

Answers to microeconomics practice questions

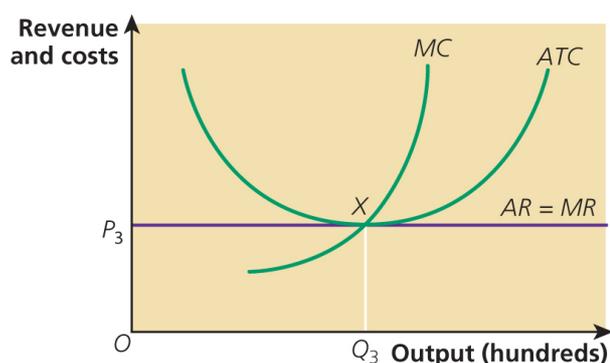
Multiple-choice questions

1	D	6	D
2	B	7	A
3	A	8	C
4	C	9	C
5	D	10	D

A-level Paper 1 context question

- 01** The median value of UK current reserves of the selected companies was £2.9 billion and the median company was AIG.
- 02** One way to judge whether a firm is capital intensive is to measure the quantity of financial resources used to produce a service. This involves measuring the ratio of capital required to the amount of labour employed. By dividing each firm's current financial reserves by the number of workers, it is clear that Aviva is a more capital-intensive business than Direct Line. Aviva has a capital ratio of £905,027 per worker in comparison to Direct Line's £555,555 per worker.
- 03** The model of perfect competition is built on six main assumptions. First, there are a large number of buyers and sellers. Second, firms can sell as much of their product as they like at the ruling market price. Third, consumers can buy as much as they like at the ruling market price. Fourth, all products are homogeneous. Fifth, there are no barriers to entry or exit in the long run. Sixth, economic agents possess perfect information.

If these assumptions hold, any firm that makes abnormal profit in the short run will find that new firms will enter the market and compete for customers. All economic actors have perfect information and, given that all products are identical, consumers will immediately alter their buying habits if cheaper insurance policies become available. The competition created by the new firms will drive efficiency. Managers will look to eliminate waste, inefficient production techniques and organisational slack in order to cut costs and offer customers lower prices. Firms will become more productively efficient when they minimise unit costs and operate at the lowest point of the average total cost curve, as can be seen in the diagram below.



In a perfectly competitive market, firms will also be allocatively efficient. This is when a firm is selling a product at the marginal cost of the last unit produced. This will occur in a perfectly competitive market because the demand curve will be horizontal. Firms are price takers and cannot influence the ruling market price. Given that the demand curve is horizontal, it will also represent the marginal revenue and the average revenue curves. A firm maximises its profits when marginal revenue is equal to marginal cost and, as illustrated in the diagram, a firm operating in a perfectly competitive market will sell its product when price is equal to marginal cost in both the short and long run.

- 04** Markets work best when consumers have a choice and businesses have to compete to offer the best service to sell their product. Economic theory suggests that competition drives efficiency, innovation and lower prices. Households benefit from better-made products and enjoy higher living standards when they can consume more goods and services with their disposable income. The development of the internet and price comparison sites have been widely heralded by economists as a force for good because they have improved consumers' ability to access and compare different products and make better choices.

According to Extract B, comparison websites move many markets closer to the model of perfect competition. There are two main ways in which they do this. First, they make it easier for consumers to receive quotes from a large number of firms. In 2013 there were 976 general insurers in the UK but comparison websites enable consumers to 'get quotes from a variety of insurance firms at a single stroke' (Extract B). This saves consumers a considerable amount of time and shoe-leather costs. In the past, consumers may have only received quotes from three or four companies. The websites enable them to receive hundreds of quotes, which significantly increases the level of competition in the market.

Second, comparison websites have increased 'the amount of information available to consumers' (Extract B). Shoppers need only enter their details once and they are presented with complex information in a simple results table. From the comfort of their own home, they can compare the details of alternative products, such as insurance policies or the offers of energy suppliers. This enables households to make better choices and forces firms to compete to offer the best possible product at the lowest price.

However, the extent to which comparison websites actually increase competition is questionable. The websites are commercial businesses that seek to maximise profit. They charge firms a fee in order to display their products to consumers who use the website. This means that comparison websites are only presenting consumers with a limited range of products. Insurance companies such as Direct Line never pay the 'substantial fee' to appear in the search results (Extract C). Direct Line is one of the biggest providers of insurance in the UK. It employs 14,400 workers and has current UK financial reserves of £8 billion, making it the second largest insurance company in 2013 (Extract A). Given that the company's policies are not displayed on comparison websites results, this significantly undermines the claim that the sites provide households with better product information or choice.

Extract C also cites the research conducted by *Which?* magazine, questioning the results displayed by different comparison websites. Each website has its own method of conducting a search, but this means different sites are unlikely to 'yield exactly same results'. This in turn means that consumers will be presented with different information depending on which comparison site they use. The websites may improve consumer information, but the extent to which they move the market towards perfect information is limited. The websites do improve the range of information, but consumers are still presented with limited and possibly flawed choices.

The benefits of comparison sites come at a significant cost. They may be presented to consumers as a free service, but the fee that they charge to the firms 'raises the costs of

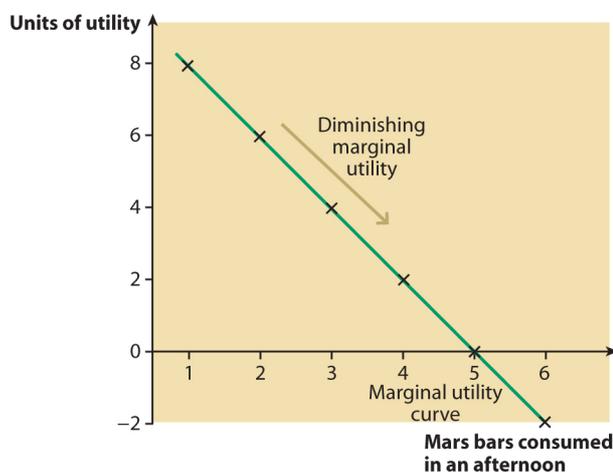
production' (Extract C). Comparison websites, such as Compare the Market and Confused spend millions of pounds advertising on prime-time television every year. The websites must therefore demand significant fees from the companies that want their products to be shown in the search results. This must add a significant cost which is passed on to consumers. Hence the overall benefit of these websites may not be as great many economists first believed.

Ultimately, comparison websites have to a certain extent improved consumer choice and the information available to them, but they have not significantly reduced prices for consumers. Perhaps a better model would be for consumers to pay a small fee to use a comparison website, which will then provide information on a wide range of products. Although consumers will have to pay an upfront fee, they will receive impartial information tailored to their needs, which should reduce overall costs because insurance firms will no longer need to pay multiple websites. This will hopefully enhance consumer choice and reduce average costs. This is more or less the service offered by *Which?* magazine to its subscribers.

A-level Paper 1 essay questions

Essay 1

- 09** In economics the term 'utility' can be defined as the satisfaction or economic welfare that an individual gains from the consumption of a good or service. It is an old concept that was used by the classical economists, such as Adam Smith, John Stuart Mill and Jeremy Bentham, when analysing individual decision making and consumption choices. They argued that rational individuals will seek to maximise their utility when making economic decisions. However, as an individual consumes more and more of a product, their utility increases less quickly than consumption because they derive less and less extra pleasure from each additional unit of consumption.



For example, according to marginal utility analysis, if a consumer has a box of chocolates, they will receive the greatest satisfaction from the first chocolate consumed. If they continue eating chocolates, they will continue to receive pleasure, but it will decrease with each extra chocolate. There will come a point when an individual eats a chocolate and receives no pleasure from it. At this point, the individual has reached the point of satiation. Individuals may continue to eat more chocolates, but after this point they will suffer negative marginal utility or disutility and may start to feel ill or could even be sick. Hence, the first unit of a product consumed will normally bring the greatest utility and each subsequent unit consumed will bring less and less utility, and eventually disutility, to the individual.

- 10** Nudge policies in economics are associated with the behavioural economics branch of the subject. The insights from behavioural economists have been particularly influential on UK

public policy making since 2010 when the then government set up the Behavioural Insights Team (BIT) to work with Whitehall departments. The BIT has improved government policy in areas such as automatic pension enrolment, where it has had considerable success. However, it has also had high-profile failures, such as the Green Deal, which was scrapped by the government in 2015 for being an expensive failure.

The concept of a nudge policy fits into mainstream economic theory, but it is a policy technique that for many years government officials have often overlooked. A nudge policy is one that seeks to provide individuals with better information and well-designed decision-making systems when making choices. The logic is twofold. First, too often people make decisions based on imperfect information and/or limited understanding of the choices. When provided with better information and presented with choices in clearer and simpler language, individuals make more rational choices. Second, a well-designed government programme with a rational choice architecture will lead citizens into making better long-term decisions.

Three policies developed by the BIT since 2013 have been extremely successful and cost effective to implement. First, the automatic pension enrolment scheme has seen the number of workers participating in occupational pension schemes increase from 61% to 83%. Second, the number of students dropping out of further education courses has been reduced by a third following encouraging text messages sent at the end of every half term. Finally, by improving the wording in official letters to tax debtors, the BIT has increased by 43% the likelihood of the worst offenders paying taxes. These are all excellent policies and benefit society significantly.

By changing the default pension setting so that workers have to opt out of pension contributions, the government has effectively started to tackle the problem of too many workers saving too little of their income for retirement. This policy has been relatively cheap for the government to implement, yet it has had significant results that will help reduce pensioner poverty in years to come. The default assumptions have been changed by the government, but workers are still free to opt out, so there have been no infringements to individual liberties.

Likewise, the policies of sending encouraging text messages to students in further education and improving the wording on official letters are very low cost to implement. The Department of Education spends £100 billion annually. The cost of sending messages accounts for a fraction of the department's budget, but if it reduces the number of dropouts by a third, it has been extremely successful. By keeping students in education, the nudge policy is improving the level of workers' skills, which should improve the quality of the UK's workforce in the long run. Similarly, by improving the wording of official letters and reducing the number of tax debtors failing to pay taxes, the government has reduced the need to use more costly policies, such as legal proceedings. These policies have had significant benefits and the BIT should continue to devise similar policy initiatives in the future.

However, there are limits in the effectiveness of a nudge policy because they only seek to nudge individuals in the 'right' direction and not to incentivise their behaviour. Encouraging text messages and better-written letters may reduce student dropouts and encourage offenders to pay their taxes, but the majority of people still go against what government policy-makers are trying to achieve. This means that nudge policies must be used in conjunction with traditional policies. Improving consumer information about fuel efficiency may nudge some motorists into buying cars that are better for the environment, but the most effective policy to reduce car journeys is to increase taxation on petrol. People do respond to nudges, but they respond more effectively to shoves, such as taxes and subsidies. Hence an effective environmental policy needs a mixture of traditional taxation and subsidy combined with behavioural insights.

Nudge policies can also be extremely costly failures if they are too complicated. The Green Deal was scrapped in June 2015 because government ministers feared that it would saddle taxpayers with significant long-term costs. The main problem with the Green Deal was that it worked in theory, but not in practice. It set out to help households implement energy-saving improvements on their homes, but the policy was too complicated and relied on energy surveyors conducting accurate building assessments. Unfortunately, many of the surveys were inaccurate and made incorrect recommendations. Furthermore, the model was built upon assumptions of long-term efficiency savings based on projected energy costs. However, with the unexpected fall in the price of oil which started in the autumn of 2014, the assumptions upon which the Green Deal was based crumbled. When oil was priced at \$100 per barrel, energy costs were high, so expensive home improvements appeared rational. By June 2015 the price of oil had dropped to \$65 per barrel and by January 2016 it was down to \$30. In the end the Green Deal did not offer consumers a good deal because it was too complicated, placed too much trust in government officials, and failed to understand long-term forces of demand and supply in the energy markets.

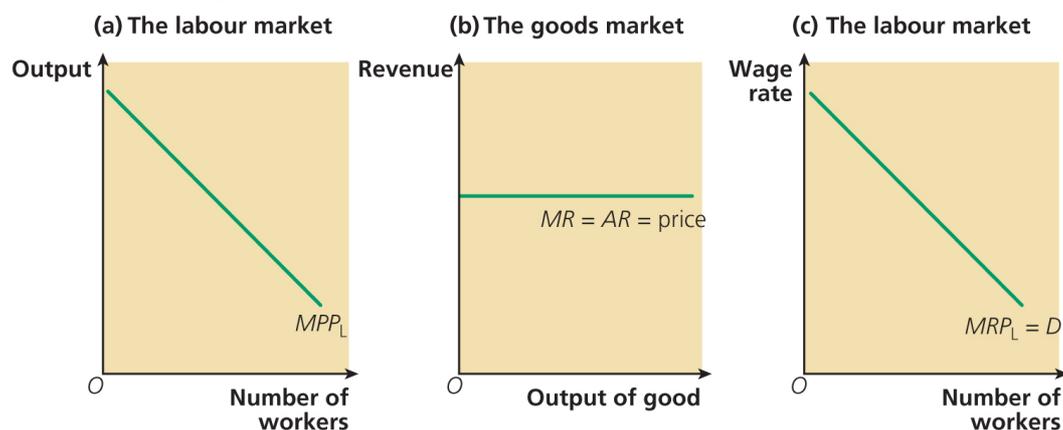
Ultimately, behavioural economics is a useful branch of the subject, but its importance should not be overestimated. Behavioural economics has improved government policy-makers' understanding of how individuals think and make decisions. This has improved public policy because it has led to better information being presented to citizens and more rational decision making taking place. Nevertheless, there are limits on the effectiveness of nudge policies. A good nudge can influence behaviour, but traditional taxation and subsidies are often more effective at changing behaviour. Second, if a policy becomes too complicated — like the Green Deal — it will result in government failure.

Essay 2

11 In a competitive labour market, the wage rate and the level of employment are determined by the forces of supply and demand. Market forces set the wage level, and both workers who supply labour, and firms who demand labour, then have to accept the ruling market price.

The demand for labour is derived from the demand for goods and services. If firms need to increase production in order to satisfy demand in the product markets in which they sell their goods, they will demand more labour. Alternatively, if there is an economic downturn and firms need to cut production, they will then demand less labour. In this respect, the demand for labour is determined by wider market conditions in the macro economy.

A firm's demand curve in a competitive labour market is its marginal revenue product of labour curve (MRP_L). In the diagram below, panel (a) shows the marginal physical product of labour (MPP_L), which measures the amount by which a firm's total output rises in the short run (assuming capital is fixed) as a result of employing one more worker. As can be seen in the diagram, due to the fact that the law of diminishing returns has set in, employing each extra worker brings less and less marginal output to the firm.



In order to convert the *MPP* of labour into a monetary value, it has to be multiplied by the addition to the firm's total sales revenue resulting from the sale in the product market of the extra output produced by labour. Hence the *MPP* curve is multiplied by the firm's *MR* curve. In a perfectly competitive labour market, the *MR* curve is horizontal. Thus:

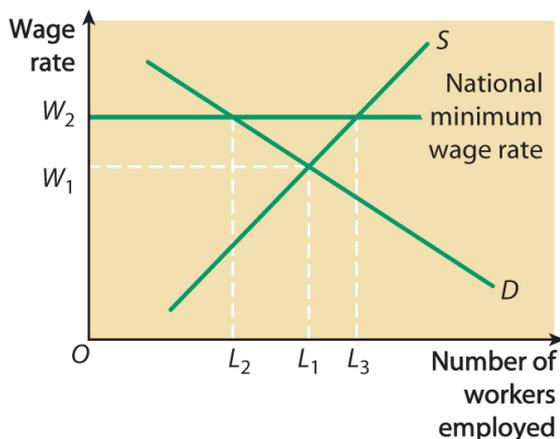
$$MPP \times MR = MRP = \text{a firm's demand for labour}$$

- 12** The labour market is where workers sell their labour to firms in exchange for wages. The majority of jobs in the UK are created by the private sector, which accounted for 25.5 million jobs in 2014, although many of these jobs may be in government-financed organisations, such as the universities and higher education colleges. In contrast, the public sector employed 5.37 million workers in 2014. Whilst in many cases the government does not need to play a role in the labour market, there are three very important reasons for government intervention.

The first reason for government intervention is to protect workers from exploitation and poverty. This will normally occur in lower-skilled labour markets where few barriers to market entry exist. As a result there is often a surplus of workers looking for work and employers can offer very low wages, which will provide insufficient income for workers to maintain a reasonable standard of living. Industries that pay low wages include catering, retail, processing, cleaning and low-end manufacturing.

In 1999 the then Labour government introduced the national minimum wage (NMW) in order to protect workers from exploitation and to try to reduce poverty. For many years the NMW was aimed mainly at protecting vulnerable workers from exploitation rather than trying to provide low-skilled workers with a significantly higher income. When the Labour chancellor Gordon Brown set the first NMW, he was keen not to set too high a level because he feared that businesses might stop employing workers if the cost of labour was too high. As a result the NMW has been kept near the market equilibrium wage level for the types of workers outlined above, which means that its primary purpose has been to prevent exploitation. In October 2015 the NMW was set at £6.70 per hour. This has been a very important government policy because some low-paid workers have insecure employment and find it difficult to negotiate wages with unscrupulous employers.

Critics of this approach to the NMW, such as the Living Wage Foundation, argue that it still results in low-income households living in relative poverty. They argue that this is a market failure and that poverty results in a lower life expectancy for individuals and can cause wider social problems for society. This is a normative argument which many pro-free-market economists dispute. Whilst the majority of such economists see the need for the NMW to prevent exploitation, they argue that if it is set too high, it will price many low-paid workers out of the labour market and create a higher level of unemployment, as illustrated in the diagram below.



The diagram shows that if the NMW is set *above* the free-market wage rate (W_1) at W_2 , employers' demand for labour falls from L_1 to L_2 . Note that L_3 workers wish to work at the NMW rate.

Surprisingly, in June 2015 the Conservative chancellor of the exchequer, George Osborne, announced that the government would seek to raise the NMW so that it would become a living wage, rising to £9 an hour in 2020. This policy has drawn criticisms from pro-free-market economists and businesses, who argue that it will put pressure on employers' wage costs and will result in higher levels of unemployment. They believe that the policy will not help low-paid workers if it results in some employees losing their jobs. They argue also that the incomes of those who lose their jobs will decrease significantly and that this will lead to a fall in their standard of living. Business analysts have estimated that up to 1 million jobs could disappear by 2020.

The second reason why government has to intervene in the labour market is to protect workers against discrimination. This reason is based on the principle of equity. It is wrong for employers to be able to discriminate against workers because of their gender, race, religion, age or other personal circumstance. Since the 1970s, legislation has protected UK workers from such types of discrimination. The most recent legislation is the Equality Act 2010. If exposed to the free market, workers suffer discrimination. This is unacceptable because workers should not be discriminated against because of who they are; hence the case for the government intervening in the labour market to ensure that all workers are treated fairly, are protected from discrimination, and have equal opportunities.

The final reason why a government must intervene in the labour market is to regulate an industry and protect standards. This is not necessary in all labour markets because many industries in the UK have successfully self-regulated for many years. A professional body, the General Medical Council (GMC), has successfully regulated doctors and set professional standards in Britain since 1858. The GMC has a statutory obligation to keep a register of medical practitioners, but it is independent from government. However, there is an important role for government to work with professional bodies and at times actively regulate industries. The Department for Education, for example, plays an active role in regulating and checking the backgrounds of the teaching profession in order to safeguard children from potential abuse. Much of the work is actually done by schools and non-governmental organisations, but the government still plays an important role in creating the necessary legislation and in directly regulating public bodies. Ofsted is the Department of Education's inspection and regulatory service, which monitors the standard of education and ensures that schools and colleges comply with the law.

The role of government is not to run the economy but rather to ensure that it operates effectively in the best interests of society. In the labour market, the government has an important interventionist role to play in protecting vulnerable workers against poverty and unfair treatment, and in maintaining standards.

Essay 3

13 The organisers of cultural events can be divided into two groups: commercial producers that seek to profit maximise, such as West End theatres in London; and government-subsidised producers, such as the National Theatre and the Royal Opera.

Commercial theatres will charge different ticket prices in order to maximise profits. Seats will be priced differently partly because they offer different views of the production. Seats that have the best views and position in the theatre will be sold at a higher price than seats with a limited view or those which are furthest from the stage. Some customers will pay more for the best seats, whereas others will accept less good seats and pay a lower price.

Theatres will also offer different prices because they can price discriminate and exploit different customers' willingness to pay different prices. A business can price discriminate if three conditions are met. First, different customers are willing to pay different prices because they have different price elasticities of demand. Second, the business can divide customers into different categories, such as children, adults and pensioners. Third, theatres can prevent one group from being able to buy discounted tickets and sell them to other groups by checking customers' tickets carefully upon entry. Theatres will often offer cheaper ticket prices to children and pensioners. In the case of children, the theatre is aware that families will have limited budgets and an elastic *PED*. By offering discounted tickets they will create an incentive for the entire family to purchase tickets. The theatre will then be able to make revenue from selling programmes and refreshments once the family is at the production. In the case of pensioners, the theatre will be offering discounted tickets because pensioners have on average lower levels of disposable income than working adults and an elastic *PED*. Theatres can limit discounted ticket sales to mid-week and matinee performances because there is significantly less demand for tickets at these times from working adults.

Subsidised theatres such as the National Theatre in London offer discounted tickets because they receive government subsidies. Market demand enables commercial producers to show popular events, such as musicals, but many less popular plays are not profitable. The government believes that plays, ballet and operas are merit goods, which are under-provided and under-consumed in a free market. Hence, the government offers subsidies to offset the costs of production and enable theatres to sell tickets at lower prices. Concessions may be made to children, pensioners, low-income households and the unemployed, and tickets are sold at low prices in order to increase the consumption of cultural activities.

- 14** The British government gives significant subsidies to the Arts Council to fund activities and events that are deemed to be of cultural importance and enrich people's lives. The subsidies are paid in two main ways: grants from government, which in 2014/15 came to £343 million; and National Lottery funding, which in same period came to £262 million. The primary arguments supporting this funding are microeconomic arguments which identify many cultural activities as being merit goods that produce positive externalities. There are also wider macroeconomic reasons that can be used to justify these subsidies. However, given that arts funding is £602 million, there are some pro-free-market economists who question these subsidies and the use of taxpayers' money to fund elitist activities.

A merit good can be defined as a good for which the social benefits of consumption exceed the private benefits. Government intervention in the form of subsidies is justified on the grounds that, if left to the free market, a market failure will occur because cultural activities will be under-produced and under-consumed. This will happen because many people will not pay the price charged by commercial producers. As a result, a significant number of people in society will not enjoy cultural activities, and the positive externalities created will not benefit wider society.

Supporters of the arts in Britain argue that subsidies to theatres such as the National Theatre are needed so that lower ticket prices can be offered to encourage people who have never previously attended live theatre. The National sells tickets for £12, and it is estimated that some of the National's productions of Shakespeare's plays have had audiences where a third have never been to a theatre before. This not only enriches the lives of the audience but is a powerful mechanism for teaching British culture and values. Hence government subsidies for cultural events help to build a stronger sense of community and forge a national identity, which the government would consider very important for its wider social objectives.

Subsidies for cultural events can also be seen as good for macroeconomic reasons. Plays, ballet and opera productions in Britain draw tourists from across the world. The UK attracts thousands of foreign visitors every year. This generates significant demand for complementary services, such as restaurants, bars and hotels. This not only creates higher

levels of employment but also raises significant tax revenues for the government. In 2012, theatre ticket sales raised £88 million in VAT revenue for the government. If the subsidies to arts are cut and some theatres shut down and museums introduce admission fees, the UK may become a less attractive holiday destination and the number of tourists visitors will fall.

Subsidised events can also give the space for creative producers to innovate new plays which can be successfully transferred to commercial theatres and exported to other countries, such as Broadway in New York, and even turned into films. The National has, for example, commissioned plays such as *The History Boys* and *War Horse*, both of which have been successfully exported across the world.

The extent to which subsidies should be granted, however, is questionable. Free-market economists reject the need for subsidies on the grounds that they are financed by taxpayers, many of whom choose not to buy tickets. They argue that the so-called ‘individual enrichment’ created by cultural events is normative or value judgement loaded. Moreover, many pro-market economists are uneasy about how taxpayers’ money is spent on unpopular projects, such as The Public multimedia gallery in West Bromwich, which was an expensive failure.

This creates economic harm in two ways. First, if subsidies are wasted on unpopular projects, it can crowd out the private sector. Taxes are raised from commercial businesses and households, which limits their spending power. Furthermore, when subsidised producers enter the market, they push up prices as they buy resources and hire workers. Whilst successful productions may be economically justifiable, the many more limited productions which only exist because of government subsidy may actually stifle the commercial sector. Second, resources which are allocated to unpopular cultural events do not create wider public benefits and are wasted. This is an economic inefficiency. In the private sector, the marketplace will quickly create disincentives for theatre producers to close down an unsuccessful play. Subsidised theatre lacks this mechanism because a sizable proportion of its funding comes from the government. As a result, subsidies often mean that organisers will continue with unpopular projects and waste society’s scarce resources.