Lesson Eight

Economies of Scale

Aims

The aims of this lesson are to enable you to

- describe how economies of scale permit many firms to produce large quantities at a cheaper price
- explore the idea of wealth creation
- consider the influence of the government on economic processes

Context

In the last lesson you learnt about the way firms organise the production process in a market system. As well as looking at economies of scale, we will look briefly at wealth creation and the role the government plays in assisting or hindering this process.

Economies and Diseconomies of Scale

A firm experiences economies of scale if average cost falls as output increases. The term 'diseconomies of scale' refers to the opposite situation: as output increases, average cost also increases.

Internal Economies of Scale

Marketing

Large firms are able to afford to advertise more widely and one salesman can call on a retailer and sell more than one product in little extra time.

Technical

Technical economies of scale: these occur because different techniques and equipment can often be employed in large-scale production which cannot be adopted by small manufacturers.

The most recent example of this is the use of computers which may control all the stock of a firm. But such a method may not be economical for a firm with a small stock. Jumbo jets are another relatively recent example of a technical economy of scale. One pilot can take control of an aeroplane carrying 340 passengers with no more effort than a smaller plane carrying 140 people. Specialized machinery can now produce higher volumes of goods more quickly and more accurately than manual labour can. So in the car industry, for example, robots have replaced people on some production lines.

Financial

Financial economies of scale: banks are willing to lend money to large well known firms at a lower interest rate than to a small company.

Managerial

Managerial economies of scale: in its simplest form this means that one "boss" can take charge of one, five or even twenty more workers at little extra cost. It also means that a firm can afford to employ specialist sales and personnel managers.

Risk-bearing

Risk-bearing economies of scale: the large-scale producer can purchase raw materials from different sources so safeguarding against strikes or crop failures. It can also insure against changes

in taste, and so in demand, by diversifying into a number of products.

Activity 1	Can you think of any examples of companies that produce a range of products that are dissimilar enough to provide this kind of benefit?
	

External Economies of Scale

External economies of scale arise when an area becomes industrialised as the number of firms in an industry increases. They are especially important when a large number of firms from a single industry are concentrated in a relatively small area. These external economies include:

Skilled Labour

People within a particular area may become skilled at a specific occupation. Traditions are often handed down from generation to generation. Examples of this principle include the mechanical engineering skills associated with the West Midlands car industry and the Cowley works in Oxford, and in particular the handing down of traditional skills from father to son associated with the Morgan Car Company in the Worcestershire town of Malvern.

Infrastructure

Transport: local authorities and central government may find it worthwhile to provide a good system of road and rail links to new industrial estates. This will reduce firms' transport costs.

Ancilliary Firms

Component firms: **s**mall firms providing specialist services and components reduce transport costs and develop close links within an industry.

Diseconomies of Scale

Bureaucracy

The most important problem of a large firm is that its management becomes increasingly complex. The complex management structure means that administrative costs increase and the amount of bureaucracy prevents a large firm responding quickly to changes.

Decisions are passed from one level to another, and both customers and workers feel that the management is remote and impersonal.

Labour Relations

As firms increase in size, the relationship between employer and employee may become more adversarial. When workers feel that management is remote and impersonal, they may feel that industrial action (such as calling a strike) is the only way to communicate grievances to decision makers.

Productivity and Wealth Creation

The level of wealth per person (GDP per capita) rose from below £5,000 in the 1980s to £23,500 in 2008. Source:

www.oxfordeconomics.com/Free/pdfs/oxfordeconomicspressreleasejan08.pdf Accessed 09/06/2009

How does this increase in wealth happen? The answer is through improved productivity. Productivity is the amount of output that can be produced for a given amount of input - for example, how much a worker can produce in one hour. If workers, through new ways of working or the use of new technology, are able to increase

the amount of output they can produce in a given time, this will lead to an increase in the level of wealth per person. It will also:

- lower the cost of production
- improve competitiveness with other countries
- lead to higher wages

Factors Affecting Productivity

Land

The quality of farming land will affect the amount of output that can be produced from a given area. Hence, improving the quality of farming land will lead to an increase in the productivity of land. Fertilisers, irrigation, drainage and improved farming methods can all achieve an increase in productivity. There is less scope for increasing the productivity of natural resources such as oil reserves or diamond mines. Increased productivity in these areas will tend to come from advances in technology (see capital below).

Labour

As mentioned above, labour productivity can be increased by finding new ways of working. Labour productivity can also be increased through training and education – improving human capital (the levels of education and skill possessed by labour).

Capital

Investing in capital is perhaps the most important way to increase productivity. New machinery and IT systems can greatly increase the amount of work that a firm can do. Take an accountant, for example: before spreadsheet packages were available, everything had to be done with pen and ink and a calculator. Calculations that now take seconds would have taken much longer in the past.

Externalities: Costs and Benefits

Externalities are costs and benefits which are the result of production but which are not accounted for in a firm's costs and revenues. Externalities are either negative (when an external cost is involved) or positive (when an external benefit is involved). Pollution is an example of a negative externality. When a producer is deciding how much of a good to produce, it will only take its own private costs and benefits into account. If it produces pollution in the process, however, this will cause an external cost to those living nearby. Similarly, when deciding whether or not to drive through

Oxford, motorists consider only the benefits and costs to themselves of doing so (private costs and benefits), and thereby contribute to the costs to other road users from increased congestion (external cost).

Social Cost

The social cost of an economic activity is the private cost plus the external cost:

Social Cost = Private Cost + External Cost

This gives us the true cost of the activity: the cost borne by society as a whole. Because, when a negative externality exists, the individual or firm making the decision of how much to produce or whether or not to drive (in the two examples above) bears only a part of the cost of the activity, the firm will produce too much pollution and the motorist will drive too much.

Social Benefit

Some activities produce benefits that are received by members of society other than the individual undertaking the activity. These benefits to third parties are known as external benefits. When someone chooses to consume education, he or she will receive benefit in the form of increased future earnings and the sheer enjoyment of learning (at least I hope so!). Others may also benefit: higher earners pay more tax, educated people are good for economic growth and the international competitiveness of a country, and more professionals such as doctors and teachers provide obvious benefits for society as a whole. We can show social benefit with the following equation:

Social benefit = Private Benefit + External Benefit

Whereas external costs lead to overproduction or overconsumption, external benefits lead to under consumption. If these external benefits were taken into account, more education would be consumed.

Activity 2	Think of two examples of positive externalities and two examples of negative externalities. Explain how your examples fit the description of externalities.

Government Policy

Given that society would be better off if more goods with positive externalities were produced and consumed, and fewer goods with negative externalities, what, if anything, can government do to achieve this?

Taxation/Subsidies

First of all, taxes can be levied on negative externalities to reduce production or consumption. Taxes on petrol, for instance, can be used to reduce the amount of driving that people choose to do. When positive externalities are involved, government can use subsidies. Making education, or borrowing money, cheaper encourages consumption.

Fines

Fines can be used to reduce externalities. Fly-tipping (people dumping rubbish by the road, for example) causes costs to society – it is unpleasant to see and expensive to clean up. If there is a good chance that fly-tippers will be caught and given a heavy fine, less fly-tipping will take place.

Government Regulation

Governments can deal with externalities through regulation. A law can be made to limit the amount of a pollutant that may be emitted; cars may not be allowed within a certain area at certain times of the day; or an externality-producing good may be banned outright as happened with DDT or lead in petrol.

Suggested Answers to Activity One

Virgin would be a very good example. It owns, among other things, a record label, a train operator, a brand of cola, an airline and mobile phone network.

Unilever is another example, with brands such as Lynx deodorant, Dove soap, Flora spread, Wall's ice-cream, Hellman's mayonnaise, PG Tips tea, Surf washing powder and Sunsilk shampoo. Even if consumers stop buying mayonnaise, the firm has plenty of other irons in the fire, so that the risk of trade dropping off in all of its areas of business is very low.

Businesses that diversify in this way are often called **conglomerates**; see what other examples you can find.

Suggested Answers to Activity Two

Examples of positive externalities could include the benefit to society of a firm undertaking research and design (R&D) projects. If a firm spends money on developing a product but its discoveries are used by other firms to develop other products, a positive externality is present.

People who take care of their health by eating well, exercising and limiting harmful activities will benefit themselves but also others: if they are healthy, they will not pass on contagious illnesses to others who therefore receive an external benefit.

Negative externalities could include the noise generated by a raucous house party, causing a cost to neighbours who want to sleep; mercury in fish caused by coal-fired power stations; and the costs of street cleaning caused by littering.

There are many other examples that you could choose from. You could have a look through a newspaper and see how many examples you can find.

Tutor-marked Assignment C

Section A

1. Answer both of the following:

   a) Give a definition of variable cost and an example of a variable cost for a chip shop. (5 marks)

   b) Give a definition of fixed cost and an example of a fixed cost for a chip shop. (5 marks)

Section B: Data Response

2. Use the data in the following table to calculate the output of either A or B or C at which the firm will maximise profit. Assume in all cases that the cost of each worker is £20 per day and that the cost of materials is £1 per unit. The firm can only maximise profits by producing one of either A or B or C. Show **all** your workings. (20 marks)

	Total output per day		
No of workers	A	B	C
1	10	20	100
2	40	50	300
3	100	90	600
4	130	120	700
5	140	140	800
Selling Price	£1.33	£1.50	£1.10

Hypermarkets "Cut Costs"	
"Hypermarkets are the answer to keeping down prices" (claimed the managing director of Tesco)." "We can reduce shopping costs to the consumer by an overall 7 per cent." "This is not a matter of the big man versus the small man because good small men will always do	tremendously well among that area of the shopping public who insist on his type of service and are prepared to pay for it." "It is a fact, however, that there are many inefficient shopkeepers who are scraping a living at the expense of the consumer and the public are paying for the inefficiency."

3. Read the above excerpt from a newspaper report on hypermarkets and then answer the following questions:

   (a) Do you think that all consumers benefit from the existence of hypermarkets? (5 marks)

   (b) Comment on the use of the word "costs" in paragraph 2. (3 marks)

   (c) The last paragraph was criticised in the following way:

   ''If shopkeepers are scraping a living, their profits are low, therefore prices are low so the public benefit from their inefficiency.''

   How would you answer this criticism? (12 marks)

Note You are required to write a maximum of six to seven lines on each of questions (a), (b) or (c). These are not full essay questions.

(Total for TMA: 50 marks)