



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2022

Economics

Assessment Unit AS 1
assessing
Markets and Market Failure



SEC11

[SEC11]
MONDAY 16 MAY, MORNING

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number on the Answer Booklet provided.
Answer **all** questions in Sections **A** and **B** and **one** question in Section **C**.
You are permitted to use a calculator in this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 80.

- Section A: 25 Marks
- Section B: 35 Marks
- Section C: 20 Marks

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time. In questions involving calculations, you are advised to show your workings. Quality of written communication will be assessed in Questions **5**, **6(b)**, **(c)** and **(d)**, **7** and **8**. Quantitative skills will be assessed where appropriate.

Section A (25 marks)

Answer all questions

- 1 Twisty Puzzles is a small independent manufacturer of bespoke puzzles and games. The table below shows the total cost of producing various quantities of its new Puzzle Cube.

Quantity	Total cost (£)
1	8
2	11
3	12
4	13
5	17
6	22

With reference to the production of the 6th Puzzle Cube, explain the meaning of the term marginal cost. [3]

- 2 The table below shows price and income elasticity of demand estimates for cartons of cigarettes and packets of loose tobacco in Bulgaria in 2018.

Product	Price elasticity of demand	Income elasticity of demand
Cartons of cigarettes	-0.48	1.60
Packets of loose tobacco	-0.98	-0.80

- (a) Using the information in the table above, explain the difference between a normal good and an inferior good. [4]
- (b) Using the information in the table above, calculate the expected percentage change in the quantity demanded of a carton of cigarettes as a result of an increase in price from 56 Bulgarian Lev to 63 Bulgarian Lev. [4]

- 3** In the first quarter of 2019, more than two million used cars were sold in the UK with approximately 11% of these sales occurring online, up from less than 1% just five years ago. However, over the same period there has been a tenfold rise in the number of complaints and disputes between buyers and sellers regarding the quality of the cars purchased.

With reference to the source above, explain the term information asymmetry. [4]

- 4** In April 2019, the National Living Wage increased from £7.83 to £8.21 per hour. This new rate meant that the National Living Wage represented 59% of the UK's median wage rate, up from 46% when it was first introduced.

Using the information in the source above:

- (a)** Calculate (to the nearest penny) the median hourly wage rate for UK workers in April 2019. [2]

- (b)** Calculate the economic rent that would be earned in April 2019 by a worker on the National Living Wage who was willing to work for £7.00 per hour. [2]

- 5** In June 2019, Republic of Ireland Health Minister Simon Harris pledged to push ahead with plans to introduce a minimum price for alcohol along the lines of that introduced by the Scottish government in May 2018.

With the aid of an appropriate diagram, explain the likely impact on the consumer surplus of alcohol consumers of the introduction of a minimum price on alcohol. [6]

Section B (35 marks)

Answer all questions

The following article was written in January 2019. Read it carefully and answer the questions which follow.

6 Scotland drug death crisis

Drug-related deaths in Scotland soared by 27% in 2018 to reach a staggering 1,187, the highest figure since records began. On a per capita basis, Scotland's drug death rate is higher than in any EU country as shown in **Fig. 1** below. The 2018 drug death rate even puts Scotland above the USA, which was previously considered to be the highest in the world.

1

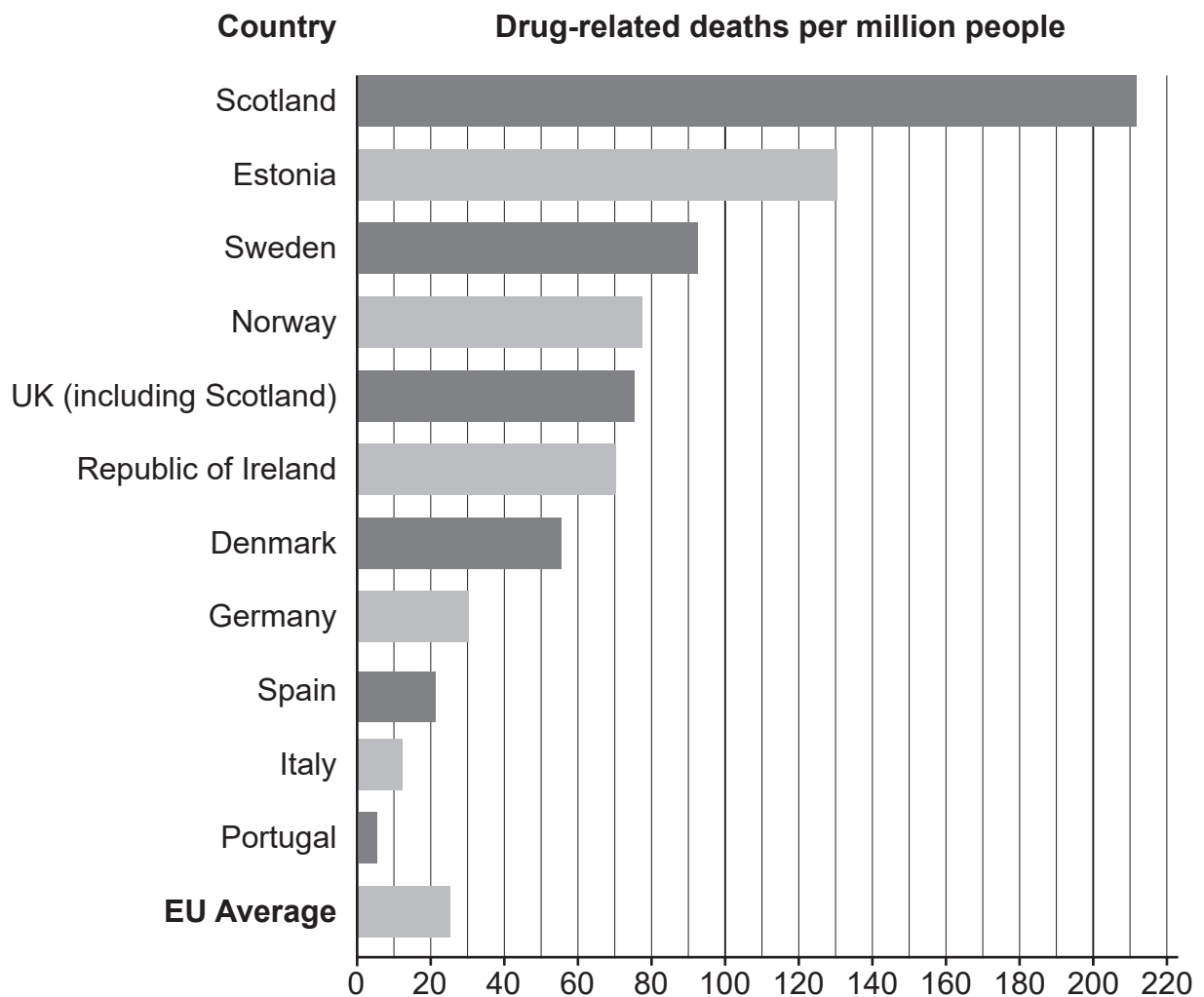


Fig. 1: Drug deaths per million people – selected countries 2018

Source: © Office for National Statistics. Contains public sector information licensed under the Open Government Licence v3.0

The figures caused the Scottish government to launch an inquiry into the causes and consequences of drug use in Scotland in an attempt to reduce the deaths. A preliminary report highlighted the significant negative externalities associated with drug use. The report claimed that excessive drug use was not only damaging drug users, but also the Scottish economy through lower productivity and output and increased public spending on health as a result of having to treat drug users. The report also highlighted the link between drug misuse and inequality. Figures published in the preliminary report suggest that drug use is 17 times higher in Scotland's poorer areas than in its richest. Dr Budd, a GP who contributed to the report, stated "if you look at drug and alcohol-related deaths these are very focused on people in deprived areas".

2

Scottish newspaper the *Daily Record* launched a campaign calling for the decriminalisation of drug use. Its editorial pointed out that Germany, Spain and Portugal were among 25 nations worldwide which had relaxed drug regulations and they also had some of the lowest drug death rates in the EU. It also suggested that the current UK policy of criminalising users and suppliers was failing to reduce either drug supply or drug use. The editorial claimed "the fact that the street price of drugs is continuing to fall despite rising demand suggests that the current policy of trying to punish both users and sellers is failing miserably".

3

Andy Cowan, a campaigner at pressure group "Anyone's Child", went even further and called for the full legalisation of drugs. He stated, "These recently published figures show that Scottish people of all ages and social classes are buying unsafe and in many cases lethal drugs from criminals and then consuming them without advice or supervision. This is resulting in a record number of deaths and misery for Scottish families. The government need to seize control of the manufacture and distribution of drugs such as heroin and cocaine from these criminal gangs by legalising their production, supply and use".

4

- (a) Using the information in **Fig. 1**, compare the drug death rate in Scotland with that in the UK, Germany, and Portugal. [5]
- (b) With the aid of an appropriate diagram, explain why the street price of drugs could fall even when demand is rising (paragraph 3). [6]
- (c) With the aid of an appropriate diagram, explain why drug use could be considered an example of market failure. [9]
- (d) Critically examine the proposal put forward by Andy Cowan that the government should legalise the production, supply and use of drugs such as heroin and cocaine. [15]

Section C (20 marks)

Answer one question

- 7** In 1965 economists categorised more than 20 countries as being centrally planned economies. By 2019 this number had fallen to just a handful, with most of the remaining countries having introduced significant market reforms in an attempt to increase economic growth and improve living standards.

Critically examine the view that centrally planned economies are ultimately detrimental to all economic agents. [20]

- 8** In 2019 the UK government spent over £17 billion on higher education, which represented approximately £7,400 per student enrolled at a higher education institution. Critics have argued that this level of government funding is unsustainable and that higher education should be left entirely to the free market.

Critically examine the view that the government should cease to fund higher education in the UK. [20]

THIS IS THE END OF THE QUESTION PAPER

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Surname	<i>StemUp Model Solution</i>
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

Question number	
1	<i>Marginal cost is the change in total cost from producing one additional unit of output ($MC = \Delta TC \div \Delta Q$).</i> <i>For the 6th Puzzle Cube: $MC = TC \text{ of } 6 - TC \text{ of } 5 = £22 - £17 = £5$. So producing the 6th cube adds £5 to Twisty Puzzles' total cost.</i>
2(a)	<i>A normal good has a positive income elasticity of demand ($YED > 0$): demand rises as income rises. Cartons of cigarettes are a normal good, with a YED of +1.60, so a 1% rise in income raises quantity demanded by 1.6% (income elastic).</i> <i>An inferior good has a negative YED: demand falls as income rises, as consumers switch to better alternatives. Loose tobacco is an inferior good, with a YED of -0.80, so a 1% rise in income cuts quantity demanded by 0.8%, as smokers switch to cartons.</i>
2(b)	<i>% change in price = $(63 - 56) \div 56 \times 100 = 7 \div 56 \times 100 = +12.5\%$.</i> <i>PED = % change in Qd $\div$ % change in price, so % change in Qd = PED $\times$ % change in price = $-0.48 \times 12.5\% = -6\%$.</i> <i>Quantity demanded of cartons of cigarettes is expected to fall by 6%.</i>
3	<i>Information asymmetry occurs when one party to an economic transaction has more (or better) information than the other party. In the used car market the seller knows much more about the true quality and history of the car than the buyer, so can exploit this to sell a poor quality car (a "lemon") at too high a price. Online, buyers cannot inspect or test drive the car, so the asymmetry is greater, which may explain why the share of online sales rising from under 1%</i>

to 11% has come with a tenfold rise in complaints and disputes.

4(a)

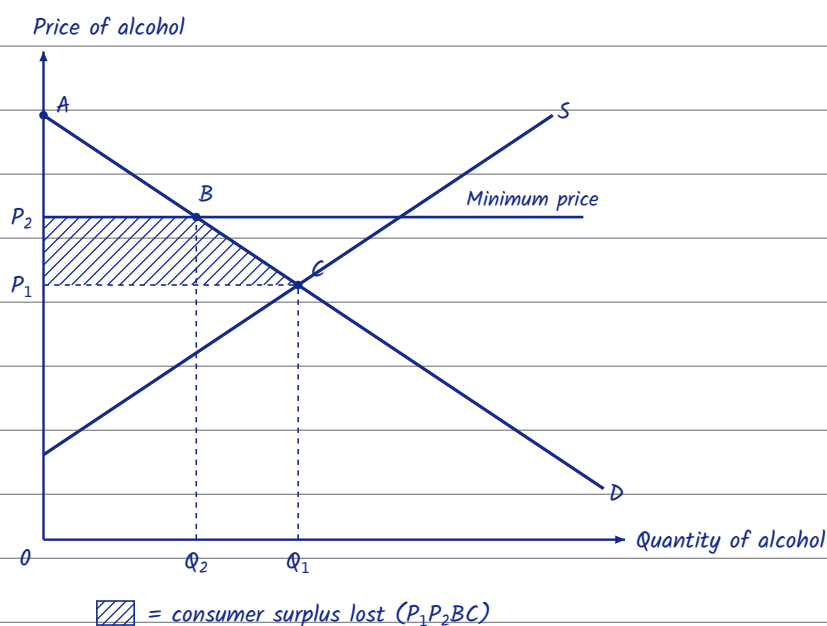
$\pounds 8.21 = 59\%$ of the median wage, so median wage = $\pounds 8.21 \div 59 \times 100 = \pounds 13.915... = \pounds 13.92$ per hour.

4(b)

Economic rent = wage earned - transfer earnings = $\pounds 8.21 - \pounds 7.00 = \pounds 1.21$ per hour.

5

Consumer surplus is the difference between the maximum price a consumer is willing to pay for a good and the price they actually pay, shown by the area below the demand curve and above the price. A minimum price is a legal price floor set by government above the free market equilibrium, below which alcohol cannot be sold (in Scotland 50p per unit).



As the diagram shows, in the free market the price is P_1 and quantity Q_1 , so consumer surplus is the triangle ACP_1 . When the minimum price is set at P_2 , above P_1 , consumers pay more and quantity demanded falls to Q_2 . Consumer surplus falls to the smaller triangle ABP_2 , a loss of the area P_1P_2BC . Part of this (P_1P_2B and the rectangle to Q_2) is transferred to producers as higher revenue on the units still bought, and the rest is lost because consumers who used to buy between Q_2 and Q_1 are priced out.

The size of the fall depends on price elasticity of demand. Demand for alcohol, especially by heavy or dependent drinkers, is price inelastic, so quantity falls only a little and drinkers keep buying at the higher price, losing a large amount of surplus as transfer to retailers. Consumers of cheap, strong alcohol such as own-brand vodka and cider lose most, while those buying drinks already above the floor, such as a pint in a pub, lose little.

6(a)

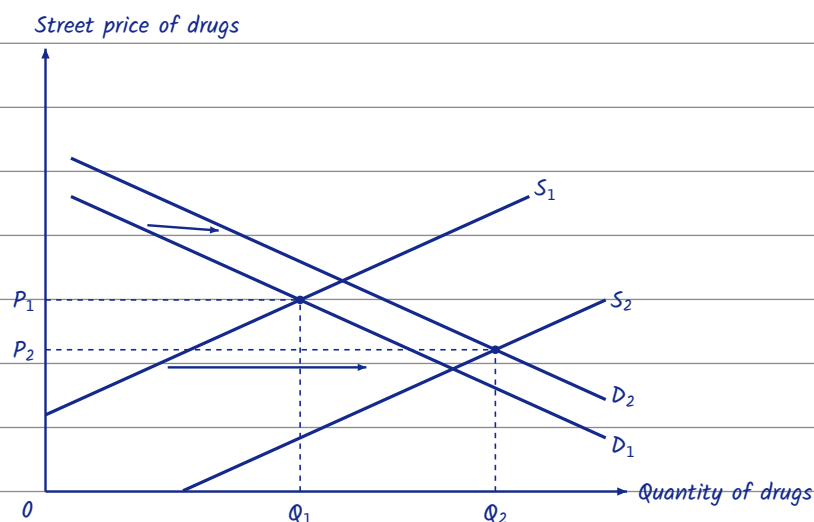
Scotland has the highest drug death rate in Fig. 1, about 211 deaths per million people, compared with about 76 for the UK (including Scotland), 30 for Germany and 5 for Portugal.

In absolute terms Scotland's rate is about 135 deaths per million higher than the UK, 181 higher than Germany and 206 higher than Portugal.

In relative terms Scotland's rate is almost 3 times ($211 \div 76 = 2.8$) the UK rate, 7 times ($211 \div 30 = 7.0$) Germany's and a massive 42 times ($211 \div 5 = 42$) Portugal's. Germany and Portugal have relaxed drug laws, which suggests their policies may be linked to far lower death rates.

6(b)

The street price of drugs is set by the interaction of demand and supply. Demand is rising, shifting the demand curve right from D_1 to D_2 , which on its own would raise the price. For the price to fall, supply must have increased by more than demand.



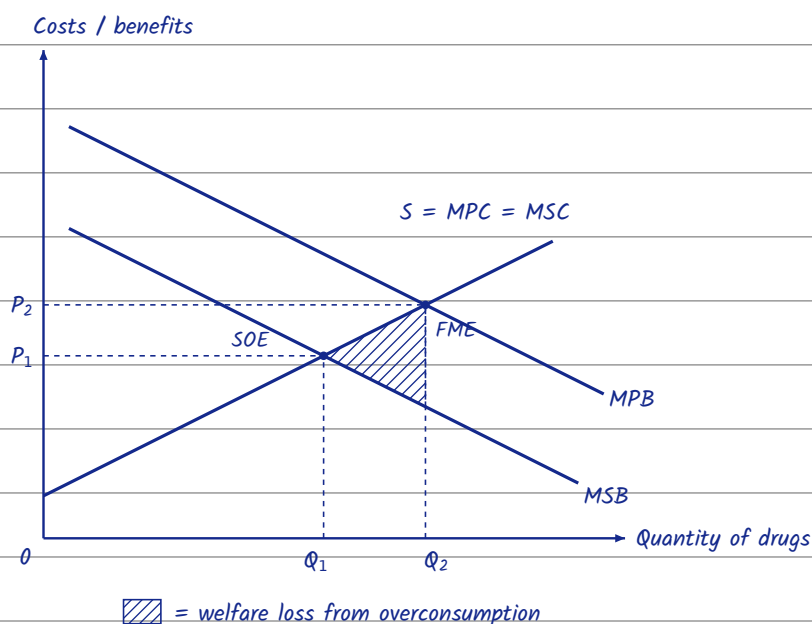
As the diagram shows, supply shifts right from S_1 to S_2 , a larger shift than demand. At the original price P_1 there is now excess supply, so dealers cut prices to sell their stock and the price falls to P_2 , while quantity rises from Q_1 to Q_2 . Supply may have increased because more criminal gangs have entered the market attracted by high profits, because production and smuggling costs have fallen, for example through new routes and cheaper synthetic drugs, or because enforcement is not deterring suppliers, so the risk premium in the price is falling. This supports the editorial's view that criminalising sellers is failing to reduce supply.

6(c)

Market failure occurs when the free market mechanism leads to an inefficient or inequitable allocation of resources, so that welfare is not maximised. Drugs are a demerit good: a good that is more harmful to the consumer and society than the individual realises, and so is overconsumed when left to the market.

First, drug use creates negative consumption externalities, costs to third parties outside the transaction. The report (paragraph 2) shows drug use damages the Scottish economy through lower productivity and output, and increases public spending on health because the NHS has to treat drug users. There are also costs of crime and the misery caused to families. These external costs mean the marginal social benefit (MSB) of drug use is below the marginal private benefit (MPB) that the user considers.

Second, there is information failure. Users may not be fully aware of the private costs of drugs, such as addiction, illness and the high risk of death (1,187 deaths in 2018, up 27%), especially as street drugs are unsafe and of unknown strength. Users also discount future costs, because the harm happens later while the benefit is immediate, so their MPB is overstated and consumption is too high even ignoring third parties.

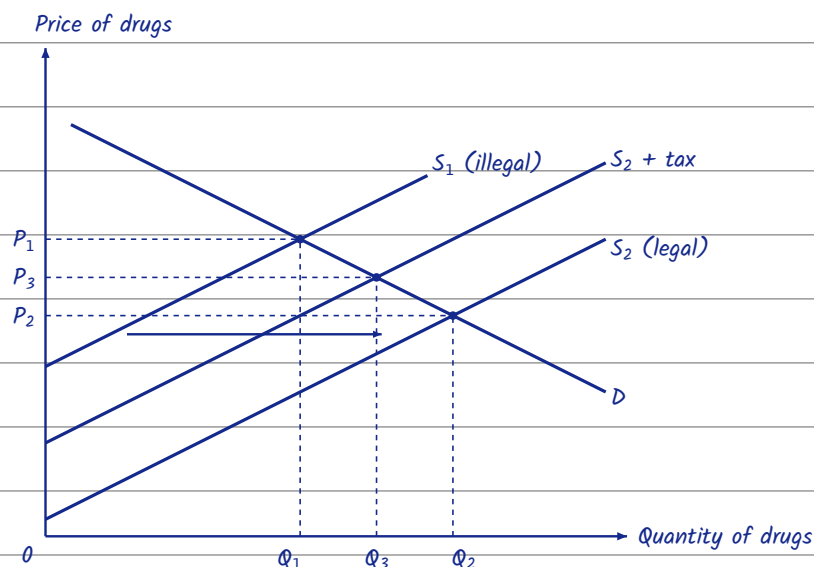


As the diagram shows, rational users consider only their private benefit, so the free market equilibrium (FME) is at Q_2 , where $MPB = MPC$. The socially optimal equilibrium (SOE) is at Q_1 , where $MSB = MSC$. Drugs are overconsumed by $Q_2 - Q_1$, and for each unit in this range the marginal social cost exceeds the marginal social benefit, creating the shaded welfare loss. Resources are misallocated, so there is market failure.

Third, the market is inequitable: drug use is 17 times higher in Scotland's poorest areas than in its richest, so the harm falls mostly on deprived communities, worsening inequality.

6(d)

Andy Cowan argues that drug production, supply and use should be legalised so that the government, rather than criminal gangs, controls the market. Legalisation would remove the risk and penalties of supplying drugs, so the costs of supply fall and supply shifts right from S_1 to S_2 in the diagram, lowering the price from P_1 to P_2 .



Supporters argue, first, that prohibition has failed. The editorial notes the street price of drugs is still falling despite rising demand and deaths reached a record 1,187 in 2018. Meanwhile Germany, Spain and Portugal, which relaxed their laws, have some of the lowest death rates in the EU: Portugal's is about 5 per million against Scotland's 211. Second, legal, regulated producers would have to meet quality standards, so drugs would be of consistent strength and not contaminated, and users could take them under advice and supervision, cutting deaths and the cost to the NHS. Third, prohibition hands the market to criminals who use violence to control it; legalisation would remove their profits and reduce drug-related crime, and addicts would not need to steal to feed their habit as prices fall. Fourth, enforcing drug laws through police, courts and prisons is very expensive. Legalisation saves this money, and a tax on drugs, as with tobacco and alcohol, would raise revenue. As the diagram shows, a tax shifts supply to $S_2 + \text{tax}$, so price rises to P_3 and the revenue could fund education about the dangers of drugs and treatment for addicts. Finally, there is the argument of individual freedom: "over himself, the individual is sovereign", so if an adult's drug use harms no one else the state has no right to ban it, and legal drugs such as alcohol and cigarettes are arguably just as harmful.

However, there are strong arguments against. Drugs are addictive, so users are not the best judges of their own interests and the government has a duty to protect

them. Legalisation would lower the price, from P_1 to P_2 , and make drugs more available, so consumption rises from Q_1 to Q_2 , moving further from the socially optimal level and increasing the negative externalities analysed in 6(c): lower productivity, higher health spending and family breakdown. It would also send the wrong signal that drug use is acceptable, raising demand, especially among young people. Unless the tax is high, consumption may still rise; but if it is set too high, a black market will survive, as with smuggled cigarettes, so the gangs remain. The external cost is hard to value, so the tax may be set at the wrong level, and since drug use is concentrated in poorer areas, the tax would be regressive.

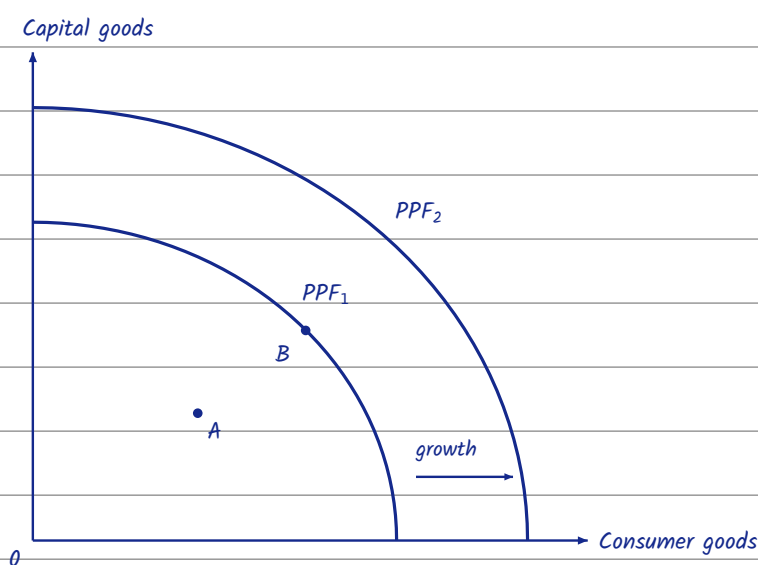
In conclusion, the case for legalisation is stronger than it first appears, as the evidence from Portugal and the failure of the current policy suggest prohibition is not reducing drug use or deaths. Whether it works depends on the price elasticity of demand (addicts' demand is inelastic, so a lower price may not raise their use much, while casual users may increase use), on setting a tax high enough to avoid a big rise in consumption but low enough to remove the black market, and on spending the revenue on treatment and education. Full legalisation of very harmful drugs such as heroin and cocaine is risky in the short run, so decriminalising use, as Portugal did, together with treatment, may be the better first step.

7

A centrally planned economy is an economic system in which the government, through a central bureaucracy, decides what to produce, how to produce it and for whom, rather than the price mechanism. Since 1965 the number of planned economies has fallen from more than 20 to a handful, such as North Korea and Cuba, as countries like China, Vietnam and the former Soviet states introduced market reforms. This suggests central planning did not benefit economic agents as hoped, but it is not clear it harmed all of them.

Consumers are often harmed. Without competition and a profit motive, firms have no incentive to respond to what consumers want, so choice is limited and goods

are often of poor quality. Planners cannot collect the vast amount of information about demand and supply that prices signal in a market, so they are slow to react to changes. Prices are fixed by government, so shortages and surpluses are common: in the Soviet Union consumers queued for basic goods. Shortages lead to shadow (black) markets and corruption, where those with connections gain. On the other hand, consumers do benefit from low, stable prices for essentials, so the poorest consumers may be better off than in a market economy where they could be priced out.



Producers and workers are also affected. State-owned firms are set output targets, so managers focus on quantity rather than quality or cost, and there is little incentive to innovate, giving high productive and dynamic inefficiency. As the PPF diagram shows, the economy produces at a point like A, inside its PPF_1 , rather than at B on it. Workers receive similar wages whatever their effort, so there is little incentive to work hard and productivity is low. As a result economic growth is slower: market economies shift their PPF out to PPF_2 much faster, so GDP per capita in planned economies fell far below that of market economies, such as North Korea compared with South Korea. Government and citizens suffer from a lack of political and economic freedom, since plans are imposed towards a common goal. Planners must also guess future needs years in advance, and mistakes are repeated across the whole economy, whereas in a market a bad

decision only affects one firm. Without private ownership and profit, there is little incentive for enterprise, so entrepreneurs are the clear losers.

However, central planning can benefit some economic agents. Because the nation's resources are used for the whole country, there is less inequality of income and wealth than in a free market, which helps the poorest households. The state guarantees jobs, so unemployment is low and job security high, which benefits workers. Prices are set by government, so they are stable and basic goods such as food, housing and energy are affordable. Merit goods such as education and healthcare are provided free and consistently (Cuba has high literacy and life expectancy), and demerit goods are under-provided, so market failures like externalities can be corrected directly. Planning also avoids wasteful duplication of resources and can direct resources quickly to national priorities, as the Soviet Union did with rapid industrialisation in the 1930s and in wartime. Government officials and party members also often benefit from privileges.

Therefore the view that central planning is ultimately detrimental to all economic agents is too strong. Over the long run, the evidence of slower growth, low living standards and the move of most countries to market reforms suggests that, on balance, most agents, especially consumers and ambitious workers, lose out. But the impact depends on which agent is considered: the poorest, the elderly and those valuing job security may be better off, and on the time period, since planning can work well in the short run or in a crisis. It also depends on the degree of planning: China's mixed economy shows that combining markets with state direction can raise growth while keeping some benefits of planning. Overall, a mixed economy, using the price mechanism to allocate most resources but with government correcting market failure and reducing inequality, is likely to benefit most economic agents.