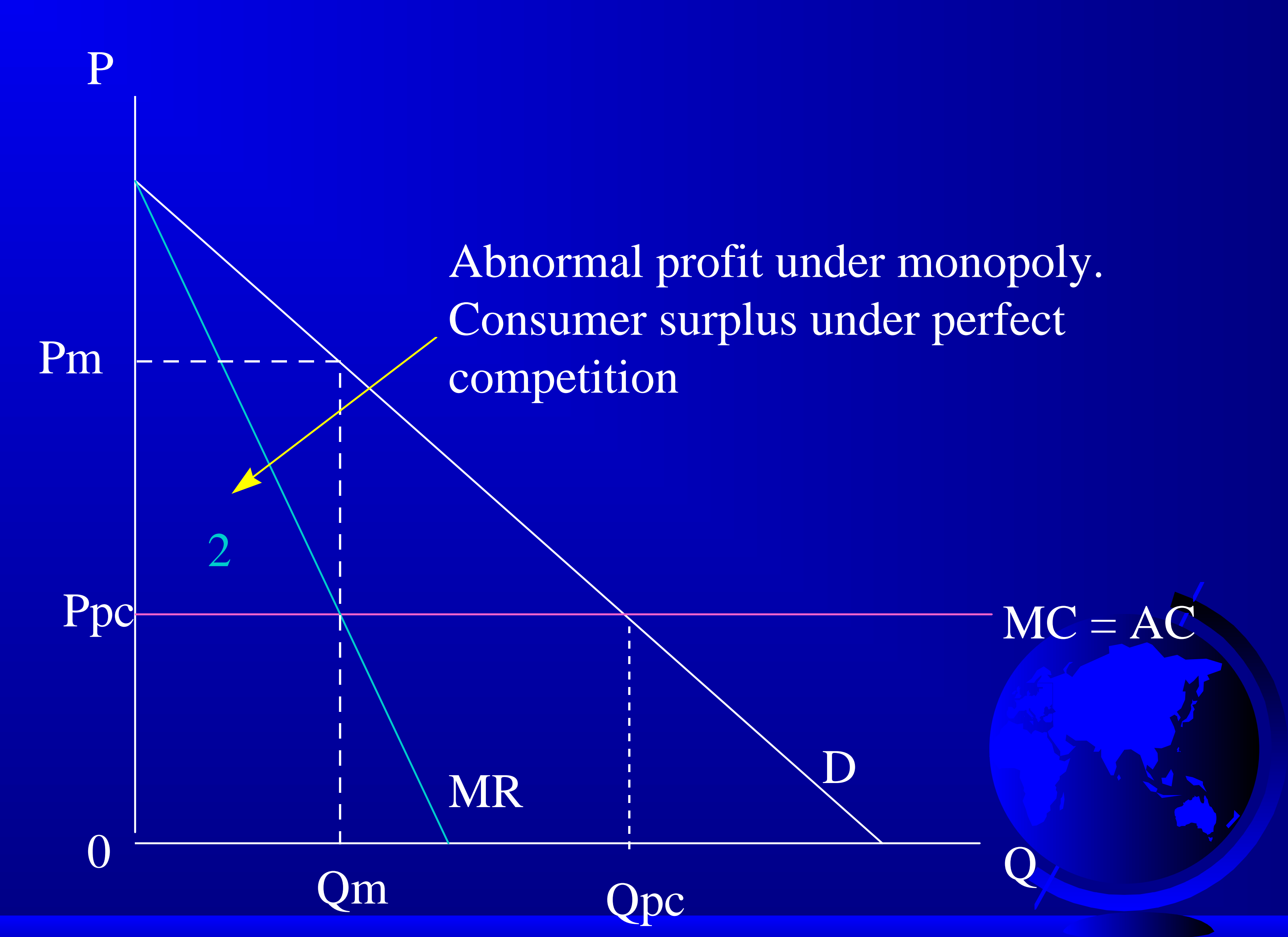
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Abnormal profit under monopoly.
Consumer surplus under perfect
competition
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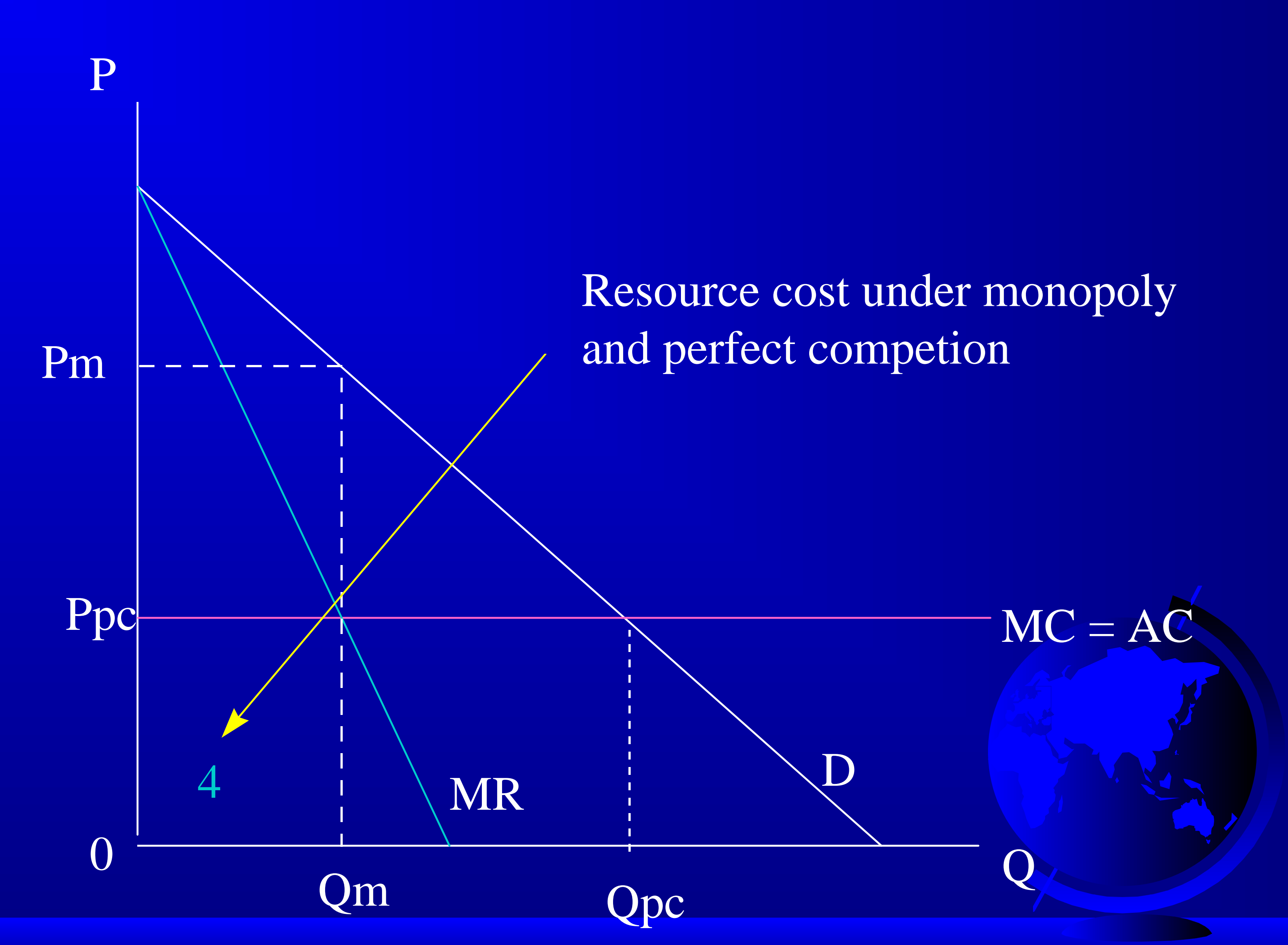
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Resource cost under monopoly
and perfect competion
MC = AC
4
MR
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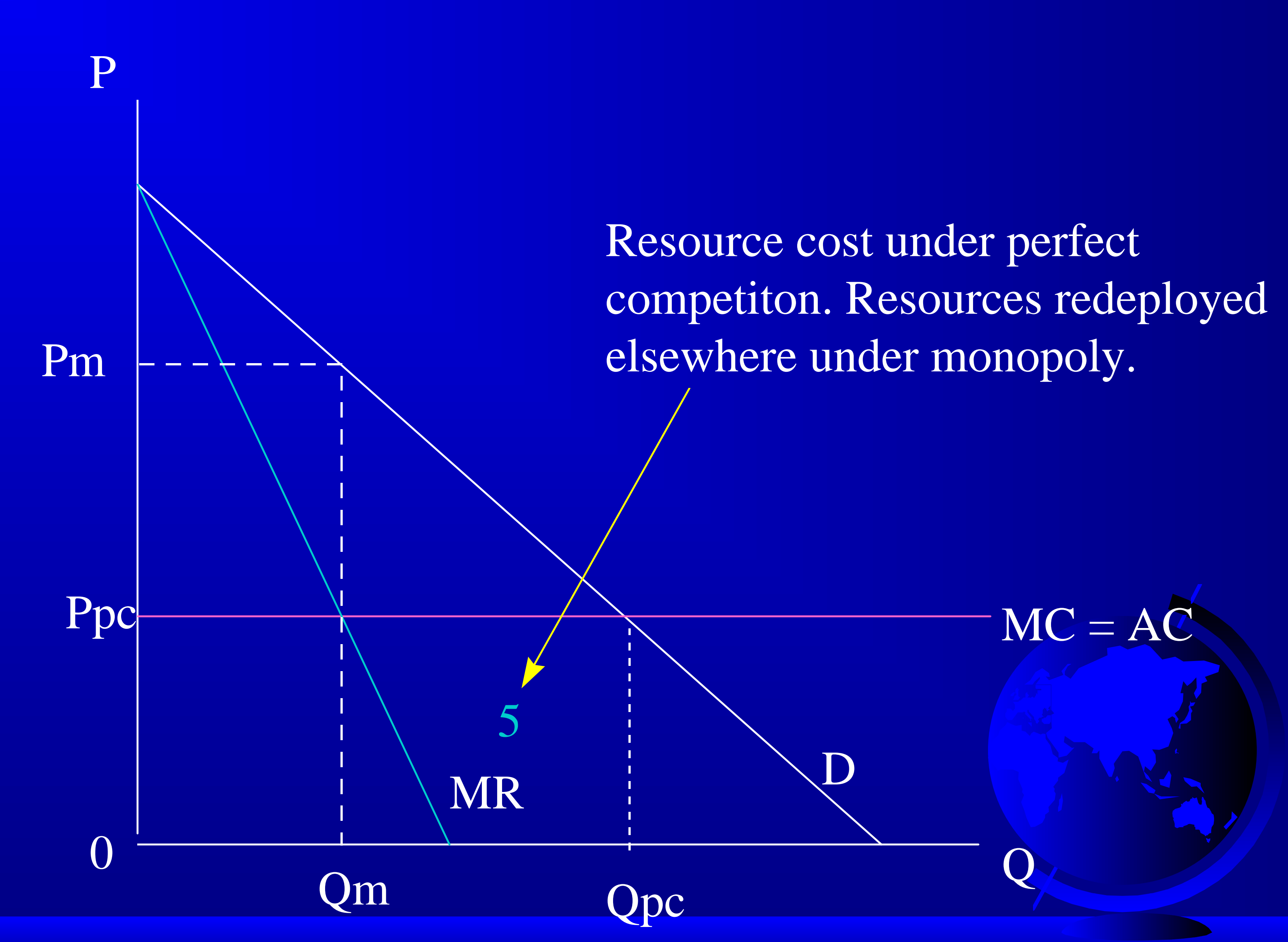
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Resource cost under perfect competiton. Resources redeployed elsewhere under monopoly.
MC = AC
5
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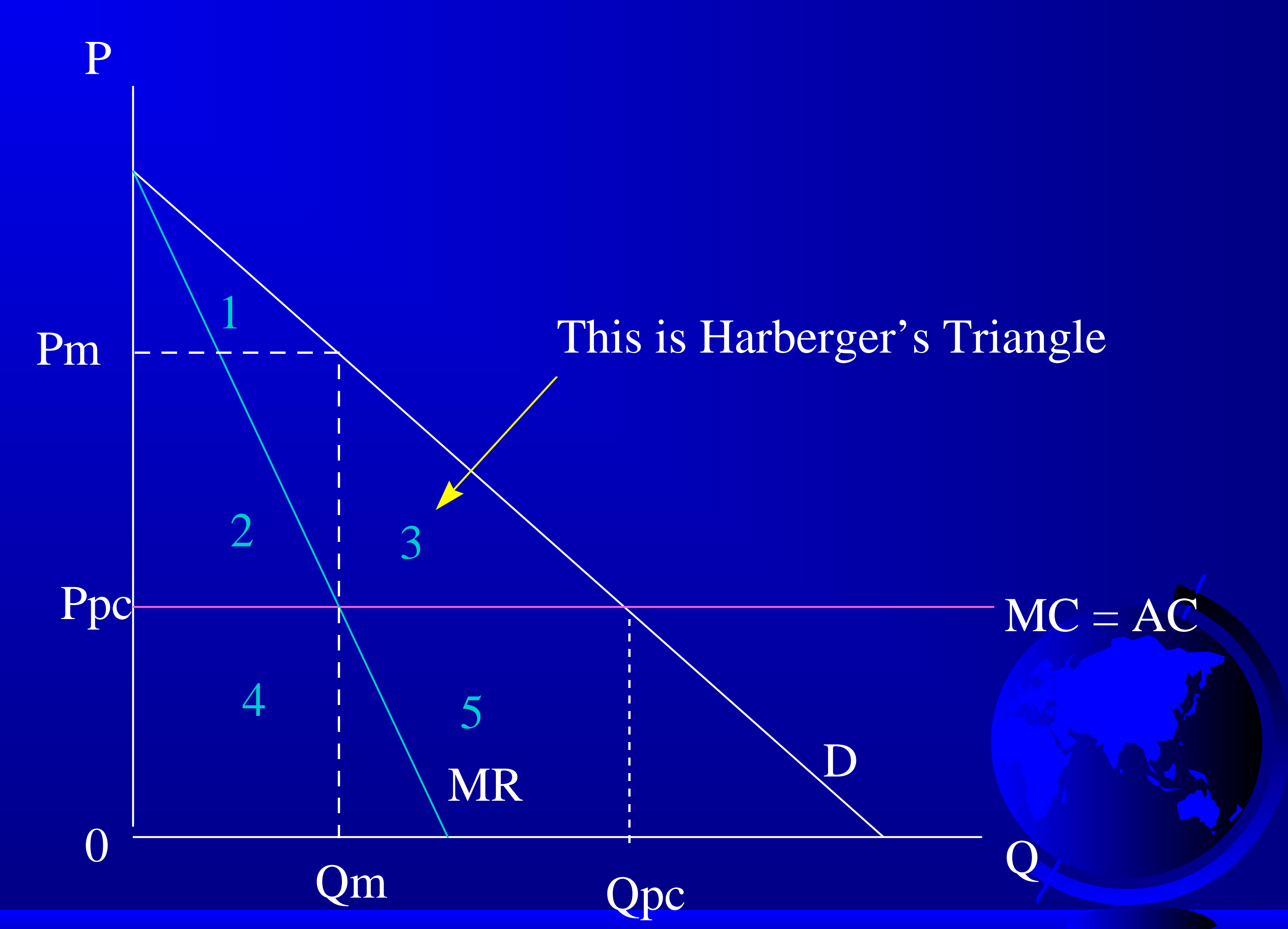
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This is Harberger's Triangle
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MC = AC
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A summary of welfare changes

Area	Perfect Competition	Monopoly
1	Consumer surplus	Consumer surplus
2	Consumer surplus	Abnormal profit
3	Consumer surplus	Deadweight loss
4	Input costs	Input costs
5	Input costs	Resources used elsewhere

- This is a traditional view. Some would argue an underestimate of the social costs of monopoly.

Monopoly and Competition (cont.)

- Regulation is usually needed to overcome **behaviour or conduct** by organisations that is against the public interest.
- Examples
  - Strategic Entry Deterrence
  - Predatory pricing
  - Cartels
  - Cream Skimming leading to 'destructive competition'
- Economist disagree over the amount of regulation.

3.Information Problems

- 2 main problems

1.Approbriability.

- e.g. Patent markets. How do we reward entrepreneurial endeavour and ensure that competition is not hampered or that society will not lose out from over-protection?

2. Information Asymmetry.

- Adverse Selection (Hidden Information)
- e.g.
  - buyers of pension funds have less information than 'professional' who sells the policy.
  - 'Lemons'
  - Selling Insurance
- Moral Hazard (Hidden Action)
- Clearly, we do not need regulation for many information asymmetry problems.
  - Warranties
  - Guarantees.

Regulation Problems

- Regulatory Capture
- Regulatory Inefficiency
- Principal Agent Problems
- Lobbying

US and European Trends in Regulation

- ***pre-1980.***
- USA largely adopted an Agency response to market failure problems.
- European response to market failure was nationalisation, industrial reorganisation, planning and other forms of corporate intervention.
- Regulatory functions assigned to ministers or inter-ministerial committees.

US and European Trends in Regulation (Cont)

- ***Post 1980***
- Regulatory reform. A combination of de-regulation and re-regulation.
- *European experience:*
  - In some ways moves toward a US model of regulation - Agencies. However, developments in UK privatisation regulation have been replicated in USA.

US and European Trends in Regulation (Cont)

- Important parallel development - The European Community, now European Union.
- First 25 years of EC legislation aimed at harmonisation rather than unifying national regulations.
- Main instrument - The Directive. Specifies the statutory objective to be achieved and leave the method to Member States.

US and European Trends in Regulation (Cont)

- Goal of Single Market required a different approach.
- Harmonisation would be over-regulatory, take a long time to implement and inflexible.
- *New Approach*:
  - Mutual Recognition
  - Harmonisation confined to essential Health and Safety Standards
  - Reference Technique

US and European Trends in Regulation (Cont)

Advantages

- reduces Euro Comm. Workload
- subsidiarity.
- Promotes competition between regulators - improvements in regulation?

Disadvantages

- Negative externalities
- Still need for harmonisation - European Agencies

COMMISSION NOTICE on the definition of the relevant market for the purposes of Community competition law.

(Only the published text is authentic. Published in the Official Journal: OJ C 372 on 9/12/1997)

I INTRODUCTION

The purpose of this notice is to provide guidance as to how the Commission applies the concept of relevant product and geographic market in its ongoing enforcement of Community competition law, in particular the application of Regulations 17/62 and 4064/89, their equivalents in other sectoral applications such as transport, coal and steel, and agriculture, and the relevant provisions of the EEA agreement.(1) Throughout this notice, references to Articles 85 and 86 of the Treaty and to merger control are to be understood as referring to the equivalent provisions in the EEA agreement and the ECSC Treaty.

Market definition is a tool to identify and define the boundaries of competition between firms. It allows to establish the framework within which competition policy is applied by the Commission. The main purpose of market definition is to identify in a systematic way the competitive constraints that the undertakings involved (2) face. The objective of defining a market in both its product and geographic dimension is to identify those actual competitors of the undertakings involved that are capable of constraining their behaviour and of preventing them from behaving independently of an effective competitive pressure. It is from this perspective, that the market definition makes it possible, inter alia, to calculate market shares that would convey meaningful information regarding market power for the purposes of assessing dominance or for the purposes of applying Article 85.

It follows from the above, that the concept of relevant market is different from other concepts of market often used in other contexts. For instance, companies often use the term market to refer to the area where it sells its products or to refer broadly to the industry or sector where it belongs

The definition of the relevant market in both its product and geographic dimensions often has a decisive influence on the assessment of a competition case. By rendering public the procedures the Commission follows when considering market definition and by indicating the criteria and evidence on which it relies to reach a decision, the Commission expects to increase the transparency of its policy and decision making in the area of competition

policy.

Increased transparency will also result in companies and their advisors being able to better anticipate the possibility that the Commission would raise competition concerns in an individual case. Companies could, therefore, take such a possibility into account in their own internal decision making when contemplating for instance, acquisitions, the creation of joint ventures or the establishment of certain agreements. It is also intended that companies are in a better position to understand what sort of information the Commission considers relevant for the purposes of market definition.

The Commission's interpretation of the notion of relevant market is without prejudice to the interpretation which may be given by the Court of Justice or the Court of First Instance of the European Communities.

II DEFINITION OF RELEVANT MARKET

Definition of relevant product and relevant geographic market.

The regulations based on Articles 85 and 86 of the Treaty, in particular in section 6 of Form A/B with respect to Regulation 17, as well as in section 6 of Form CO with respect to regulation 4064/89 on the control of concentrations of a Community dimension have laid down the following definitions. Relevant product markets are defined as follows:

"A relevant product market comprises all those products and/or services which are regarded as interchangeable or substitutable by the consumer, by reason of the products' characteristics, their prices and their intended use."

Relevant geographic markets are defined as follows:

"The relevant geographic market comprises the area in which the undertakings concerned are involved in the supply and demand of products or services, in which the conditions of competition are sufficiently homogeneous and which can be distinguished from neighbouring areas because the conditions of competition are appreciably different in those areas".

The relevant market within which to assess a given competition issue is therefore established by the combination of the product and geographic markets. The Commission interprets the definitions at paragraphs 7 and 8 (which reflect the jurisprudence of the Court of Justice and the Court of First Instance as well as its own decisional practice) according to the orientations defined in this Notice.

Concept of relevant market and objectives of Community competition policy.

The concept of relevant market is closely related to the objectives pursued under Community competition policy. For example under the Community's merger control, the objective in controlling structural changes in the supply of a product/service is to prevent the creation or reinforcement of a dominant position as a result of which effective competition would be significantly impeded in a substantial part of the common market. Under the Community's

competition policy, a dominant position is such that a firm or group of firms would be in a position to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers (3). Such a position would usually arise when a firm or group of firms would account for a large share of the supply in any given market, provided that other factors analysed in the assessment (such as entry barriers, capacity of reaction of customers, etc.) point in the same direction.

The same approach is followed by the Commission in its application of Article 86 of the Treaty to firms that enjoy a single or collective dominant position. Under Regulation 17 the Commission has the power to investigate and bring to an end abuses of such a dominant position, which must also be defined by reference to the relevant market. Markets may also need to be defined in the application of Article 85 of the Treaty, in particular, in determining whether an appreciable restriction of competition exists or in establishing if the condition under Article 85 (3) b) for an exemption from the application of article 85(1) is met.

The criteria to define the relevant market are applied generally for the analysis of certain behaviours in the market and for the analysis of structural changes in the supply of products. This methodology, though, might lead to different results depending on the nature of the competition issue being examined. For instance, the scope of the geographic market might be different when analysing a concentration, where the analysis is essentially prospective, than when analysing past behaviour. The different time horizon considered in each case might lead to the result that different geographic markets are defined for the same products depending on whether the Commission is examining a change in the structure of supply,such as a concentration or a cooperative joint venture, or issues relating to certain past behaviour.

Basic principles for market definition.

Competitive constraints

Firms are subject to three main sources of competitive constraints: demand substitutability, supply substitutability and potential competition. From an economic point of view, for the definition of the relevant market, demand substitution constitutes the most immediate and effective disciplinary force on the suppliers of a given product, in particular in relation to their pricing decisions. A firm or a group of firms cannot have a significant impact on the prevailing conditions of sale, such as prices, if its customers are in a position to switch easily to available substitute products or to suppliers located elsewhere. Basically, the exercise of market definition consists in identifying the effective alternative sources of supply for the customers of the undertakings involved, both in terms of products/services and geographic location of suppliers.

The competitive constraints arising from supply side substitutability other then those described in para 20-23 and from potential competition are in general less immediate and in any case require an analysis of additional factors. As a result such constraints are taken into account at the assessment stage of competition analysis.

Demand substitution

The assessment of demand substitution entails a determination of the range of products which are viewed as substitutes by the consumer. One way of making this determination can be viewed, as a thought experiment, postulating a hypothetical small, non-transitory change in relative prices and evaluating the likely reactions of customers to that increase. The exercise of market definition focuses on prices for operational and practical purposes, and more precisely on demand substitution arising from small, permanent changes in relative prices. This concept can provide clear indications as to the evidence that is relevant to define markets.

Conceptually, this approach implies that starting from the type of products that the undertakings involved sell and the area in which they sell them, additional products and areas will be included into or excluded from the market definition depending on whether competition from these other products and areas affect or restrain sufficiently the pricing of the parties' products in the short term.

The question to be answered is whether the parties' customers would switch to readily available substitutes or to suppliers located elsewhere in response to an hypothetical small (in the range 5%-10%), permanent relative price increase in the products and areas being considered. If substitution would be enough to make the price increase unprofitable because of the resulting loss of sales, additional substitutes and areas are included in the relevant market. This would be done until the set of products and geographic areas is such that small, permanent increases in relative prices would be profitable. The equivalent analysis is applicable in cases concerning the concentration of buying power, where the starting point would then be the supplier and the price test allows to identify the alternative distribution channels or outlets for the supplier's products. In the application of these principles, careful account should be taken of certain particular situations as described under paragraphes 56 and 58.

A practical example of this test can be provided by its application to a merger of, for instance, soft drink bottlers. An issue to examine in such a case would be to decide whether different flavours of soft drinks belong to the same market. In practice, the question to address would be if consumers of flavour A would switch to other flavours when confronted with a permanent price increase of 5% to 10% for flavour A.. If a sufficient number of consumers would switch to, say, flavour B, to such an extent that the price increase for flavour A would not be profitable due to the resulting loss of sales, then the market would comprise at least flavours A and B. The process would have to be extended in addition to other available flavours until a set of products is identified for which a price rise would not induce a sufficient substitution in demand.

19. Generally, and in particular for the analysis of merger cases, the price to take into account will be the prevailing market price. This might not be the case where the prevailing price has been determined in the absence of sufficient competition. In particular for investigation of abuses of dominant positions, the fact that the prevailing price might already have been substantially increased will be taken into account.

Supply substitution

Supply-side substitutability may also be taken into account when defining markets in those situations in which its effects are equivalent to those of demand substitution in terms of effectiveness and immediacy. This requires that suppliers be able to switch production to the relevant products and market them in the short term [4] without incurring significant additional costs or risks in response to small and permanent changes in relative prices. When these conditions are met, the additional production that is put on the market will have a disciplinary effect on the competitive behaviour of the companies involved. Such an impact in terms of effectiveness and immediacy is equivalent to the demand substitution effect.

These situations typically arise when companies market a wide range of qualities or grades of one product; even if for a given final customer or group of consumers, the different qualities are not substitutable, the different qualities will be grouped into one product market provided that most of the suppliers are able to offer and sell the various qualities under the conditions of immediacy and absence of significant increase in costs described above. In such cases, the relevant product market will encompass all products that are substitutable in demand and supply, and the current sales of those products will be summed to calculate the total value or volume of the market. The same reasoning may lead to group different geographic areas.

A practical example of the approach to supply side substitutability when defining product markets is to be found in the case of paper. Paper is usually supplied in a range of different qualities, from standard writing paper to high quality papers to be used for instance to publish art books. From a demand point of view, different qualities of paper cannot be used for a specific use, i.e. an art book or a high quality publication cannot be based on lower quality papers. However, paper plants are prepared to manufacture the different qualities, and production can be adjusted with negligible costs and in a short time frame. In the absence of particular difficulties in distribution, paper manufacturers are able therefore to compete for orders of the various qualities, in particular if orders are passed with a sufficient lead time to allow to modify production plans. Under such circumstances, the Commission would not define a separate market for each quality of paper and respective usage. The various qualities of paper are included in the relevant market, and their sales added up to estimate total market value and volume.

When supply side substitutability would imply the need to adjust significantly existing tangible and intangible assets, additional investments, strategic decisions or time delays, it will not be considered at the stage of market definition. Examples where supply side substitution did not lead the Commission to enlarge the market are offered in the area of consumer products, in particular for branded beverages. Although bottling plants may in principle bottle different beverages, there are costs and lead times involved (in terms of advertising, product testing and distribution) before the products can actually be sold. In these cases, the effects of supply side substitutability and other forms of potential competition would then be examined at a later stage.

Potential competition

The third source of competitive constraint, potential competition, is not taken into account when defining markets, since the conditions under which potential competition will actually represent an effective competitive constraint depend on the analysis of specific factors and circumstances related to the conditions of entry. If required, this analysis is only carried out at a subsequent stage, in general once the position of the companies involved in the relevant market has already been ascertained, and such position is indicative of concerns from a competition point of view.

III EVIDENCE RELIED UPON TO DEFINE RELEVANT MARKETS.

The process of defining the relevant market in practice.

Product dimension

There is a range of evidence permitting to assess the extent to which substitution would take place. In individual cases, certain types of evidence will be determinant, depending very much on the characteristics and specificity of the industry and products or services that are being examined. The same type of evidence may be of no importance in other cases. In most cases, a decision will have to be based on the consideration of a number of criteria and different items of evidence. The Commission follows an open approach to empirical evidence, aimed at making an effective use of all available information which may be relevant in individual cases. The Commission does not follow a rigid hierarchy of different sources of information or types of evidence.

The process of defining relevant markets may be summarised as follows: on the basis of the preliminary information available or information submitted by the undertakings involved, the Commission will usually be in a position to broadly establish the possible relevant markets within which, for instance a concentration or a restriction of competition has to be assessed. In general, and for all practical purposes when handling individual cases, the question will usually be to decide on a few alternative possible relevant markets. For instance, with respect to the product market, the issue will often be to establish whether product A and product B belong or do not belong to the same product market. It is often the case that the inclusion of product B would be enough to remove any competition concerns.

In such situations it is not necessary to consider whether the market also includes additional products and reach a definitive conclusion on the precise product market. If under the conceivable alternative market definitions the operation in question does not raise competition concerns, the question of market definition will be left open, reducing thereby the burden on companies to supply information.

Geographic dimension

The Commission's approach to geographic market definition might be summarised as follows: it will take a preliminary view of the scope of the geographic market on the basis of broad indications regarding the distribution of market shares of the parties and their competitors as well as a

distribution of market shares of the parties and their competitors as well as a preliminary analysis of pricing and price differences at national and EU or EEA level. This initial view is used basically as a working hypothesis to focus the Commission's enquiries for the purposes of arriving at a precise geographic market definition.

The reasons behind any particular configuration of prices and market shares need to be explored. Companies might enjoy high market shares in their domestic markets just because of the weight of the past, and conversely, a homogeneous presence of companies throughout the EEA might be consistent with national or regional geographic markets. The initial working hypothesis will therefore be checked against an analysis of demand characteristics (importance of national or local preferences, current patterns of purchases of customers, product differentiation/brands, other) in order to establish whether companies in different areas do really constitute an actual alternative source of supply for consumers. The theoretical experiment is again based on substitution arising from changes in relative prices, and the question to answer is again whether the customers of the parties would switch their orders to companies located elsewhere in the short term and at a negligible cost..

If necessary, a further check on supply factors will be carried out to ensure that those companies located in distinct areas do not face impediments to develop their sales on competitive terms throughout the whole geographic market. This analysis will include an examination of requirements for a local presence in order to sell in that area, the conditions of access to distribution channels, costs associated with setting up a distribution network, and the existence or absence of regulatory barriers arising from public procurement, price regulations, quotas and tariffs limiting trade or production, technical standards, monopolies, freedom of establishment, requirements for administrative authorisations, packaging regulations, etc... In short, the Commission will identify possible obstacles and barriers isolating companies located in a given area from the competitive pressure of companies located outside that area, so as to determine the precise degree of market interpenetration at national, European or global level.

The actual pattern and evolution of trade flows offers useful supplementary indications as to the economic importance of each demand or supply factors mentioned above, and the extent to which they may or may not constitute actual barriers creating different geographic markets. The analysis of trade flows will generally address the question of transport costs and the extent to which these may hinder trade between different areas, having regard to plant location, costs of production and relative price levels.

Market integration in the European Union

Finally, the Commission also takes into account the continuing process of market integration in particular in the European Union when defining geographic markets, especially in the area of concentrations and structural joint ventures. The measures adopted and implemented in the internal market programme to remove barriers to trade and further integrate the community markets cannot be ignored when assessing the effects on competition of a concentration or a structural joint venture. A situation where national markets have been artificially isolated from each other because of the

existence of legislative barriers that have now been removed, will generally lead to a cautious assessment of past evidence regarding prices, market shares or trade patterns. A process of market integration that would, in the short term, lead to wider geographic markets may therefore be taken into consideration when defining the geographic market for the purposes of assessing concentrations and joint ventures.

The process of gathering evidence

When a precise market definition is deemed necessary, the Commission will often contact the main customers and the main companies in the industry to enquire into their views about the boundaries of product and geographic markets and to obtain the necessary factual evidence to reach a conclusion. The Commission might also contact the relevant professional associations, and where appropriate, companies active in upstream markets, so as to be able to define, insofar as necessary, separate product and geographic markets, for different levels of production or distribution of the products/services in question. It might also request additional information to the undertakings involved.

Where appropriate, the Commission services will address written requests for information to the market players mentioned above. These requests will usually include questions relating to the perceptions of companies about reactions to hypothetical price increases and their views of the boundaries of the relevant market. They will also include requests to provide the factual information the Commission deems necessary to reach a conclusion on the extent of the relevant market. The Commission services might also discuss with marketing directors or other officers of those companies to gain a better understanding on how negotiations between suppliers and customers take place and better understand issues relating to the definition of the relevant market. Where appropriate, they might also carry out visits or inspections to the premises of the parties, their customers and/or their competitors, in order to better understand how products are manufactured and sold.

The type of evidence relevant to reach a conclusion as to the product market can be categorised as follows .

Evidence to define markets - Product dimension.

An analysis of the product characteristics and its intended use allows the Commission, in a first step, to limit the field of investigation of possible substitutes. However, product characteristics and intended use are insufficient to conclude whether two products are demand substitutes. Functional interchangeability or similarity in characteristics may not provide in themselves sufficient criteria because the responsiveness of customers to relative price changes may be determined by other considerations also. For example, there may be different competitive constraints in the original equipment market for car components and in spare parts, thereby leading to a distinction of two relevant markets. Conversely, differences in product characteristics are not in themselves sufficient to exclude demand substitutability, since this will depend to a large extent on how customers value different characteristics.

The type of evidence the Commission considers relevant to assess whether

The type of evidence the Commission considers relevant to assess whether two products are demand substitutes can be categorised as follows:

Evidence of substitution in the recent past. In certain cases, it is possible to analyse evidence relating to recent past events or shocks in the market that offer actual examples of substitution between two products. When available, this sort of information will normally be fundamental for market definition. If there have been changes in relative prices in the past(all else being equal), the reactions in terms of quantities demanded will be determinant in establishing substitutability. Launches of new products in the past can also offer useful information, when it is possible to precisely analyse which products lost sales to the new product.

There are a number of quantitative tests that have specifically been designed for the purpose of delineating markets. These tests consist of various econometric and statistical approaches: estimates of elasticities and cross-price elasticities (5) for the demand of a product, tests based on similarity of price movements over time, the analysis of causality between price series and similarity of price levels and/or their convergence. The Commission takes into account the available quantitative evidence capable of withstanding rigorous scrutiny for the purposes of establishing patterns of substitution in the past.

Views of customers and competitors. The Commission often contacts the main customers and competitors of the companies involved in its enquiries, to gather their views on the boundaries of the product market as well as most of the factual information it requires to reach a conclusion on the scope of the market. Reasoned answers of customers and competitors as to what would happen if relative prices for the candidate products would increase in the candidate geographic area by a small amount (for instance of 5%-10%) are taken into account when they are sufficiently backed by factual evidence.

Consumer preferences. In cases of consumer goods, it might be difficult for the Commission to gather the direct views of end consumers about substitute products. Marketing studies that companies have commissioned in the past and that are used by companies in their own decision making as to pricing of their products and/or marketing actions may provide useful information for the Commission's delineation of the relevant market. Consumer surveys on usage patterns and attitudes, data from consumer's purchasing patterns, the views expressed by retailers and more generally, market research studies submitted by the parties and their competitors are taken into account to establish whether an economically significant proportion of consumers consider two products as substitutable, taking also into account the importance of brands for the products in question. The methodology followed in consumer surveys carried out ad-hoc by the undertakings involved or their competitors for the purposes of a merger procedure or a procedure under Regulation 17 will usually be scrutinized with utmost care. Unlike pre-existing studies, they have not been prepared in the normal course of business for the adoption of business decisions.

Barriers and costs associated with switching demand to potential substitutes. There are a number of barriers and costs that might prevent the Commission from considering two prima facie demand substitutes as belonging to one single product market. It is not possible to provide an exhaustive list of all

the possible barriers to substitution and of switching costs. These barriers or obstacles might have a wide range of origins, and in its decisions, the Commission has been confronted with regulatory barriers or other forms of State intervention, constraints arising in downstream markets, need to incur specific capital investment or loss in current output in order to switch to alternative inputs, the location of customers, specific investment in production process, learning and human capital investment, retooling costs or other investments, uncertainty about quality and reputation of unknown suppliers, and others.

Different categories of customers and price discrimination. The extent of the product market might be narrowed in the presence of distinct groups of customers. A distinct group of customers for the relevant product may constitute a narrower, distinct market when such group could be subject to price discrimination. This will usually be the case when two conditions are met: a) it is possible to identify clearly which group an individual customer belongs to at the moment of selling the relevant products to him, and b) trade among customers or arbitrage by third parties should not be feasible.

Evidence to define markets - Geographic dimension.

The type of evidence the Commission considers relevant to reach a conclusion as to the geographic market can be categorised as follows:

Past evidence of diversion of orders to other areas. In certain cases, evidence on changes in prices between different areas and consequent reactions by customers might be available. Generally, the same quantitative tests used for product market definition might as well be used in geographic market definition, bearing in mind that international comparisons of prices might be more complex due to a number of factors such as exchange rate movements, taxation and product differentiation.

Basic demand characteristics. The nature of demand for the relevant product may in itself determine the scope of the geographical market. Factors such as national preferences or preferences for national brands, language, culture and life style, and the need for a local presence have a strong potential to limit the geographic scope of competition.

Views of customers and competitors. Where appropriate, the Commission will contact the main customers and competitors of the parties in its enquiries, to gather their views on the boundaries of the geographic market as well as most of the factual information it requires to reach a conclusion on the scope of the market when they are sufficiently backed by factual evidence.

Current geographic pattern of purchases. An examination of the customers' current geographic pattern of purchases provides useful evidence as to the possible scope of the geographic market. When customers purchase from companies located anywhere in the EU or the EEA on similar terms, or they procure their supplies through effective tendering procedures in which companies from anywhere in the EU or the EEA do submit bids, the geographic market will be usually considered to be Community-wide.

Trade flows/pattern of shipments. When the number of customers is so large

Trade flows/pattern of shipments. When the number of customers is so large that it is not possible to obtain through them a clear picture of geographic purchasing patterns, information on trade flows might be used alternatively, provided that the trade statistics are available with a sufficient degree of detail for the relevant products. Trade flows, and above all, the rational behind trade flows provide useful insights and information for the purpose of establishing the scope of the geographic market but are not in themselves conclusive.

Barriers and switching costs associated to divert orders to companies located in other areas. The absence of transborder purchases or trade flows, for instance, does not necessarily mean that the market is at most national in scope. Still, barriers isolating the national market have to identified before concluding that the relevant geographic market in such a case is national. Perhaps the clearest obstacle for a customer to divert its orders to other areas is the impact of transport costs and transport restrictions arising from legislation or from the nature of the relevant products. The impact of transport costs will usually limit the scope of the geographic market for bulky, low value products, bearing in mind that a transport disadvantage might also be compensated by a comparative advantage in other costs (labour costs or raw materials). Access to distribution in a given area, regulatory barriers still existing in certain sectors, quotas and custom tariffs might also constitute barriers isolating a geographic area from the competitive pressure of companies located outside that area. Significant switching costs in procuring supplies from companies located in other countries constitute additional sources of such barriers.

On the basis of the evidence gathered, the Commission will then define a geographic market that could range from a local dimension to a global one, and there are examples of both local and global markets in past decisions of the Commission.

The paragraphes above describe the different factors which might be relevant to define markets. This does not imply that in each individual case it will be necessary to obtain evidence and assess each of these factors. Often in practice the evidence provided by a susbset of these factors will be sufficient to reach a conclusion, as shown in the past decisional practice of the Commission.

IV CALCULATION OF MARKET SHARES.

The definition of the relevant market in both its product and geographic dimensions allows to identify the suppliers and the customers/consumers active on that market. On that basis, a total market size and market shares for each supplier can be calculated on the basis of their sales of the relevant products on the relevant area. In practice, the total market size and market shares are often available from market sources, i.e. companies' estimates, studies commissioned to industry consultants and/or trade associations. When this is not the case, or also when available estimates are not reliable, the Commission will usually ask each supplier in the relevant market to provide its own sales in order to calculate total market size and market shares.

If sales are usually the reference to calculate market shares, there are

nevertheless other indications that, depending on the specific products or industry in question, can offer useful information such as, in particular, capacity, the number of players in bidding markets, units of fleet as in aerospace, or the reserves held in the case of sectors such as mining.

As a rule of thumb, both volume sales and value sales provide useful information. In cases of differentiated products, sales in value and their associated market share will usually be considered to better reflect the relative position and strength of each supplier.

V ADDITIONAL CONSIDERATIONS.

There are certain areas where the application of the principles above has to be undertaken with care. This is the case when considering primary and secondary markets, in particular, when the behaviour of undertakings at a point in time has to be analysed under Article 86. The method to define markets in these cases is the same, i.e. to assess the responses of customers based on their purchasing decisions to relative price changes, but taking into account as well constraints on substitution imposed by conditions in the connected markets. A narrow definition of market for secondary products, for instance, spare parts, may result when compatibility with the primary product is important. Problems of finding compatible secondary products together with the existence of high prices and a long life time of the primary products may render relative price increases of secondary products profitable. A different market definition may result if significant substitution between secondary products is possible or if the characteristics of the primary products make quick and direct consumer responses to relative price increases of the secondary products feasible.

In certain cases, the existence of chains of substitution might lead to the definition of a relevant market where products or areas at the extreme of the market are not directly substitutable. An example might be provided by the geographic dimension of a product with significant transport costs. In such cases, deliveries from a given plant are limited to a certain area around each plant by the impact of transport costs. In principle, such area could constitute the relevant geographic market. However, if the distribution of plants is such that there are considerable overlaps between the areas around different plants, it is possible that the pricing of those products will be constrained by a chain substitution effect, and lead to define a broader geographic market. The same reasoning may apply if product B is a demand substitute for products A and C. Even if products A and C are not direct demand substitutes they might be found to be in the same relevant product market since their respective pricing might be constrained by substitution to B.

From a practical perspective, the concept of chains of substitution has to be corroborated by actual evidence, for instance related to price interdependence at the extremes of the chains of substitution, in order to lead to an extension of the relevant market in an individual case. Price levels at the extremes of the chains would have to be as well of the same magnitude.

(1) The focus of assessment in state aid cases is the aid recipient and the industry/sector concerned rather than identification of competitive constraints faced by the aid recipient. When consideration of market power

and therefore of the relevant market are raised in any particular case, elements of the approach outlined here might serve as a basis for the assessment of state aid cases

(2) For the purposes of this notice, the undertakings involved will be in the case of a concentration the parties to the concentration. In investigations under Article 86 of the Treaty, the undertaking being investigated or the complainants. For investigations under Article 85, the parties to the agreement.

(3) Definition given by the Court of Justice in Hoffmann La Roche (CJEC Sentence of 13.02.1979, case 85/76), and confirmed in subsequent judgements.

(4) i.e. the period which does not imply a significant adjustment of existing tangible and intangible assets (see para 23).

(5) Own price elasticity of demand for product X is a measure of the responsiveness of demand for X to percentage change in its own price. Cross-price elasticity between products X and Y is the resposiveness of demand for product X to percentage change in the price of product Y.

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Competition in the supply of petrol in the UK

May 1998

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Office of Fair Trading
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OFT 229	**Competition in the supply of petrol in the UK** (**365KB**).	May 1998

Competition in the supply of petrol in the UK

Foreword

The UK petrol industry is an important and dynamic market. In the period since the last Monopolies and Mergers Commission report in 1990 there have been significant changes, particularly in the retail structure of the market, that have impacted directly on the consumer. In today's petrol market, the retailer is obliged to offer a much wider range of products and services in order to compete, not only with other oil company-supplied outlets, but with major supermarket petrol retailers. The scale on which the supermarkets operate provide them with a cost advantage that has been passed on to the consumer through competitive pump prices. This has led the major oil companies, and smaller wholesalers alike, to reduce the cost of their operations in order to meet this challenge.

For the consumer, price competition between the supermarkets and oil majors has contributed to petrol prices falling in real terms (minus tax and duty) by about a third since 1990, for ordinary unleaded petrol from 15.3 p per litre in February 1990 to 10.0 p per litre in February 1998 and for

leaded petrol from 15.2 p per litre to 10.2 p per litre over the same period. There have also been improvements in the range and quality of other products and services offered by petrol retailers. I believe that this is what vigorous competition is all about and I am pleased to see that the petrol industry has responded. However, I recognise that this high level of competition and consumer benefit has not been without cost. For the industry itself, it has meant the closure of large numbers of mainly small and independent retail outlets as industry profit margins have fallen from their previous levels and oil companies have reviewed their networks, marketing strategy and product offer. I acknowledge that these pressures have caused both uncertainty and hardship for many petrol wholesalers and retailers and that site closures, particularly in more isolated areas, may have an adverse effect on local communities.

Higher petrol prices at the pumps in rural areas reflect lower sales volumes, proportionately higher unit costs and higher costs of distribution. For example, most of the 4 to 5 p per litre differential in prices between North West Scotland and the rest of the UK is accounted for by this, the rest being accounted for by the intense competition in urban areas that has developed in recent years.

This review of the market has taken evidence from all the major players in the market and from others, including the smaller independent retailers. I am grateful to all those who responded to requests for information and a considerable amount of data, and to those who sent in their views on the state of competition in the industry. The data were processed by National Economic Research Associates (NERA) who worked closely with my officials in the preparation of this report. I endorse the recommendations in this report.

This review has concluded that the petrol market is competitive and that there are no grounds for me to intervene at the present time. However, I will continue to monitor developments in the industry.

John S Bridgeman,
Director General of Fair Trading

SUMMARY

Issues

This report details the findings and conclusions of the Office of Fair Trading (OFT) following its review of the UK retail petrol market. The review was essentially a follow up to the Monopolies and Mergers Commission (MMC) 1990 report The Supply of Petrol. It focused on the key indicators identified by the MMC, namely:

- structure;
- prices; and
- profitability.

In reviewing competition within the market the OFT also considered whether there is any evidence of:

- predatory behaviour;
- collusion; or
- exclusionary behaviour

and whether any of these types of behaviour are likely to occur in the future.

The market

Supermarkets have grown continuously and significantly over the period since the publication of the MMC report in 1990. The retail networks of the non-supermarket suppliers, including the two biggest retail networks (Esso and Shell), have declined markedly over the same period. The number of company-owned petrol stations has though risen as a proportion of all petrol stations. The number of independent retailers which own their own sites (excluding supermarkets) has declined since 1990.

According to the OFT Survey (see Chapter 8), around 13,000 retail sites were supplied with petrol in the year to December 1996, and about 27.8 billion litres of petrol were supplied at retail level by the oil refiners and wholesalers. There are over 5,000 sites fewer than when the MMC last looked at this market while the volume of petrol supplied has remained more or less static. Supermarket volumes have, however, grown at the expense of the traditional roadside sites.

Average site throughput has increased since the last MMC report. In 1996, the average throughput of a supermarket was typically about three times that of an average company-owned site and eight times that of an average dealer-owned site. Non-petrol revenues have also continued to grow in importance over the period.

Prices

There are some differences in the cost of producing leaded and unleaded petrol and in the duty levied on each. However, unleaded and leaded petrol prices behave in a similar way because of the similar downstream market forces each product faces. Petrol prices have continued to vary from region to region with urban prices being generally lower than prices in rural areas. In this respect, the review did not find any evidence to suggest that the MMC's conclusions from its 1990 report were invalid, namely that higher prices in rural areas reflect lower sales volumes, proportionately higher unit costs and higher costs of distribution. Higher petrol prices at the pumps in rural areas reflect lower sales volumes, proportionately higher unit costs and higher costs of distribution. For example, most of the 4 to 5 p per litre differential in prices between North West Scotland and the rest of the UK is accounted for by this. However, price differences between rural and urban localities have been exacerbated to an extent by very keen price competition in urban areas but prices, even in rural areas, appear still to have come down in real terms since 1989 (for example, the average price of leaded petrol in North West Scotland fell from 14.9 to 14.4 p per litre between January 1989 and November 1996).

Overall, petrol prices in the UK in real terms (ie minus tax and duty) fell by about a third in the eight years to February 1998. The price of ordinary unleaded petrol fell from 15.3 p per litre in February 1990 to 10.0 p per litre in February 1998 and the price of leaded petrol fell from 15.2 p per litre to 10.2 p per litre in the same period.

Profitability

The OFT's review looked at each of the five kinds of participants in the market: refining oil majors (BP/Mobil, Esso, Shell and Texaco); other refiners (mini-majors); non-refining wholesalers, supermarkets and independent retailers. Downstream operations have produced lower margins than upstream activities. Aggressive pricing strategies, coupled with strong competition from the supermarkets, are responsible for a downturn in profits.

Sales of products other than petrol form a substantial and increasing proportion of petrol wholesalers' and retailers' total turnover. These other activities contribute around a half of wholesaling profits. All the majors have expanded non-petrol sales on their forecourts.

Most refiners have reported losses on refining activities and have done so for a number of years. The main cause is over-capacity and over-supply throughout Europe, coupled with declining demand for some products.

Mini-majors have performed relatively poorly over the last six years, with margins typically lower than those of the better performing majors. The larger mini-majors have performed better overall than the smaller ones. Some companies are looking to withdraw from petrol wholesaling, others are strengthening their presence in the market. The relatively poorer performance of the smaller companies has been a contributory factor in the recent restructuring activity seen in this sector. These companies have tended to earn profits on refining but have been less profitable in wholesaling. For the most part, these companies have returned wholesaling losses in almost all of the last five years.

The non-refining sector has experienced low and negative margins on wholesaling and would appear be the most vulnerable in a sustained price war. Many of the companies are related to larger parent companies. Whether they will stay in the market is, to some extent, dependent on the willingness of the parent companies to support their UK activities and their future expectations.

Supermarket sales volumes have increased rapidly over the period. Up until 1994, the margin on sales also increased for all of the supermarkets. Between 1994 and 1997, all the supermarkets show profitability in petrol sales declining and, in some cases, turning negative. The decline in profits is blamed on more aggressive pricing strategies adopted by the oil majors. Since 1997, profits may well have risen as gross margins have improved to close to their 1993 levels.

Many independent retailers have left the market in the face of the strong competition between supermarkets and the oil majors and many others have required support from their suppliers to keep going.

Regulatory issues

There are two regulatory matters which appear to merit further consideration to ensure that all players in the petrol retailing sector are able to operate on as level a playing field as possible, namely the question of the rating regime to be applied to petrol retailers in the future and the differential stock obligations between refiner and non-refiner owned retail outlets. These are discussed in Chapter 12. The OFT will pursue these matters with the relevant Government departments.

Conclusions

Supermarket expansion has fundamentally changed the market place in the period since the MMC last reported on this industry in 1990. Since then, supermarkets' market share has grown from 5% to around 23%. The oil companies have responded by diversifying into other product lines and concentrating on higher volume sites. These strategies, coupled with keen pricing policies (most notably in the period since 1995) have affected smaller retailers the most. As the smaller retailers tend to be the dealer-owned sites, it is this sector which has experienced the most closures. Small volume sites in rural areas, where there is little or no competition, are more likely to survive than those operating in more competitive urban areas.

The review did not find any evidence to suggest that petrol prices, across the UK, reflected either predatory or collusive behaviour on the part of either suppliers or retailers. For predation to be feasible it must be possible to recoup losses by charging higher prices in the future as the result of the exit of one or more competitors. The OFT considers it unlikely that supermarkets will be

forced to exit. As such, it is unlikely that oil companies would be able to raise their prices without competition forcing them down again. In relation to the allegation that it is the dealer-owned sector that is the target of the oil companies aggressive pricing strategies, as opposed to the supermarkets, we have concluded that, so long as competition between supermarkets and oil companies remains, it is unlikely that competition will suffer. In urban areas, dealer-owned sites compete against supermarkets and a wide range of oil company-owned sites; in rural areas such sites are not threatened by this intense competition.

The diversity of suppliers (and alternative potential supply sources) suggests that collusive behaviour would be difficult, at either retail or wholesale level. Refusal to supply certain classes of retailer or non-refining wholesalers might damage retail competition, if it were to lead to fewer retail brands or to limit the ability of the non-refining brands from competing aggressively for fear of being refused supplies. The information gathered by the OFT suggests that there are unlikely to be supply difficulties in the near future, and probably not in the longer term either. The conclusion should remain valid in the future, provided competition between supermarkets, and between supermarkets and the oil companies, remains vigorous.

Overall, we found that the market is operating competitively and does not warrant any intervention now. However, the market will require monitoring to ensure that competition between the major players does not become muted should it become more concentrated.

Recommendations and further action

The OFT proposes to:

- examine carefully any further UK refinery consolidation or refiner joint ventures to ensure that non-refining wholesalers and supermarkets can continue to obtain competitively priced supplies based on Rotterdam prices;
- ask the Valuation Office to give consideration in the forthcoming review of business rates (which are due to be set in 2000) to adjusting business rates for petrol retailers so that they are proportionate to turnover in the supply of petrol, thus removing the favourable position supermarkets' sites might increasingly enjoy over other retail sites as the average site throughput increases;
- continue discussion with the Department of Trade and Industry about petrol stock holding regulations imposed on petrol suppliers in the light of the review being undertaken by the European Commission to ensure that the regulatory burden is minimised and equalised as far as possible between market participants at the same level of distribution; and
- continue to monitor the industry as described in Annex 3.1, with the object of continually assessing the state of competition within it so that any market failure can be detected and acted upon promptly.

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