

Edexcel OL

Economics

(code: 4EC1 01)

Unit 1

—The Market System



Chapter 08

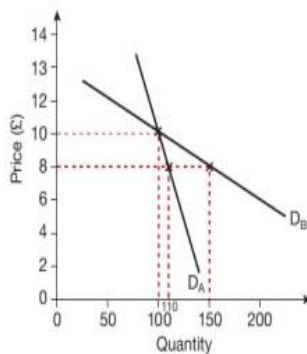
1.8 Price elasticity of demand

What is price elasticity of demand?

Price elasticity of demand is the responsiveness of demand to a change in price.

For example, product B's demand curve is more responsive to price changes, increasing from 110 units to 150 units, indicating a more pronounced demand response.

In Figure 8.1, for product A, the price change resulted in a small change in demand. The change in demand was not as big as the change in price. The price fell by 20 per cent but demand only increased by 10 per cent (from 100 units to 110 units).



▲ Figure 8.1 Effect of a price change on the demand for two different products: A and B

calculating price elasticity of demand

$$\text{Price elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

Interpreting the numerical value of elasticity

The values calculated above show whether demand is price elastic or price inelastic.

- Fraction or a decimal
- Perfectly inelastic
- Perfectly elastic
- Unitary elasticity

SUBJECT VOCABULARY

price elasticity of demand the responsiveness of demand to a change in price

SUBJECT VOCABULARY

perfectly elastic demand where $PED = \infty$ (an increase in price will result in zero demand)

perfectly inelastic demand where $PED = 0$ (a change in price will result in no change in the quantity demanded)

unitary elasticity where $PED = -1$ (the responsiveness of demand is proportionately equal to the change in price)

GENERAL VOCABULARY

fraction part of a whole number in mathematics, such as $\frac{1}{2}$ or $\frac{3}{4}$.

decimal fraction (= a number less than 1) that is shown as a full stop followed by the number of tenths, hundredths etc. – the numbers 0.5, 0.175 and 0.661 are decimals

infinity abstract concept describing something without any bound or larger than any number

PRICE INELASTIC DEMAND

SUBJECT VOCABULARY

inelastic demand change in price results in a proportionately smaller change in the quantity demanded (alternative term: price inelastic)

PRICE ELASTIC DEMAND

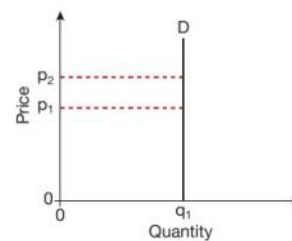
SUBJECT VOCABULARY

elastic demand change in price results in a greater change in the quantity demanded (alternative term: price elastic)

Price elasticity and the slope of the demand curve

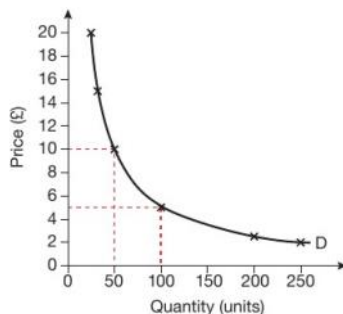
Figure 8.1 shows different demand curves for two products: steep for product A, common for inelastic demand, and flatter for product B, with special cases where PED is 0, infinite, or equal to -1.

Figure 8.3 displays a vertical demand curve for a good with perfectly inelastic demand, where price changes do not affect quantity demanded, indicating zero price elasticity.

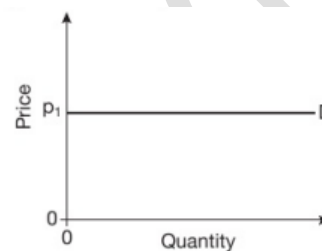


▲ Figure 8.3 Perfectly inelastic demand where $PED = 0$

Figure 8.4 displays a perfectly elastic demand curve for a good, where buyers purchase as much as possible at a price p_1 , resulting in infinite price elasticity.



▲ Figure 8.5 Demand curve with unitary elasticity



▲ Figure 8.4 Perfectly elastic demand where $PED = \infty$

The demand curve in Figure 8.5 represents a unique case of economics where price change has no effect on total revenue. This is a rectangular hyperbola with unitary elasticity, where total revenue remains constant at all prices. The relationship between PED and total revenue is discussed in detail.

Factors affecting price elasticity of demand.

AVAILABILITY OF SUBSTITUTES

Goods that have lots of close substitutes will tend to have elastic demand. This is because consumers can switch easily from one product to another.

DEGREE OF NECESSITY

Goods considered 'essential' by consumers will have inelastic demand. This is because if the prices of essentials, such as food and fuel rise, consumers cannot reduce the amounts they purchase significantly - they are necessities.

PROPORTION OF INCOME SPENT ON A PRODUCT

It may be argued that if consumers spend a large proportion of their income on a product, demand will be more elastic.

TIME

In the short term, goods have inelastic demand because it can often take time for consumers to find substitutes when the price rises.

The relationship between PED and total revenue

When there is a price change, there will be a change in the quantity demanded and therefore a change in total revenue. The value of price elasticity shows whether revenue will rise or fall following a price change. Consider the example shown in Figure 8.1. The demand for product A is price inelastic and the demand for product B is price elastic.

At the price of £10, the quantity demanded for both products are 100 units. However, when the price falls, the quantity demanded for product A rises to 110 units while the quantity demanded for B rises to 150 units. The different effects on total revenue for each product are outlined below.

For product A, when the price falls from £10 to £8 there is an increase in the quantity demanded from 100 units to 110 units. This means that total revenue will change. This is shown by the following calculations.

$$\text{When } P = £10 \text{ TR} = £10 \times 100 = £1000 \quad \text{When } P = £8 \text{ TR} = £8 \times 110 = £880$$

The price reduction from £10 to £8 has resulted in a £120 fall in total revenue (£1000 - £880). This shows that when demand is inelastic, a price cut will cause total revenue to fall. The opposite will happen if the price is increased. If demand is inelastic, a price increase will cause total revenue to rise.

For product B, when the price falls from £10 to £8, the quantity demanded rises from 100 units to 150 units. The effect on total revenue is calculated below.

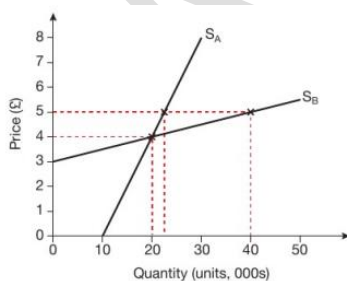
$$\text{When } P = £10 \text{ TR} = £10 \times 100 = £1000 \quad \text{When } P = £8 \text{ TR} = £8 \times 150 = £1200$$

Chapter 09

1.9 Price elasticity of supply

What is price elasticity of supply?

Price elasticity of supply (PES) is the relationship between the responsiveness of supply and price changes. For example, if a product's price increases by 25% to £5, the quantity supplied increases by 12.5%, but the quantity supplied is less than the price increase. This demonstrates that the supply of a product is more responsive to price changes.



▲ Figure 9.1 Effect of a price change in the supply of two different products: A and B

SUBJECT VOCABULARY

price elasticity of supply
responsiveness of supply to a change in price

SUBJECT VOCABULARY

fast-moving consumer good (FMCG)
goods, especially food, that sell very quickly and in large amounts

Calculating the value of price elasticity of supply

$$\text{Price elasticity of supply} = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$

SUBJECT VOCABULARY

inelastic supply change in price results in a proportionately smaller change in the quantity supplied (alternative term: price inelastic)

SUBJECT VOCABULARY

elastic supply change in price results in a proportionately greater change in the quantity supplied (alternative term: price elastic)

Interpreting the value of price elasticity of supply

The values calculated above show whether supply is price elastic or price inelastic.

■ If the value of PES is less than 1 (that is, a fraction or a decimal), supply is said to be inelastic. Product A in Figure 9.1 has inelastic supply because price elasticity is 0.5.

■ If the value of PES is greater than 1, supply is said to be elastic. The supply of product B in Figure 9.1 is price elastic because price elasticity is 4.

■ If PES = 0, supply is said to be perfectly inelastic.

■ If PES = ∞ , supply is perfectly elastic.

■ If PES = 1, supply has unitary elasticity.

SUBJECT VOCABULARY

perfectly elastic (supply) where PES = ∞ . (producers will supply an infinite amount at the given price)

perfectly inelastic (supply) where PES = 0 (the quantity supplied is fixed and cannot be adjusted whatever the price)

unitary elasticity (with regard to supply) where PES = 1 (a change in price will be matched by an identical change in the quantity supplied)

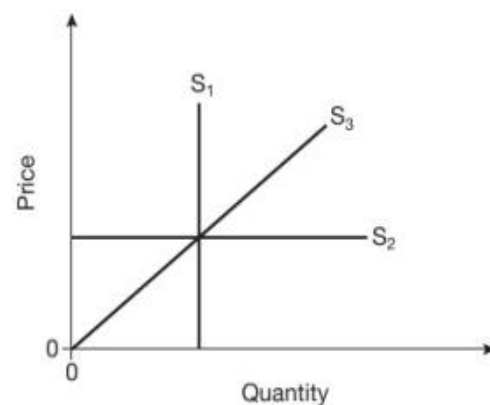
PRICE ELASTICITY AND THE SLOPE OF THE SUPPLY CURVE

The supply curves in Figure 9.1 has different slopes. For product A, the slope is steep and, generally, this shows that supply is price inelastic. There are also some special cases. They are shown Figure 9.3.

■ A perfectly inelastic supply curve, S_1 in Figure 9.3, is vertical. This means that a price change will not affect the quantity supplied at all. The quantity supplied is fixed and the value of PES in this case is zero.

■ A perfectly elastic supply curve, S_2 in Figure 9.3, is horizontal. This means that producers are prepared to supply any amount at a given price. The value of price elasticity in this case is infinite.

■ Any straight-line supply curve that passes through the origin, S_3 in Figure 9.3 has a price elasticity equal to 1. This means that the percentage change in price is always the same as the percentage change in the quantity supplied.



▲ Figure 9.3 Supply curves – special cases

Factors influencing PES.

FACTORS OF PRODUCTION

If producers have easy access to the factors of production such as labour, **raw materials**, energy, tools, and machinery, they will be able to boost production if necessary.

AVAILABILITY OF STOCKS

Producers that can hold stocks of goods can respond quickly to price changes so supply will be elastic. However, where it is impossible or expensive to hold stocks, supply will be inelastic.

SPARE CAPACITY

Supply will be more elastic if producers have spare capacity. With spare capacity, producers could produce more with their resources.

TIME

The speed with which producers can react to price changes in the market can affect PES. Generally, all producers can adjust output if they are given time. As a result, the more time producers must react to price changes, the more elastic supply will be. Where it is not possible to increase supply quickly, due to production limitations, supply will be inelastic.

PES FOR MANUFACTURED AND PRIMARY PRODUCTS

Producers' ability to react to changes in production depends on factors like elastic supply, flexibility in modern manufacturing, and raw material requirements. For example, car engine manufacturers can increase production by increasing output, while agricultural goods producers struggle to respond quickly to price changes.

Chapter 10

Income elasticity

What is income elasticity of demand?

Income elasticity of demand measures the responsiveness of demand to income changes. For example, if income increases by 10% and quantity demanded for product A rises by 25%, demand is income elastic, while demand for product B is income inelastic.

SUBJECT VOCABULARY

income elasticity of demand
responsiveness of demand to a change in income

CALCULATING INCOME ELASTICITY OF DEMAND

It is possible to calculate the income elasticity of demand for a good using the formula below:

Income elasticity of demand = $\frac{\text{percentage change in quantity demanded}}{\text{Percentage change in income}}$

INTERPRETING THE VALUE OF INCOME ELASTICITY OF DEMAND

NECESSITIES

Necessities are 'basic goods' that consumers need to buy. Examples include food in general, electricity and water. Demand for these types of goods will be income inelastic.

LUXURY GOODS

Luxuries are goods that consumers like to buy if they can afford them. Spending on these types of goods is called discretionary expenditure - this means that it is optional. Demand for these goods is income elastic.

SUBJECT VOCABULARY

discretionary expenditure non-essential spending or spending that is not automatic

NORMAL GOODS

The value of income elasticity can also show whether goods are normal or inferior for normal goods, where.

INFERIOR GOODS

For inferior goods, where, for example, an increase in income results in a decrease in the quantity demanded, the value of income elasticity will be negative. This shows that the quantity demanded, and income have an inverse relationship.

Price elasticity and business

Price elasticity can provide useful information for businesses. For example, it can help firms predict the effect of a price change on total revenue. When a firm changes its price, there will be a change in the quantity demanded and therefore a change in total revenue. It would be useful for the firm to know what effect a particular price change might have on total revenue.

Income elasticity and business

Many firms will be interested in income elasticity of demand. This is because changes in income in the economy may affect demand for their products. If firms know the income elasticity of demand for their products, they can respond to predicted changes in incomes.

Price elasticity and the government

INDIRECT TAXES

Governments often raise revenue by imposing indirect taxes such as value-added tax (VAT) and excise duty on products. It is important for governments to select products that have inelastic demand. This is because consumers will avoid heavily taxed products if demand for them is elastic.

SUBSIDIES

Governments might also consider PED when granting a subsidy to producers. The effect of a subsidy is to move the supply curve to the right (that is, to increase supply). If the subsidy is designed to help the poor by making the good cheaper, it is important that demand is price inelastic. If demand is not price inelastic, an increase in supply will only reduce the price slightly. This might

SUBJECT VOCABULARY

excise duty government tax on certain goods, such as cigarettes, alcoholic drinks and petrol that are sold in the country

valued-added tax (VAT) tax on some goods and services – businesses pay value-added tax on most goods and services they buy and if they are VAT registered, charge value-added tax on the goods and services they sell

Chapter 11

1.11 The mixed economy

An economy is a system that attempts to solve the basic economic problem: decision makers in an economy must decide what to produce, how to produce and for whom to produce. In any economy, goods and services may be provided by the public sector or the private sector.

Private sector organizations

OWNERSHIP AND CONTROL

Private sector businesses provide goods and services, including groceries and consumer durables, in many countries, varying in size and ownership type.

- **sole traders**: where the business is owned and controlled by one person (these are often retailers, and tradesmen such as plumbers, electricians, or taxi drivers)
- **partnerships**: where the business is owned and controlled by two or more people working together. They are often found in the **professions** and may operate as accountants, solicitors, estate agents and architects.
- **companies**: where **shareholders** own the business. They elect a board of directors to run the business on their behalf.

A minority of businesses are large but contribute enormously to the **provision** of goods and services. Some are multinationals, which means they have factories and other operations all over the world.

GENERAL VOCABULARY

provision the act of providing something that someone needs

AIMS

In the private sector, the aims of firms are likely to be determined by their owners. The main aim of most owners is to make a profit. However, several other aims need to be considered.

Survival: When a firm is first set up, many owners will not expect to make a profit immediately. It takes time to establish business and new business owners often encounter unexpected difficulties.

Profit maximization: The owners of most firms are in business to make a profit. Economic theory assumes that firms will aim to maximize profits. Companies pay their shareholders a share of the profit through a dividend. Many of these shareholders want **dividends**.

SUBJECT VOCABULARY

economy system that attempts to solve the basic economic problem
private sector provision of goods and services by businesses that are owned by individuals or groups of individuals
public sector government organisations that provide goods and services in the economy

GENERAL VOCABULARY

durables products that are intended to have a life of more than 3 years from when they are made or bought
groceries food and other goods that are sold by a grocer or a supermarket
professions careers that need a high level of education and training in order to work in them, traditionally including medicine, law, teaching

SUBJECT VOCABULARY

shareholders people or organisations that owns shares in a company

SUBJECT VOCABULARY

dividend part of a company's profit that is divided among the people with shares in the company

Growth: Many firms aim to grow because bigger businesses enjoy several advantages. Growth also means that profits will be higher in the future. Growth will also benefit other stakeholders such as workers, managers, and directors.

Social responsibility: An increasing number of firms aim to be good corporate citizens. This means they aim to please a wider range of stakeholders.

PUBLIC SECTOR ORGANISATIONS OWNERSHIP AND CONTROL

Public sector organizations are owned and controlled by local or central government. Some of the main examples are outlined below.

■ **Central government departments** - In the UK, central government departments like the Ministry of Defense, Department of Health, and Department for Transport are crucial for armed forces, health services, and transport systems.

■ **Public corporations, or state-owned enterprises (SOEs)**, are government-owned entities with a board of directors and key policies. They incorporate businesses with separate legal identities and are state-funded, with all **assets** and **liabilities** belonging to the state.

■ **Local authority services**, delivered by local councils, include recreation, such as libraries, sports halls, and swimming pools; emergency services, such as the provision of fire and police services; and housing, which includes the provision of council housing and facilities for the homeless.

■ **Other public sector organizations**, such as the BBC, the Post Office, the Bank of England, and Network Rail (all in the UK) are run by a trust or a board led by an experienced expert selected by a government body, or the Queen, following government advice.

AIMS

Public sector organizations have different aims from those in the private sector. Without aims, they are likely to deliver poor-quality services and waste resources. Each organization in the public sector will have its own specific aims depending on the services they provide. However, there will be some common themes.

■ **Improving the quality of services:** Public sector organizations generally aim to improve the standard of their services. Performance indicators may be used to monitor quality.

■ **Minimizing costs:** Government resources are scarce, and it is important that waste is minimized. In the past, public sector organizations have been criticized for being inefficient. As a result, the government is regularly looking for ways to cut costs in all areas.

■ **Allow for social costs and benefits:** Since their aim is not to make a profit, public sector organizations are better placed to consider the needs of a wide range of stakeholders. As a result, when making decisions they can consider externalities.

■ **Profit:** in some countries, the government owns several large businesses that aim to make a profit.

GENERAL VOCABULARY

sue to make a legal claim against someone, especially for an amount of money, because you have been harmed in some way

SUBJECT VOCABULARY

assets things or resources belonging to an individual or a business that has value or the power to earn money
liabilities amount of debt that is owed or must be paid

- A market or free enterprise economy relies least on the public sector for the provision of goods and services. The vast majority are provided by private businesses. Market forces, that is, supply and demand, determine the allocation of resources.
- A command or planned economy relies entirely on the public sector to choose, produce, and distribute goods. All resources in planned economies belong to the government and the state is responsible for planning, organizing, and coordinating the whole production process.
- A mixed economy (see below) relies on both the public sector and the private sector to provide goods and services. Currently, most countries have mixed economies.

The mixed economy

WHAT TO PRODUCE?

A mixed economy focuses on providing goods like consumer goods, such as food, clothes, and household services, through the private sector. The market system ensures businesses produce these goods, while the public sector provides goods like education, street lighting, roads, and protection. The private sector provides goods through competition, maximizing quality and minimizing costs. Public sector services are provided by government organizations, but some goods are produced by the private sector, such as roads and motorways.

FOR WHOM TO PRODUCE?

Private sector goods are sold to those able to afford them, with market systems determining allocation. Public sector goods are free, tax-funded, and state-provided for those unable to work due to illness or disability.

MARKET FAILURE AND THE NEED FOR GOVERNMENT INTERVENTION

EXTERNALITIES

Sometimes firms do not consider all the costs of production. For example, a firm producing chemicals may pollute the atmosphere because it has not taken measures to clean its waste. This imposes a cost on society, such as poor air quality.

LACK OF COMPETITION

A market may fail if there is no competition, and it becomes dominated by one or a small number of firms.

MISSING MARKETS

Some goods and services, called public goods, are not provided by the private sector. Examples include national defense, policing, and street lighting.

SUBJECT VOCABULARY

market failure where markets lead to inefficiency
mixed economy economy where goods and services are provided by both the private and the public sectors

GENERAL VOCABULARY

dominant more powerful, important, or noticeable than other people or things

SUBJECT VOCABULARY

merit goods goods that are under-provided by the private sector
public goods goods that are not likely to be provided by the private sector

LACK OF INFORMATION

Markets will only be efficient if there is a free flow of information to all buyers and sellers. Consumers need to know everything about the nature, price, and quality of all products. Businesses also need information about the resources and production techniques used to make a product.

FACTOR IMMOBILITY

Market efficiency requires mobile production factors like labour and capital to move freely.

- Businesses that impose externalities may be heavily regulated or fined for polluting the atmosphere, for example.
- The government can use legislation to prevent businesses from dominating markets. For example, it can investigate whether a merger is in the interests of consumers and block them if they are not.
- State money can be used to provide public goods and merit goods. Since these goods and services are important to the well-being of everyone, the public sector can provide them free of charge.
- To overcome the problem of poor information, the government can help by passing legislation forcing firms to provide more information about products. However, in recent years the internet has improved the flow of information about products.
- The government may be able to help to make some factors more mobile, such as retraining workers when their previous jobs become redundant. But it can do little to avoid the waste of the machine in the above example.

GENERAL VOCABULARY

legislation law or set of laws
merger occasion when two or more companies or organisations join together to form a larger company
regulated industry that is closely controlled by the government

The public sector and private sector in different economics

The balance between public and private sector activity in different economies varies. In countries like China, Hungary, Russia, Sweden, and the UAE, governments provide key public services while owning significant stakes in commercial organizations. Conversely, in countries like the USA, Singapore, and Australia, the state has less involvement in public service provision.

Chapter 12

Privatization

WHAT IS PRIVATISATION?

■ Sale of nationalized industries: Nationalized industries such as British Rail, British Airways and British Telecom were once private sector business organizations. However, for several reasons they were taken into public ownership.

SUBJECT VOCABULARY

privatisation act of selling a company or activity controlled by the government to private investors

■ **Contracting out:** Many government and local authority services have been 'contracted out' to private sector businesses. This is where contractors are given a chance to bid for services previously supplied by the public sector.

■ **The sale of land and property:** During the 1980s, people renting local, council-owned properties were given the right to buy their own homes. They were given generous discounts to persuade them to buy. As a result, about 1.5 million council-owned houses were sold to private individuals in the UK.

WHY DOES PRIVATISATION TAKE PLACE?

Different reasons have been put forward for privatization.

■ **To generate income:** The sale of state assets generates income for the government. Figure 12.1 shows the revenue raised globally by privatization between 2000 and 2015. The graph suggests that governments around the world are still keen to sell off state assets for money.

■ **Public sector organizations were inefficient:** Some nationalized industries lacked the **incentive** to make a profit and often made losses. It was argued that in the private sector they would have to cut costs, improve services, and return profits for shareholders. they would also be more **accountable**.

■ **To reduce political interference:** In the private sector, the government could not use these organizations for political aims. They would be free to choose their own investment levels, prices, product ranges and growth rates,

GENERAL VOCABULARY

accountable being responsible for the effects of your actions and willing to explain or be criticised for them

incentive something that is used to encourage people to do something, especially to make them work harder, produce more or spend more money

Effect of privatization

CONSUMERS

Privatization in the UK has led to improvements in efficiency, quality, and price for businesses. However, consumers have also experienced declines in price and service. For instance, the number of customers at risk of low water pressure has fallen by 99 per cent since the privatization of ten water providers in 1989. However, government subsidies for the rail industry have increased, leading to higher rail fares, and increased financial responsibility for taxpayers. Some UK politicians suggest renationalizing the railways to improve customer service.

WORKERS

Quite often in the run up to privatization, and after an organization has moved into the private sector, quite large numbers of people are made redundant. Although this may reduce costs, many see this as a negative effect.

BUSINESS

Once in the private sector, firms left without government interference and must face competition. They have been affected in several ways in the UK.

GOVERNMENT

The Polish government has almost completely stopped the privatization process. In 2016, a minister said that the privatization policies of previous governments were wrong and would be ended. Only companies in trouble, or those 'without importance to the national economy', would be sold off in future. One reason for the change in policy was that too many state-owned companies were the subject of a **hostile takeover** after privatization.

SUBJECT VOCABULARY

diversified if a company or economy diversifies, it increases the range of goods or services it produces

hostile takeover takeover that the company being taken over does not want or agree to

takeovers act of getting control of a company by buying over 50 per cent of its shares

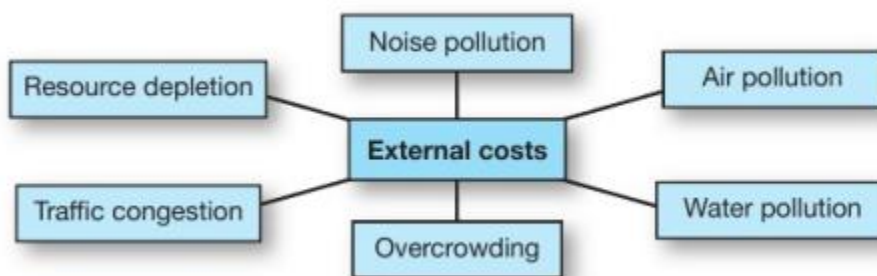
Chapter 13

1.13 Externalities

The Polish government has halted the privatization process, stating that previous policies were flawed and would only sell troubled or non-essential companies. The move was prompted by concerns about hostile takeovers and potential renationalization of some privatized companies.

External cost of production

Third parties, such as individuals, organizations, or resources, incur costs resulting from production activities. These costs are known as the spillover effects of production. Examples include the emissions discharged by waste management companies, which affected residents nearby.



GENERAL VOCABULARY

third parties someone who is not one of the two main people or organisations involved in an agreement or legal case

SUBJECT VOCABULARY

external costs negative spillover effects of consumption or production – they affect third parties in a negative way

External benefits of consumption

EDUCATION

Education benefits individuals by providing better jobs, higher earnings, and a better quality of life. It also benefits society by enabling skilled jobs like doctors, teachers, and pilots, leading to higher productivity and higher standard of living. Higher education also lowers unemployment and increases political participation.

SUBJECT VOCABULARY

external benefits positive spillover effects of consumption or production – they bring benefits to third parties

HEALTH CARE

Health care benefits individuals by improving their personal health, reducing pain, and enabling better work and enjoyment. It also benefits third parties, contributing to economic output and taxation.

VACCINATIONS

If an individual receives an injection to protect against an infectious disease, he or she benefits directly. This is obviously beneficial to the individual, but third parties will also benefit. This is because if more individuals are

given vaccinations to prevent infection, the likeliness of others (who do not get vaccinated) contracting disease is lower. This is because the number of people who might pass on the disease is reduced because they have been vaccinated.

Social cost

The production or consumption of a good will have costs that can be divided into private costs and external costs. Those who consume or produce goods meet private costs.

In production, the private cost to a property developer of building a retail Centre might be the US\$220 million financial cost of the project. The external costs might include the:

- noise generated from the development site during construction.
- congestion caused in the local area by construction vehicles and workers arriving and leaving the site each day.

The costs to society of an economic activity, the social cost, are made up of private costs and external costs.

Social cost = Private costs + External costs (negative externalities)

SUBJECT VOCABULARY

private costs costs of an economic activity to individuals and firms

SUBJECT VOCABULARY

social costs costs of an economic activity to society as well as the individual or firm

Social benefits

The benefits to society of an economic activity, the **social benefits**, are made up of private benefits and external benefits.

Social benefits = Private benefits + External benefits (positive externalities)

SUBJECT VOCABULARY

private benefits rewards to third parties of an economic activity, such as consumption or production

social benefits benefits of an economic activity to society as well as to the individual or firm

Government policies to deal with externalities.

TAXATION

Taxation can reduce production costs and consumption costs. For instance, a tax on a chemical firm can increase production costs and prices, leading to decreased demand and pollution. Conversely, taxes on cigarettes can reduce supply, raise prices, and reduce demand, but addiction may prevent significant decreases.

SUBSIDIES

Government subsidies can be used to incentivize firms to reduce external costs, such as building recycling plants or generating external benefits like solar energy. These incentives can stimulate demand, reduce 'dirty' energy production, and encourage, higher education.

FINES

In some countries, a system of fines is used to reduce external costs. For example, fines may be imposed on those who damage the environment.

GOVERNMENT REGULATION

Pressure has grown on governments in recent years to pass more legislation to protect the environment. Much of the pressure has emerged because of growing concerns about global warming. Many countries around the world have laws that are designed to protect the environment. Most of these laws are directed at businesses and aim to reduce the external costs of production.

POLLUTION PERMITS

Governments issue pollution permits to businesses, allowing them to discharge a certain amount of polluting material per year. These permits are 'tradable', allowing businesses to sell them if they reduce their pollution levels. This encourages companies to introduce new technology and raise profits.

GENERAL VOCABULARY

pollution permit government issued document that gives a business the right to discharge a certain quantity of a polluting material into the environment

Exam style questions

2023 January

1) Yusef paints portraits of tourists who visit his hometown. He recently reduced the price he charges by 2.5% and quantity demanded increased by 3.2%. (f) Calculate, to two decimal places, the price elasticity of demand (PED) for Yusef's portraits. You are advised to show your working.

2) Hong Kong telecommunications firm, CK Hutch, is planning to merge with Indosat which is based in Jakarta, Indonesia. Indosat provides services for mobile phones and broadband. It is a growing business, with a value of \$2.2bn and more than 60 million customers. Indonesia is Southeast Asia's most populated country.

(Source adapted from: <https://www.zdnet.com/article/ck-hutchison-and-ooredooindonesian-merger-to-create-indosat-ooredoo-hutchison/>)

With reference to the data above and your knowledge of economics, assess the extent to which a merger between CK Hutch and Indosat is likely to lead to economies of scale.

2022 MAY

1) Greg produces pottery at a small factory in his local area. At the start of the year price increased by 5.4% and quantity supplied increased by 4.7%. (f) Calculate, to two decimal places, the price elasticity of supply (PES) for Greg's pottery. You are advised to show your working.

2) Regulation was introduced by the German Government to reduce the number of plastic bottles being thrown away. A fee of €0.25 is added to the price of a product but is refunded when the bottle is returned. The new scheme is cheaper for the government and 98.5% of the bottles are now returned.

(i) With reference to the data above and your knowledge of economics, analyze the likely impact on externalities of this type of regulation

3) A restaurant in Cyprus can seat 136 diners each evening. The demand for seats from diners over three evenings is shown in Figure 5.

Evening	Quantity of seats demanded
Thursday	98
Friday	114
Saturday	107

Figure 5

(a) Calculate the excess supply of seats if the quantity supplied during these three evenings totalled 408. You are advised to show your working.

2021 NOVEMBER

1) A firm increases supply by 2.7% following a price increase of 4.9%. (d) Calculate, to two decimal places, the price elasticity of supply (PES) for the firm. You are advised to show your working.

2) High pollution levels in the busy Indonesian city of Jakarta are mainly due to the large volume of traffic. There are over 17 million vehicles registered in the area, each emitting fumes into the environment. The number of vehicles is increasing. In 2007, government regulations were introduced to reduce the volume of traffic in the city. For example, every Sunday morning, over 8km of Jakarta's roads are traffic-free as vehicles are banned. In 2016, it was reported that air quality had improved by 65% compared to the levels before the regulations were introduced.

(a) With reference to the data above and your knowledge of economics, assess the effectiveness of government regulations when dealing with externalities such as air pollution in Jakarta.

3) During the 2019 Cricket World Cup, supporters of teams such as India, Bangladesh, England, Pakistan, and Sri Lanka watched matches at stadiums and on television around the world. Pepsi was one of the main advertisers during the event.

(a) With reference to the data above and your knowledge of economics, analyse how the demand curve for Pepsi might have been affected during the 2019 Cricket World Cup.

b) The current retirement age in Singapore is 62. However, it will gradually be raised to 63 in 2022 and to 65 by 2030. People are living longer and the life expectancy in the country is now over 84 years. The

manufacturing sector contributes almost 25% of Singapore's Gross Domestic Product (GDP). The financial services sector, which is growing, is also making a significant contribution to GDP.

(c) With reference to the data above and your knowledge of economics, assess whether raising the retirement age is likely to be the most effective method to increase the supply of labour.

4) State-owned airline, Air India, currently offers a high number of domestic flights from both Mumbai and New Delhi. It also flies to destinations worldwide, including the US and Europe. However, it has reduced the number of countries it flies to, especially in other parts of Asia and Africa.

The Indian Government has announced plans to sell all its shares in the airline. Air India had been making a loss and struggling to pay oil companies for its fuel. However, the government reduced almost half of this debt before making the announcement to sell the airline.

(a) With reference to the data above and your knowledge of economics, evaluate whether Air India is likely to benefit from privatization.

2020 OCT

1) State one example of an external benefit.

2) Private facilities in which swimmers can change clothes are available at the swimming pool in Ciney, Belgium. The quantity demanded for these facilities during each of the first three months of 2019 is shown in Figure 1.

Month	Quantity of private facilities demanded
January	3,600
February	3,200
March	3,100

Figure 1

Calculate the excess demand for private changing facilities for the first three months of 2019 if the quantity supplied during each month was 3,000 (9,000 in total). You are advised to show your working.

3) (a) State the formula for price elasticity of supply (PES).

(b) Describe one reason why demand for a product usually becomes more price elastic over time.

(c) In the UK, the speed limit for drivers in urban areas is 30 miles per hour (48 kilometers per hour).

Explain one reason why the UK Government may use fines to reduce the negative externalities caused by drivers speeding in urban areas.

4) Financial data for a firm selling a selection of products is shown in Figure 5.

Product	X	Y
Price	\$1 500	\$1 650
Quantity sold	25	20
Total revenue	$\$1\,500 \times 25$	$\$1\,650 \times 20$
PED	-0.39	-1.46

Figure 5

Calculate the total revenue for the product that has a price elasticity of demand (PED) which is elastic. You are advised to show your working.

2020 January

1) Calculate the income elasticity of demand (YED) for a good if income increases by 25% and quantity demanded increases by 10%. You are advised to show your work.

2) Calculate the price elasticity of supply (PES) for a product when price increases by 30% and quantity supplied increases by 36%. You are advised to show your working.

3) There are many reasons for firework displays. The 'bang', 'pop' and 'whizz' sounds, along with wide-ranging displays of colorful sparks are used to celebrate religious festivals and historical occasions, as well as private and public events. Some events charge an entry fee, but people are still able to see and hear the fireworks without entering the venues. Former military personnel have complained this can bring back negative memories relating to war experiences. It can also disturb animals that are frightened by the loud noises.

(a) With reference to the data above and your knowledge of economics, assess whether fireworks have more negative than positive externalities.

4) Value Added Tax (VAT) is an indirect tax that must be added to the price of most food and household goods. The rate of VAT in South Africa was increased from 14% to 15% on 1st April 2018. Both consumer spending and business confidence fell following this increase but a further rise in VAT is being discussed by the government. VAT is not currently added to the price of fruit, vegetables, and bread.

(a) With reference to the data above and your knowledge of economics, evaluate the usefulness of price elasticity of demand (PED) in helping the South African Government to decide whether to increase the rate of VAT