# Economies and Diseconomies of Scale


This chapter focuses on long run costs, the effect of economies of scale on unit costs and the effects of economies of scale on prices and competition in markets.

**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 is to **reduce the long run average (unit) costs of production**.

These lower costs are an improvement in **productive efficiency** and can benefit consumers in the form of lower prices. But they can also give a business a competitive advantage too!

| Long Run Output (units per month) | Total Costs (£s) | Long Run Average Cost (£s per unit) |
|---|---|---|
| 1,000 | 8,500 | 8.5 |
| 2,000 | 15,000 | 7.5 |
| 5,000 | 36,000 | 7.2 |
| 10,000 | 65,000 | 6.5 |
| 20,000 | 120,000 | 6.0 |
| 50,000 | 280,000 | 5.6 |
| 100,000 | 490,000 | 4.9 |
| 500,000 | 2,300,000 | 4.6 |

There are many **different types of economy of scale** and depending on the particular characteristics of an industry, some are more important than others.

The answer is that scale economies have brought down the unit costs of production and feeding through to lower prices for consumers.

**Internal economies of scale**

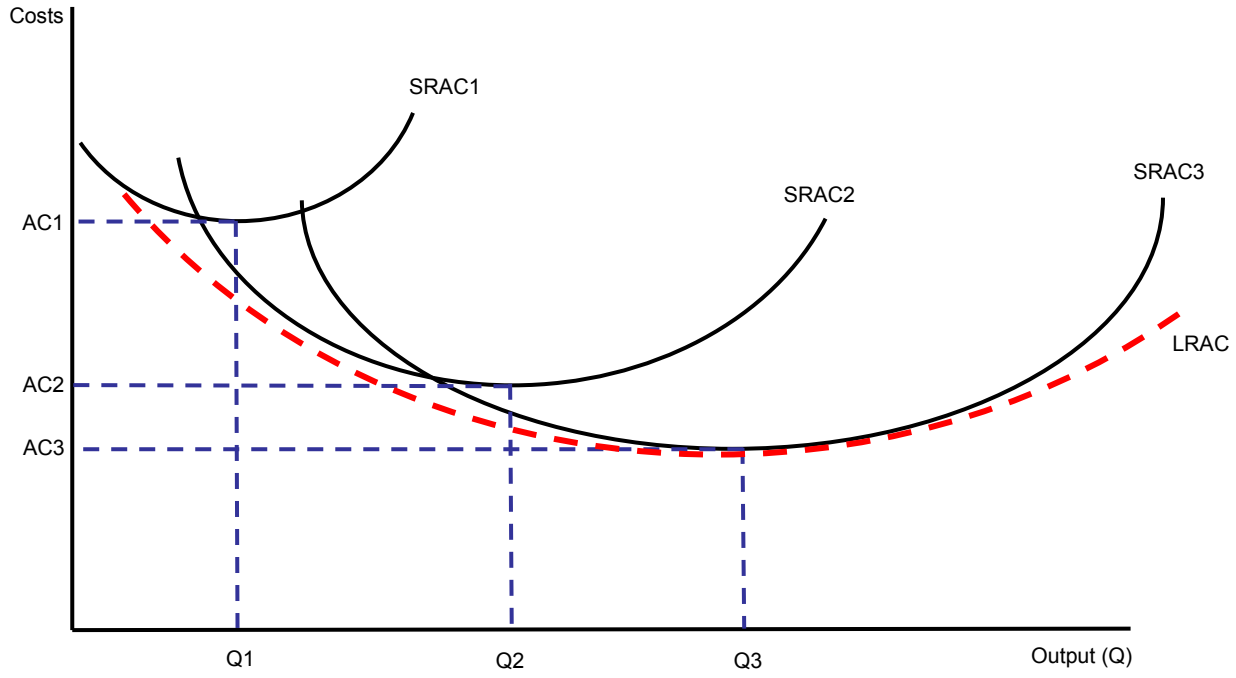
Internal economies of scale arise from **the growth of the business itself.** Examples include:

1. **Technical economies of scale**:
    a. Large-scale businesses can afford to invest in **expensive and specialist capital machinery**. For example, a supermarket chain such as Tesco or Sainsbury can invest in technology that improves stock control. It might not, however, be viable or cost-efficient for a small corner shop to buy this technology.
    b. **Specialization of the workforce**: Larger businesses split complex production processes into separate tasks 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 – this is 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 large output and it can purchase its 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 and oversee human resources.
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 overdrafts and loans. Businesses quoted on the stock market can normally raise fresh money (i.e. 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**: *This is a demand-side economy of scale.* Some networks and services have huge potential for economies of scale. That is, as they are more widely used they become more valuable to the business that provides them. The classic examples are the expansion of a common language and a common currency. We can identify networks economies in areas such as **online auctions**, **air transport networks**. Network economies are best explained by saying that 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 expansion of **e-commerce** is a great example of network economies of scale – how many of you are devotees of the EBay web site or Facebook?

## Illustrating economies of scale – the long run average cost curve

The diagram below shows what might happen to the average costs as a business expands from one scale of production to another. Each short run average cost curve assumes a given quantity of capital inputs. As we move from SRAC1 to SRAC2 to SRAC3, the scale of production is increasing. The long run average cost curve (drawn as the dotted line below) is derived from the path of these short run average cost curves.

Economies of scale are the advantages of large scale production that result in lower unit (average) costs (cost per unit)




**Exploiting economies of scale – TNT**

In January 2006, the market for postal services was opened up to competition thus ending the monopoly of the Royal Mail in the delivery of letters to households and businesses. Attention is now focusing on some of the likely rivals to the Royal Mail in the newly competitive market. One such business is TNT logistics. TNT Express Services was established in the UK in 1978, the company has developed its dominant position in the time-sensitive express delivery market through organic growth and, with an annual turnover in excess of £750 million. TNT employs 10,600 people in the UK & Ireland and operates more than 3,500 vehicles from over 70 locations. TNT Express Services delivers hundreds of thousands of consignments every week - in excess of 50 million items per year.

*Source: TNT investor relations web site*



*Why are economies of scale important for a business such as TNT?*
*What types of economies of scale might the business be able to exploit in the long run?*

**External economies of scale**

External economies of scale occur **within an industry**. Examples include the development of **research and development facilities in local universities** that several businesses in an area can benefit from and spending by a local authority on improving the transport network for a local town or city. Likewise, the **relocation of component suppliers** and other support businesses close to the main centre of manufacturing are also an external cost saving.

**Diseconomies of scale**

A firm may eventually experience a rise in average costs caused by diseconomies of scale.

**Diseconomies of scale** a firm might be caused by:

1. **Control** – monitoring the productivity and the quality of output from thousands of employees in big corporations is imperfect and costly.
2. **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. A fall in productivity means that workers may be less productively efficient in larger firms.
3. **Loss of control over costs** – big businesses may lose control over fixed costs such as expensive head offices, management expenses and marketing costs. There is also a risk that very expensive capital projects involving new technology may prove ineffective and leave the business with too much under-utilized capital.

**Do economies of scale always improve the welfare of consumers?**

- **Standardization of products:** Mass production might lead to a **standardization of products** – limiting the amount of consumer choice.
- **Lack of market demand:** Market demand may be insufficient for economies of scale to be fully exploited leaving businesses with a lot of spare capacity.
- **Developing monopoly power:** Businesses may use economies of scale to build up monopoly power and this might lead to higher prices, a reduction in consumer welfare and a loss of allocative efficiency.

- **Protecting monopoly power:** Economies of scale might be used as a **barrier to entry** – whereby existing firms can drive prices down if there is a threat of the entry of new suppliers