Assessment: model answers

1 Alcohol and government policy

(i) Resources are scarce compared to human wants and so all societies must choose how best to allocate their resources to the production of different goods and services. Making a choice between alternative uses of scarce resources therefore always involves a cost in terms of what we have to give up in return. The benefit of the next best alternative foregone is the opportunity cost of that decision.

(ii) There are many examples of opportunity costs in the article. For example, people who enjoy drinking a lot of alcohol may be doing so at the cost of their health and/or foregoing other goods and services they could have spent their money on instead. In addition, taxes may have to rise to pay for hospitals and health care to treat alcohol-related diseases and injuries. Taxpayers will therefore have to sacrifice more of their incomes instead of buying the goods and services they want to enjoy.

(b) The economic arguments for and against a ban on the sale and consumption of alcohol will depend on the social costs and benefits arising from such decisions. A ban will be economically efficient if the social benefits of doing so exceed the social costs of a ban. Otherwise a ban will not be a sensible economic decision. However, the article does not provide any data from which to calculate costs and benefits.

The private costs of alcohol production will include the cost of resources for producers and the cost to consumers who purchase it. How much people spend on alcohol could also provide a measure of how much satisfaction people gain from the consumption of alcohol. In addition, private benefits from the production and sale of alcohol will include the earnings of employees and the revenues of alcohol producers who may otherwise be unemployed or in lower paid jobs and less profitable activities. In addition, the government will gain revenues from excise duties from the sale of alcohol to consumers. All of these private benefits may be foregone if alcohol is banned.

In contrast, alcohol production and consumption may result in significant negative externalities. For example, the production of alcohol may create pollution and increase the amount of waste cans and bottles. External costs may also include a loss of national output due to working days lost through alcohol abuse and related health problems, accidents and deaths. These can also cause stress and hardship for the families of heavy drinkers and increase public health-care costs funded from increased taxation. If these costs are significant and greatly exceed the social benefits of alcohol production and consumption then a ban might be economically sensible.

However, before a ban is introduced the government should also consider whether it would be successful in achieving its aims or may create similar or far worse social and economic problems. For example, a ban may simply result in people making their own alcohol or driving overseas to buy it. People may also increase their consumption of cigarettes or other harmful products instead.
(c) Judging which policy is preferable depends on what the ultimate aim is and which policy measure will be most effective. If the aim is to reduce consumption then raising the after-tax price of alcohol may be more effective than a ban on advertising but only if demand is price elastic.

Indirect taxes on alcohol may include sales tax, value added tax and include tariffs or excise duties. They are normally imposed on producers who will then pass on as much of the tax as they can to their consumers in higher prices. If the demand for alcohol is relatively price elastic then the increase in alcohol prices should reduce consumption significantly.

However, if demand is not very price sensitive then alcohol producers will be able to pass most of the tax increase on to consumers without causing a significant fall in demand. The government should however enjoy an increase in indirect tax revenue from alcohol sales. This is the most likely outcome since alcohol consumption tends to be habitual. The increase in after-tax prices may have to be very significant to reduce consumption but this may be very unpopular.

In the diagram below, the effect of the indirect tax is to shift the supply curve up by the amount of the tax, from SS to S1S1. This causes demand to contract but because demand is relatively price inelastic quantity traded falls (from Q to Q1) proportionately less than the change in price.

In contrast a ban on advertising alcohol, for example on television or in the cinema, will reduce alcohol consumption if advertising helps create a want for the product such that in its absence demand would fall. This effect is shown in the diagram opposite. However, if advertising has no effect on alcohol demand then a ban will only tend to harm advertising companies who will lose revenue. A ban would also be difficult to enforce in total across all forms of promotion, such as product placements in television programmes and films, or sponsorship of televised sporting events.
The government might consider implementing both an increase in tax on alcohol and a ban on advertising but if this is not possible then, on balance, taxing alcohol more heavily may be a better way of reducing consumption if demand is reasonably price elastic, but it may mean having to raise the tax significantly.

2 Fishing in the UK

(a) The article reports 240,000 tonnes of cod were bought by UK consumers in 2002. Of this amount, 7% was caught in seas around the UK. Therefore the amount of cod caught in UK seas in 2002 was:

\[(24 \text{,}000/100) \times 7 = 16,800 \text{ tonnes}\]

(b) 24,000 tonnes of cod represents 10% of the 240,000 tonnes of cod bought in the UK in 2002.

(c) The benefits of setting up the fish farms include additional employment and therefore incomes for 1,600 people. This will help to reduce unemployment, reduce the cost to government of welfare benefits and raise living standards for those gaining employment. The indigenous production of fish will also help to reduce a reliance on imports of fish, thereby improving the balance of trade.

(Other benefits include lower prices and increased choice for UK consumers and profits for UK fish farms.)

(d) The article reports that the increased supply from salmon farms has reduced the market price of the fish. This is shown in the diagram below by a shift to right in the market supply from SS to S1S1. As a result the equilibrium market price falls from P to P1. Demand for salmon contracts as the market price falls and the quantity of salmon traded therefore increases from Q to Q1.

(e) Because resources are scarce compared to human needs we must choose how best to allocate resources to the production of different goods and services. Making a choice between alternative uses of scarce resources therefore always involves a cost in terms of what we have to give up in return. The benefit of the next best alternative foregone is the opportunity cost of that decision. A very clear example of opportunity cost is given in the fourth paragraph in the article. This says the farmed fish need to be fed from fish caught in the open seas. This means these fish will not be available for human consumption. This benefit is sacrificed in order to produce farmed fish.
(f) A number of factors need to be taken into account to determine whether or not the fish farms will increase fishing industry profitability. Profit is the surplus of revenue remaining after deducting production costs. If the impact of the fish farms is to increase industry revenues and/or reduce costs they will therefore boost profits.

The article explains how over-fishing of cod in UK waters has reduced fish stocks and increased the UK’s reliance on imports. With fewer fish to catch and sell, UK fishing revenues will fall. If the fish farms can produce more fish for sale to offset the decline in fish stocks and reduce consumption of imported fish then UK fishing industry revenues could rise.

The average cost of producing a fish may also be lower on fish farms than catching a fish from the sea. For example, mass production on farms reduces the need to maintain a fishing fleet. If costs are falling while revenues are rising, profits in the industry will be increasing.

However, UK fishing industry profits may still fall further as a result of the fish farms for two reasons. Firstly, the increase in supply of fish from the farms will tend to reduce their market price. Secondly, it is not clear that producing fish on farms will be cheaper than catching them in the open sea. UK fishermen in the article argue that it would still be necessary to catch fish to feed the farmed fish. This suggests average production costs may actually be higher on the farms. If more it takes more than one fish caught open seas to feed and produce one farmed fish then the UK industry will overall still have less fish to sell to consumers to earn the revenues it needs to make a profit.

3

(a) Price elasticity of demand (PED) measures the responsiveness of demand for a product to changes in its price. Demand will be price elastic if a small increase in the price of a product causes a relatively large contraction in the quantity demanded and a fall in sales revenue. In contrast, demand will be price inelastic if an increase in the price of the product causes only a very small contraction in quantity demanded but a rise in sales revenue. If quantity demanded does not respond to a change in price then demand will be perfectly inelastic.

(b) A producer of cigarettes will find it useful to know if its sales revenues would rise or fall if it increased or reduced its prices. If consumer demand is relatively price elastic an increase in price will cause a more than proportionate contraction in demand such that total spending on cigarettes, and therefore revenues, will fall. It follows that a cut in prices will cause an expansion in demand that will boost total revenues. If the increase in total revenue exceeds the increase in total cost from producing the extra cigarettes, producers will increase their profits. However, if demand for cigarettes is highly price inelastic then cutting price, even by a large amount, is unlikely to expand demand by very much. In contrast, increasing price will raise revenues because demand will contract by proportionately much less than the increase in price.

(c) By introducing a ban on cigarette smoking in public places governments appear to have concluded that the social costs of smoking exceeds its social benefits.

The social benefits of cigarette consumption will include the private benefit of satisfying some consumers’ desires to smoke and the revenues of cigarette manufacturers. External benefits will include the employment and skills training that producers of cigarettes provide.
However, smokers also incur private costs in buying cigarettes and also the health problems smoking can cause. This may cause pain and a loss of income if they have to take time off work. However, the treatment and care of smokers with health problems will impose external costs on others – their family members and the public healthcare system. Taxes may have to rise to pay for these costs. Non-smokers can also suffer health problems by breathing in the smoke of nearby smokers in public places. Together, the private and external costs of smoking make up the total social cost of cigarette consumption. A ban should therefore be more economically efficient by greatly reducing the social costs of cigarette consumption.

(d) If, as a result of the ban, consumption of cigarettes falls significantly manufacturers of the product will lose revenues and profits, In response they may cut back production and close some of their factories to reduce their costs. However, they may also increase marketing effort in countries where no ban exists, and may even move operations to these countries if demand in these markets expands. They may also diversify into other products, for example, clothing or fitness products, aimed at existing or former smokers in order to diversify their product portfolio. However, demand for cigarettes may not fall appreciably following the ban if demand is insensitive leaving industry sales and profits largely unchanged.

4

(a) Because resources are scarce compared to human needs and wants, all societies must choose how best to allocate their resources to the production of different goods and services. Making a choice between alternative uses of scarce resources therefore always involves a cost in terms of what we have to give up in return. The benefit of the next best alternative foregone is the opportunity cost of that decision. Therefore, when a government increases spending on defence and social housing there is an opportunity cost in terms of what the same amount of money could be spent on instead and the benefits it could create. For example, the same government could have increased spending on education, health care or welfare payments instead. The potential benefits of increased spending in these areas to society and the economy are foregone. Alternatively, governments could lower taxes rather than increasing spending.

(b) Market failures occur when free markets fail to produce goods and services that are worthwhile and when the decisions of producers or consumers result in wasteful or harmful activities. As a result market failures will reduce economic welfare. This means other resource allocations or market outcomes may be more beneficial and economically worthwhile.

Without government intervention free markets are likely to fail to provide national defence and social housing. Private sector firms with a profit motive are unlikely to employ armed forces to provide a national defence system. This is because it will be impossible for them to charge individual consumers according to how much they ‘consume’ and benefit from it. Similarly, it will be impossible to exclude people from enjoying the security benefits of a national defence system if they do not pay towards it. Instead a government will have to provide national defence paid for from tax revenues.

Similarly, private firms are unlikely to produce homes for people who cannot afford to buy or rent them because it will not be profitable to do so. They will need to be subsidized by a government to build low cost homes or the government will have to provide them directly.
(c) A government can influence private producers in many ways. Direct taxes on profits may reduce the willingness of entrepreneurs to start up new businesses or expand existing firms. Similarly, high income taxes on earnings may de-motivate workers and reduce their productivity, while others may choose not to work instead especially if unemployment and welfare benefits are high. Lowering these taxes can therefore increase productivity and enterprise thereby expanding the volume of goods and services produced in the economy.

Tariffs are taxes placed on goods imported from other countries to reduce demand for them, often to help domestic firms to produce the product instead thereby creating jobs and incomes. Similarly import quotas may be used to restrict imports. However, some firms may need to import these products to help them continue production, for example, imported raw materials or component parts. As a result of tariffs and quotas these firms will have to pay more these or may even find they are unable to import as much as they need.

Subsidies are grants from government to businesses to help offset their costs of production or cost of new investments. These can encourage them to increase output and invest in new productive capacity. Subsidies can also be used to reduce the costs of training workers in new skills or to use new technologies. A government may also provide these for unemployed workers so they have the skills they need to get new jobs.

Regulations may both benefit and hinder business. For example, regulations can be used to stop large powerful firms from using barriers to entry to restrict competition from new firms. While this may reduce the market share of a large firm it helps other many other firms to compete and grow. Similarly, health and safety and minimum wage laws can encourage more people to join the labour force. As labour supply increases wage costs will tend to fall and employment will rise. However, some regulations may restrict opening hours, may require significant spending on administrative costs of providing information to government, and may stop firms building on or using some particular areas of land. For example, a firm wanting to build a new factory may not be able to do so near populated areas.

Complying with regulations can be costly for firms and uses up management and employee time that could otherwise be put to more productive use. Public sector resources also need to be used up checking that firms are complying with regulations. Deregulation therefore helps to remove burdens on business, reduce production costs and free up resources by simplifying or removing old and unnecessary ones. For example, reforms might include removing restrictions on shop opening hours, reducing product labeling and information requirements or simply allowing firms to complete their tax returns, applications for patents and other paperwork required by government electronically over the Internet.

5

(a) The farm owners who organize and manage farms to produce foodstuffs are entrepreneurs with enterprise skills. They will use their own labour and even employ other workers to produce fruit to sell. Training will help the farm labour become more productive. To help then they will use man-made resources, or capital, such as fertilizers, tools, manufactured building materials and machines. The natural resources they use including seeds, water, animal manure and the land itself, are all classified as land by an economist.
(b) As European supermarkets switched their demand to new, sweeter pineapples demand for Ghanaian pineapples will have fallen. This is shown by a leftward shift of the demand curve in the diagram below from DD to D1D1 at every possible price. As a result the equilibrium market price has fallen from P to P1 and the quantity supplied and traded has contracted from Q to Q1.

![Demand Curve Diagram](image1)

In contrast, the increase in demand for the new, sweeter pineapples is shown by a rightward shift in the demand curve in the diagram below from DD to D1D1. As a result the market price and the quantity traded of the new pineapple variety have increased.

![Demand Curve Diagram](image2)

(c) Price fluctuations can cause uncertainty and some farmers may not want to risk making investments in their farms in case prices and therefore their revenues fall. For example, if they have borrowed money to invest they may be unable to make loan repayments if prices fall. Price certainty can therefore be beneficial but it will depend on what the agreed price is. If the fixed price is below the market price farmers will lose revenue immediately unless the exporter increases demand for their produce. This turn will depend on how much produce the exporter can sell overseas. If overseas demand for the Ghanaian pineapples falls the exporter will reduce his demand. While the price may be fixed, quantity purchased and therefore farm revenues can still vary.

(d) A subsidy is a fixed cash sum provided by a government to a private firm to help pay towards its costs of production. Many farms receive help in the form of subsidies from their governments to help reduce the cost of growing crops so they can supply more to feed people in their economies. Subsidies may be used to reduce dependence on one particular crop by encouraging the production of different foodstuffs. This will reduce the impact of failure of any one crop on the food supply and of a fall in demand for the main crop. It will also reduce dependence on imported foodstuffs. Subsidies can therefore help to increase output and employment, while increasing choice and lowering prices for consumers.
Unit 2 The allocation of resources – how the market works; market failure

The stated aim of the Ghanaian government in providing subsidies to farmers is to help them compete. Their small-scale, low-level technology and heavy reliance on one crop will mean the average cost of producing a ton of fruit in Ghana may be much higher than on larger, modern farms overseas. If they are unable to compete they will be forced to close down. Providing them with protection from overseas competition may allow them to grow to take advantage of economies of scale and become internationally competitive.

Protecting infant industries in developing economies is a major argument in favour of subsidies. New, small businesses in newly developing industries with the potential to provide many more jobs and incomes in the future, may not get the chance to develop and grow if they are quickly eliminated by competition from lower cost economies overseas. However, the danger is that infant industries may continue to require protection from cheaper imports even when they have become established.

If firms rely on subsidies to protect them from competition then they make lack the incentive to improve their own efficiency. Protecting firms from overseas competition will also reduce consumer choice. Product choice and quality may be lower and prices higher as a result.

Subsidies also have to be paid for from higher taxes on people and firms. This reduces their disposable incomes and profits. In turns this can lower demand for other goods and services and result in a reduction in output and employment in other industries. High taxes will also reduce people’s incentives to work or start new enterprises. Subsidies may therefore distort the efficient allocation of resources in an economy.