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Economics Revision Focus: 2004

AS & A2 Economics

Economies and Diseconomies of Scale

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Revision Focus on Economies and Diseconomies of Scale

AS Syllabus Requirements

Candidates should be able to give **examples of economies of scale**, recognise that they lead to **lower unit (average) costs** and may underlie the **development of monopolies**.

A2 Syllabus Requirements:

Candidates should understand the concept of the **minimum efficient scale of production** and its implications for the **structure of an industry** and the **ease of entry of new firms into a market**

What are economies of scale?

Economies of scale are the **cost advantages** that a business can exploit by **expanding their scale of production in the long run**. The effect of economies of scale is to **reduce the long run average (unit) costs of production** over a range of output.

These lower costs represent an improvement in **productive efficiency** and can feed through to consumers in lower prices. But economies of scale also give a business a competitive advantage in the marketplace. They lead to lower prices but also higher profits!

There are many different types of economy of scale. Depending on the particular characteristics of an industry or market, some are more important than others. And the extent to which economies of scale can be exploited depends on the nature of costs and production for a specific product. We shall return to this when we consider the concept of **minimum efficient scale**.

Internal economies of scale (IEoS)

Internal economies of scale arise from **the growth of the firm itself**. Examples include:

1. Technical economies of scale:

- a. Large-scale businesses can afford to invest in **expensive and specialist capital machinery** that reduces their average costs. For example, a national chain supermarket might invest in technology that improves stock control and helps to control costs. It would not, however, be viable or cost-efficient for a small corner shop to buy this technology. Capital equipment capable of producing thousands/millions of units of a product will only lead to economies of scale if there is **sufficient market demand** for the good or service. Otherwise the supplier will end up with excess capacity and higher unit costs
- b. **Specialisation of the workforce:** Within larger firms there splitting complex production processes into separate tasks in order to boost productivity. The division of labour in mass production of motor vehicles and in manufacturing electronic products is an example
- c. **The law of increased dimensions.** This is linked to the cubic law where doubling the height and width of a tanker or building leads to a more than proportionate increase in the cubic capacity – an important scale economy in distribution and transport industries and also in travel and leisure sectors

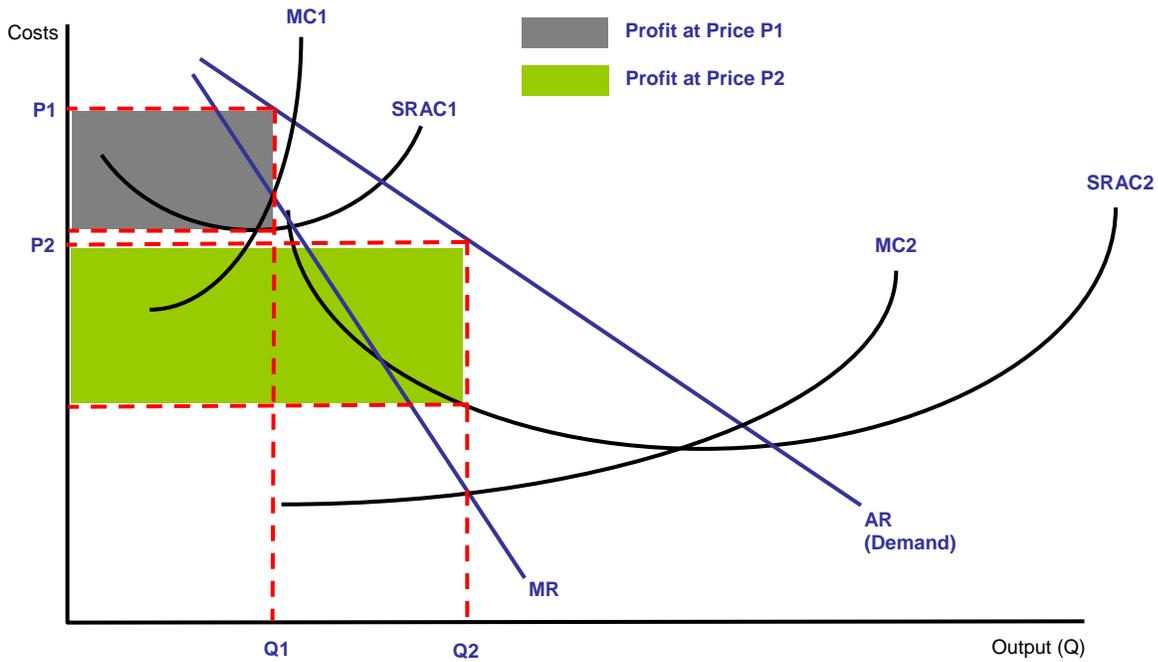
2. **Marketing economies of scale and monopsony power:** A large firm can spread its advertising and marketing budget over a much larger output and it can purchase its factor inputs in bulk at

negotiated discounted prices if it has monopsony (buying) power in the market. A good example would be the ability of the electricity generators to negotiate lower prices when negotiating coal and gas supply contracts. The major food retailers also have monopsony power when purchasing supplies from farmers and wine growers.

3. **Managerial economies of scale:** This is a form of division of labour. Large-scale manufacturers employ specialists to supervise production systems. Better management; investment in human resources and the use of specialist equipment, such as networked computers that improve communication raise productivity and reduce unit costs.
4. **Financial economies of scale:** Larger firms are usually rated by the financial markets to be more 'credit worthy' and have access to credit facilities, with favourable rates of borrowing. In contrast, smaller firms often face higher rates of interest on their overdrafts and loans. Businesses quoted on the stock market (or capital market) can normally raise fresh money (extra financial capital) more cheaply through the issue of equities. They are also likely to pay a lower rate of interest on new company bonds issued through the capital markets.
5. **Network economies of scale:** There is growing interest in the concept of a network economy of scale. Some networks and services have huge potential for economies of scale. That is, as they are more widely used (or adopted), they become more valuable to the business that provides them. The classic examples are the expansion of a common language, a common currency. We can identify networks economies in areas such as **online auctions, air transport networks**. The **marginal cost of adding one more user** to the network is close to zero, but the resulting benefits may be huge because each new user to the network can then interact, trade with **all** of the existing members or parts of the network. The rapid expansion of e-commerce is a great example of the exploitation of network economies of scale

Economies of scale – price, output and profits

Economies of scale allow a business / supplier to move onto lower average cost curves (e.g. from SRAC1 to SRAC2). A profit maximising producer will produce at a higher output (Q2) and charge a lower price (P2) as a result – but the total abnormal profit is also much higher (compare the two shaded regions). Both consumer and producer surplus



External economies of scale (EEoS)

External economies of scale occur outside of a firm, within an industry. Thus, when an industry's scope of operations expand due to for example the creation of a better transportation network, resulting in a subsequent decrease in cost for a company working within that industry, external economies of scale are said to have been achieved. Another good example is the development of research and development facilities in local universities that several businesses in an area can benefit from. Likewise, the relocation of component suppliers and other support businesses close to the main centre of manufacturing are also an external cost saving.

Economies of scope

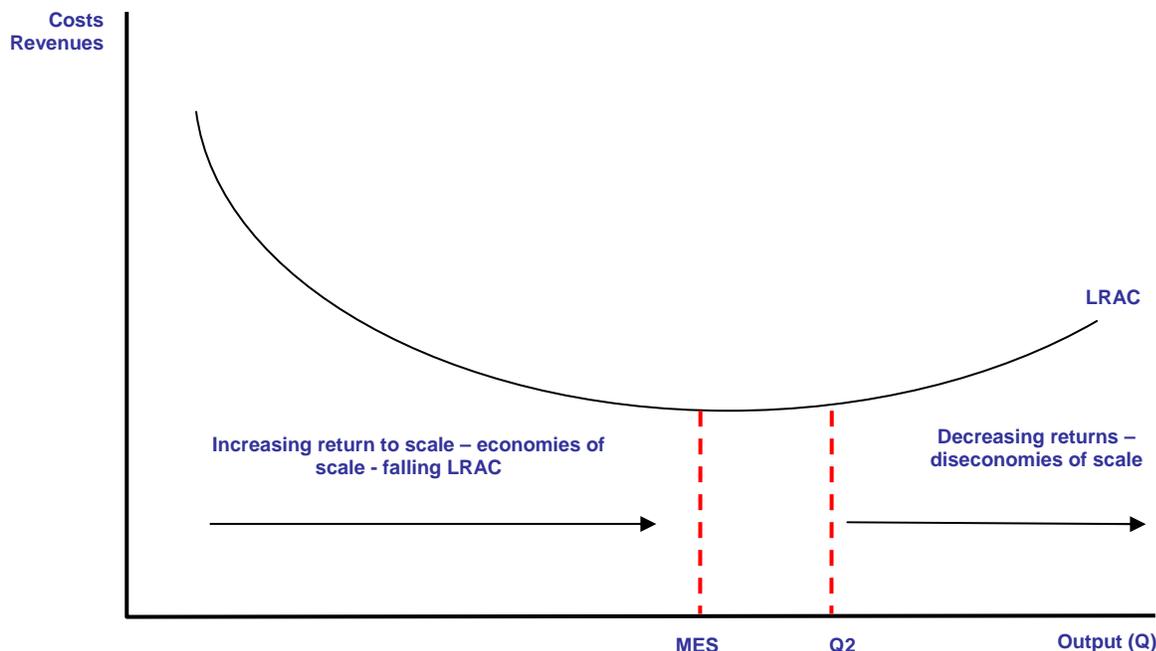
Economies of scope occur where it is cheaper to produce a range of products rather than specialize in just a handful of products. For example, in the increasing competitive world of postal services and business logistics, the main service providers (e.g. Royal Mail, Deutsche Post and the international parcel carriers including UPS, FedEx among others) are broadening the range of their services – making more effective use of their existing collection, sorting and distribution networks to reduce costs and earn higher profits from high-margin and fast growing markets. Express Dairies has won a licence to deliver business and household mail!

A company's management structure, administration systems and marketing departments are capable of carrying out these functions for more than one product. In the publishing industry, there might be substantial cost savings from using a team of journalists to produce more than one magazine.

The minimum efficient scale (MES)

The minimum efficient scale (MES) is the scale of production where the internal economies of scale have been fully exploited. It corresponds to the **lowest point on the long run average cost curve** and is also known as the output range over which a business achieves productive efficiency.

The MES is not a single output level – more likely we describe the minimum efficient scale as comprising a range of output levels where **the firm achieves constant returns to scale** and has reached the **lowest feasible cost per unit in the long run**.



The MES must depend on the **nature of costs in a particular industry**.

1. In industries where the **ratio of fixed to variable costs is high**, there is scope for reducing average cost by increasing the scale of output. This is likely to result in the long run in a highly concentrated market structure (e.g. an oligopoly) – indeed economies of scale may act as a **barrier to the entry of new firms** because existing firms have achieved significant cost advantages and they can force prices down in the event of new firms coming in
2. In contrast, there might be only limited opportunities for scale economies such that the MES is a small percentage of market demand. It is likely that the market will be highly competitive with many suppliers able to achieve the MES
3. With a **natural monopoly**, the long run average cost curve fall continue to fall over a huge range of output, suggesting that there may be room for perhaps only one or two suppliers to fully exploit the available economies of scale

Diseconomies of scale

Economies of scale cannot be exploited forever!

A firm may eventually experience a rise in LRAC caused by diseconomies of scale. Diseconomies are the result of decreasing returns to scale.

The **potential diseconomies of scale** a firm may experience relate to:

1. **Control** – monitoring the productivity and the quality of output from thousands of employees in big corporations is imperfect and costly – this links to the concept of the principal-agent problem – how best can managers assess the performance of their workforce when each of the stakeholders may have a different objective or motivation?

2. **Co-ordination** - it can be difficult to co-ordinate complicated production processes across several plants in different locations and different countries. Achieving efficient flows of information in large businesses is expensive as is the cost of managing supply contracts with hundreds of different suppliers at different points of an industry's supply chain
3. **Co-operation** - workers in large firms may feel a sense of alienation and subsequent loss of morale. If they do not consider themselves to be an integral part of the business, their productivity may fall leading to wastage of factor inputs and higher costs

Avoiding diseconomies of scale

1. Developments in **human resource management** are an attempt to avoid diseconomies of scale. HRM is a horrible phrase to describe improvements to procedures involving recruitment, training, promotion, retention and support of faculty and staff. This becomes critical to a business when the skilled workers it needs are in short supply. Recruitment and retention of the most productive and effective employees makes a sizeable difference to corporate performance in the long run (as does the flexibility to fire those at the opposite extreme!)
2. Likewise, **performance related pay schemes** can provide incentives for the workforce leading to an improvement in industrial relations
3. Increasingly companies are engaging in **out-sourcing** of manufacturing and distribution as they seek to supply to ever-distant markets.