

# Introduction to the economics of transport

### Learning Outcomes:

In the course of this chapter, you will learn about:

- The economic problem and its relevance to transport issues
- The factors of production that make up the production of all transport services
- The production possibility frontier and its illustration of the three concepts of scarcity, choice and opportunity cost
- The three market systems of the free market, the command economy and the mixed market
- The combination of agents that make-up transport markets
- The relevance of economic systems to the organisation and provision of public transport systems through a case study of the Glasgow conurbation.

## INTRODUCTION

Most individuals, whatever their walk of life, have a basic need to travel from one location to another. Modern life as such is structured around accessing goods and services that lie outside of the immediate vicinity of the home. Transport services are thus required to gain access to employment, education, leisure activities, personal care/health services as well as access to retail outlets for household goods such as food, clothing, electrical goods, books, CDs and so on. The development of the world wide web, whilst shifting some of these activities to home-based pursuits, has not, as yet, succeeded in turning the majority of individuals into computer geeks that need to get out more! Transport therefore still has a key role to play in modern society. This importance is further reflected in the link between transport levels and economic growth. In the past this link has been very strong, as both passenger and freight transport play a vital role in the function of the economy, with strong growth normally associated with innovative transport solutions.

It is thus no great surprise that transport issues continue to feature strongly in the newspapers and television news. Issues such as congestion and the role of road pricing, the impact of traffic on the environment, the organisation of public transport services, the rise of low-cost airlines, the capacity of the rail network, or indeed ‘problems on the railways’ and so on, are constantly made

reference to. All of these areas are subjects which the study of economics can help to shed considerable light on.

Transport is an area that has experienced major changes in recent years. For example, governments worldwide have become increasingly aware of the need to introduce effective ways of containing the use of the private car, both as a means of tackling congestion and as a result of the negative environmental impacts its use entails. Transport in general and the movement of passengers and freight bring with it considerable negative impacts in terms of air pollution, noise and visual intrusion. There has also been regulatory change and a reduction in state ownership of transport companies in all areas of transport, from the rail and bus industries, to freight companies, and in the aviation sector. This has tended to be on the grounds of increasing competition and improving efficiency. A book in transport economics seeks to shed light on these issues and outline why such reforms have been deemed to be necessary, as well as considering the overall economic problem of moving people and goods from one location to another.

The basic tools of the transport economist are drawn from what is known as microeconomic theory. This deals with questions such as what determines the demand for a particular journey or the demand for a particular mode of transport? What may happen to the level of congestion if a road pricing system is introduced? How can an airline operator charge passengers different prices for the same flight? What influences the level of competition within the bus sector? Questions of this nature tend to deal with individual units within the economy or certain sectors of the economy, such as the transport sector, rather than the economy as a whole. These are the types of questions transport economists are interested in and with the use of microeconomic theory this book aims to aid this understanding. Macroeconomics on the other hand is the field of study that concerns the whole economy, hence would examine issues such as the level of inflation, the level of unemployment or the size of the balance of payments. Outside of transport's impact on economic growth, however, transport economists are less interested in these areas. Although clearly important, the main thrust of the book is to examine key microeconomic issues and only consider macroeconomic matters where this helps to give a wider overall perspective.

The book does not draw on one type of transport such as road, rail or air but uses examples from all modes. This is because most if not all of the economic principles covered are common to all modes. The approach taken is to reveal how microeconomic theory can be used to analyse the transport sector and come to a better understanding of the issues therein. As such, the knowledge learned should be transferable and used to analyse and understand other transport issues, not only those presented in this text. This is an important aspect of economic analysis and brings in the idea of the economic 'toolkit' of analysis, or even an 'economic' way of thinking. The text does not purport to outline 'the answer' or to even give an answer to all transport related topics, but rather should enable the reader to come to a better understanding of the underlying issues and principles concerning transport matters today. This first chapter will outline the nature of economics in terms of the economic problem and its relevance to the study of transport.

## **THE STUDY OF ECONOMICS AND ITS RELEVANCE TO TRANSPORT**

What exactly is 'economics' all about and what has it got to do with transport? Most imagine economics is to do with money and all things financial. This can lead to some confusion, as it tends

to paint a very grey picture as to the central issues with which the subject is concerned. What is required therefore is a clear definition to which various issues and topics can then be subsequently pinned. Economics is one of the social sciences, hence concerns the study of people and their actions. Therefore, whilst psychology studies how people structure their thoughts and motivations, sociology how people interact with each other (or don't!), and anthropology the study of societies and how they function, economics is concerned with how societies cater for their material wants and needs. It is therefore about the production, distribution and use of society's goods and services (to the maximum benefit of all). A rather trite example in a transport context therefore would be that it concerns who gets a Rolls Royce and who ends up with a 15-year-old mountain bike as their main mode of transport? Whilst trite, that definition does fairly clearly point to not only some critical transport issues but also the basic economic problem – there are not enough Rolls Royces to go around, hence some have to go without, the question being who will that be? This 'scarcity' of luxury motor cars can be applied to more general cases such as all private vehicles or all seats on a train during the rush hour, the difference being that some are more 'scarce' than others. As a result of this scarcity, 'choices' need to be made and each choice will come at a cost, known as the 'opportunity cost'. The basic economic problem, and hence all economic issues, can therefore be related to these ideas of scarcity, choice and opportunity cost. Note at this stage no mention or reference has been made to money matters.

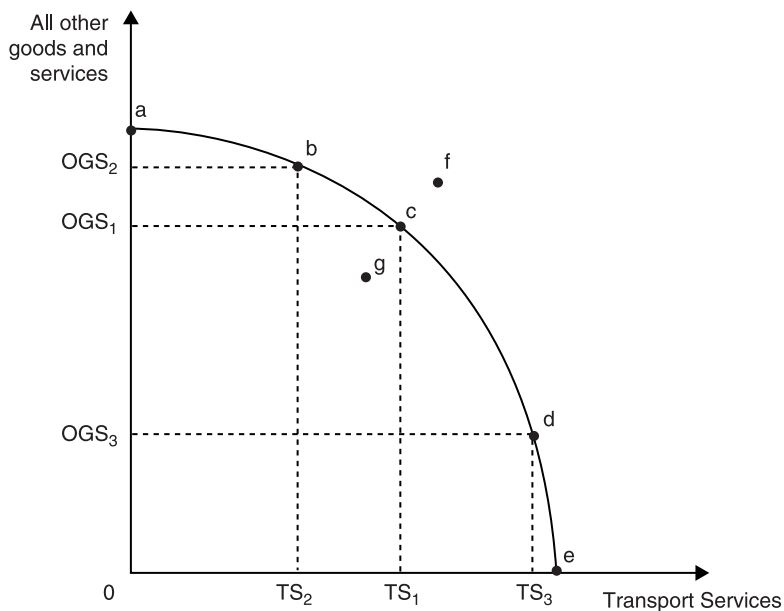
## **SCARCITY, CHOICE AND OPPORTUNITY COST**

Scarcity is a concept that is normally associated with Third World countries, where a lack of rainwater and the subsequent failure of agricultural produce cause famine and drought. Scarcity however applies not only to Third World economies but all economies, whether Third World, developing or advanced. In simple terms individuals cannot have everything that they want because there is a finite limit on the resources that can be used to satisfy these 'wants'. Any resource is therefore scarce, perhaps not at the margin as with the Rolls Royce example above or at the level of a basic necessity, but they are nevertheless scarce.

If individuals cannot have all that they want, then choices need to be made, and put simply every choice involves a cost. This will always be the next best alternative that could have had been selected when that choice was made. This is known as the opportunity cost of that decision. Thus if a particular society does not have sufficient resources to build both a new stretch of motorway and a new airport, it must make a choice between the two. If it chooses to build the motorway then the opportunity cost of the motorway is the airport that was not built. Opportunity cost therefore can be formally defined as the next best alternative forgone and is consequently not assessed using financial criteria.

These three concepts of scarcity, choice and opportunity cost can all be illustrated on what is known as a production possibility frontier.

The assumption of the production possibility frontier is that only two products can be produced, thus in Figure 1.1 the choice is between either transport services or all other goods and services. Whilst these may be very general categories, they do nevertheless show the underlying principles. As resources are finite there is a maximum level or combination that can be produced which is shown by the actual production possibility frontier (PPF). Thus if all resources are put



■ *Figure 1.1 The production possibility frontier*

into the production of all other goods and services, point a on the PPF would be achieved, whilst putting all resources into the production of transport services would result in an output level at point e. Where some combination of the two is produced, this is shown by all the intermediate points between a and e, with b, c and d highlighted for illustrative purposes. Also shown are points f and g. As point f lies outside of the PPF it is thus unattainable with the level of today's technology, but may become attainable at some point in the future through advances in technology. Such advances would cause the whole frontier to shift outwards. Point g on the other hand lies inside the frontier, hence is attainable, but would represent a position of inefficiency as society is not utilising the maximum potential of its finite resources.

If therefore these two commodities can only be produced in finite quantities, this leads into the first 'decision' to be made: namely what combination of the two to produce? If the choice was to produce at point c on the production possibility frontier, this would result in the production of  $TS_1$  transport services and  $OGS_1$  of other goods and services. Say however that some 'decision' was made to increase the level of other goods and services up to  $OGS_2$ , then this increase would have to be at the expense of transport services. This is because all resources are being employed in the production of these two commodities; thus in order to increase one, the resources required to do so have to be found through reduced production of the other. This is akin to an airline company that may want to increase its frequency on a particular route with immediate effect, but in order to do so it will have to find the necessary aircraft from its other routes until in a position to increase the total fleet size.

Figure 1.1 therefore also illustrates the opportunity cost of such decisions. As a result of increasing production of other goods and services from  $OGS_1$  to  $OGS_2$ , the production of

transport services has fallen from  $TS_1$  to  $TS_2$ . This reduction represents the opportunity cost. Note further if the level of other goods and services was to be increased again, say up to the maximum at point a, then an even larger quantity of transport services would have to be given up. The opportunity cost in terms of transport services is therefore becoming greater as the production of other goods and services increases. This is because at first the resources used in the production of other goods and services will be the most suitable; however, as production steps up it will have to increasingly use less suitable resources, i.e. those more suitable for the production of transport services. Hence ever larger quantities of transport services will have to be sacrificed. This again is akin to our airline example, where the airline will firstly use those aircraft from other routes that are the most suited to the purpose; however, further increases in frequency would have to be served by less suitable aircraft.

As any economy (country) cannot provide its citizens with all that they want, i.e. there is scarcity, a choice has to be made with regard to three basic questions –

- what to produce?
- how to produce it?
- and for whom to produce it?

The first we have already seen as it concerns the question of where on the production possibility frontier should production take place. How that output should be produced concerns the ‘best’ use or combination of resources to ensure that there is no inefficiency (as indicated by point g on Figure 1.1). Hence an example from the energy industries would concern what is the ‘best’ way to generate electricity – through coal-fired power stations, by nuclear fusion, through hydro systems, wind power, solar power or finally by burning natural gas? In some ways the answer to that question will be dependent upon the resources available, hence in a country with large coal reserves the normal practice would be through the first method. The last question concerns who gets the rewards arising out of the commodities produced, or more exactly how are the benefits of wealth creation to be shared out amongst the members of society. This is our key question above as to who gets the Rolls Royce and who gets the 15-year-old mountain bike. These three questions arise as a result of the basic economic problem – scarcity – hence, you can’t always get what you want. The mechanism used to address these three critical issues of what, how and for whom to produce is what would be referred to as ‘the economy’. This has led to the development of different economic systems or types of economies to answer these questions, and these can generally be classified as command, free market or mixed market.

## Command, free and mixed market economies

A command economy is where the state, i.e. the government, directly addresses the three questions posed above. That is, the government decides what to produce, how it will be produced and who will receive the resultant output. In the past this has normally been centred on a system of plans, in which five-year plans are subdivided into one-year plans, then area plans of production, then by town, by company, by individual plant and so on down. The government also decides how the *factors of production* are employed. Factors of production are the resources that are used in the production process. All production processes can be broken down into three factors of production

or basic inputs – land and raw materials, labour and capital. Land/raw materials and labour are fairly self explanatory as regards production resources, capital on the other hand is any equipment that is used in the production process. Thus a basic ship's voyage is produced by a labour element (the ship's crew), a capital element (the ship itself) and land/raw materials (the fuel used to power the ship and the natural environment in which it operates, e.g. the open sea or coastal waters). Under a command economy system, the state organises the factors of production to resolve the first two questions of what and how to produce, and distributes the resultant production on the basis of equity, i.e. if you work hard you reap the rewards. Note that in theory under such a system there is no need for any form of money, as goods and services are distributed on the basis of decisions by government or some other delegated central body. Such a system was in the past associated with the former communist countries in Eastern Europe; however, historically they have not solely been associated with the political left, as demonstrated by the German economy under the extreme right wing National Socialists from 1933 to 1945.

Today the relevance of studying such systems may appear to have completely disappeared with the collapse of the European communist states and their associated command economies in the late 1980s and early 1990s. Nevertheless, it gives the important theoretical perspective of the role of government in the running of the economy: it is key and central to the whole operation.

At the other end of the spectrum is the free market economy. In its most extreme form, a completely free market economy has no government input into the decisions of what, how and for whom to produce. Government's only function is to provide law and order. Economic decisions are left purely to the market in the form of private buyers and sellers, with the price mechanism and the profit motive playing central roles in the operation of the whole economic system. The price mechanism transmits signals from the market to the various interested parties, with the underlying philosophy being that trade is never a zero sum game, as both parties (usually) benefit in any exchange. Added to this is the idea of consumer sovereignty, i.e. the consumer is king. In simple terms, if consumers want more of something they will go out and buy it, and this will cause the price of that commodity to rise. Thus through the price mechanism a signal is sent to producers that consumers want more of that particular product and driven by the profit motive they will produce more of it. Hence in Figure 1.1, where to produce on the production possibility curve is decided by consumers. If for example consumers express a desire for more transport services, then through their market actions, by for example showing a willingness to pay a higher price for them, producers will shift resources out of the production of other goods and services and into the production of transport services. Another far less esoteric view of this example is that some firms producing other goods and services will go bust due to a lack of consumer demand for their products, and all of these resources will then be released and reemployed in firms producing transport services, i.e. a commodity for which there is strong consumer demand and consequently one in which a good profit can be made.

In a free market economy therefore the issue of what to produce is resolved by consumers through the ideas of consumer sovereignty, the price mechanism and the profit motive. How these should be produced is addressed by producers combining the factors of production in the lowest cost combination in order to obtain the maximum profit. This again is based upon the price mechanism and is driven by the profit motive. Every factor of production has a 'price'; hence if for example the price of labour is relatively 'cheap', then a large amount of labour will be used in the production process. Should however the price of labour increase, then producers may consider

replacing or substituting labour with capital. By such processes questions regarding the 'best' combination of factors of production to use in the production process are thus resolved.

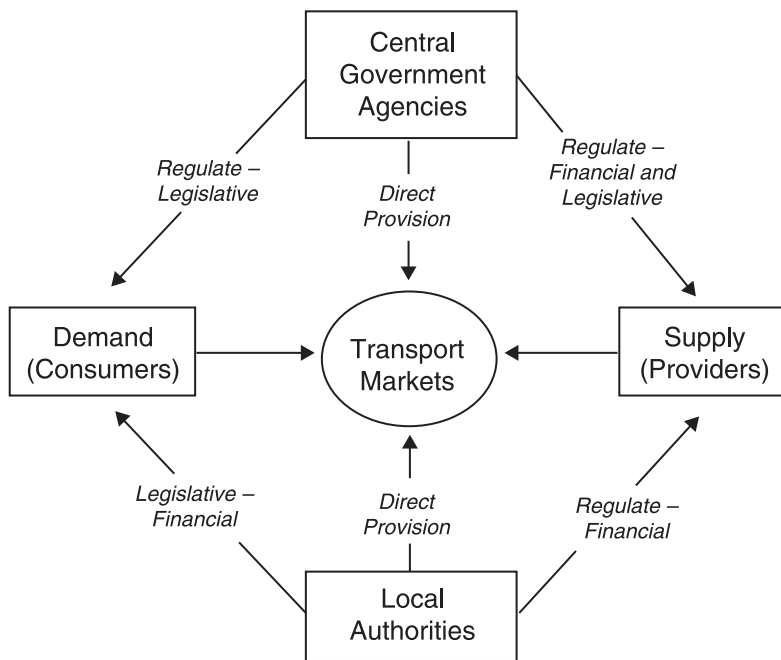
This only leaves the question of 'for whom?' In a free market economy, again this is based (in theory!) on equity. If you work hard, you will gain the rewards. Unlike in the command system, however, where it is the state that decides the merit of your claim, in a free market economy it is through the price mechanism. If a particular individual possesses highly sought after skills that are in very short supply, such as those of a transport economist(!), then in theory that individual will command a relatively high price in the market place, i.e. high wages. The subsequent accumulation of higher wages will enable that individual to obtain more of the (scarce) resources of the economic system than the average person. In simple terms, they will be able to afford to buy more goods and services and these will generally be of a higher quality. Through the price mechanism therefore, in this case relating to labour markets, the free market systems resolves the question of for whom to produce.

The last of the economic systems examined is the mixed market economy. If you have understood the previous two examples then the mixed market economy is the most straightforward of the three. As the name clearly indicates, it is a market based system, i.e. one primarily (but not entirely) based upon the price mechanism, and one that uses a mix of public decisions of the state and the private decisions of the market to determine the outcome to the questions of what, how and for whom to produce. A simple way to consider the mixed market system is to think of the free market economy, but rather than simply having two agents in the market place, private buyers and sellers, there is a third, the state. Through its function as a provider and purchaser of goods and services and also its function as a governing body, the state will heavily influence the workings of the economy and thus all decisions are not market based. The state for example may decide to provide some goods and services for a zero user charge, such as health, education and many social services. This can be for a variety of reasons, from simple political gain, to reasons of equity or some may even be provided on the basis of economic welfare. For example, there are some economic goods that could almost be termed 'common goods'. These are what would be technically known as public goods. Probably the best example of a public good is a lighthouse. Once a lighthouse has been constructed and is in operation, then it is very difficult, if not impossible, to charge for its use. Hence if one of the major shipping lines was to construct a network of lighthouses, every other shipping line would be able to use them for free. This is known as the free rider problem. Under a free market system, the first shipping line would be driven out of business due to its higher costs of operation because of the added expense of running the lighthouses: what would happen to the lighthouses then? As a result, no lighthouses would be constructed even though their value is beyond doubt. In other instances the free rider problem arises where the cost of implementing the charge is higher than any fee that could be imposed for the use of the service. The net result in both instances is that despite considerable benefits, such goods and services would not be provided by the market as those involved simply could not charge for their use. Under a free market system, therefore, there would be no public goods such as lighthouses; however, in a mixed market system the intervention by the state to provide such goods overcomes these problems.

In practice all economies fall into this last category, with the only difference being the level of state involvement. Hong Kong and the US are generally viewed as nearer the free market end of the spectrum, whilst the social economies of many European countries such as France, Denmark and Sweden are generally viewed as having a relatively high level of state involvement. Note

however that ‘a relatively high level’ is nowhere near the level of a pure command economic system and is also a term that over time has come to mean significantly less government intervention in absolute terms. This is no more clearly exemplified than within transport markets, where the last thirty years in Britain has seen the transfer out of the public sector into the private sector of a large number of transport service providers, most notably the National Freight Corporation (road haulage), the National Bus Company and Scottish Bus Group, British Airways, British Airport Authorities, British Rail and Associated British Ports. This process is best summarised by the title of Dennis Swann’s excellent 1988 book *The Retreat of the State* (Swann, 1988). Many other examples exist throughout Europe and other parts of the world of this general retreat of the state and specifically in the provision of transport services, where many bus companies and freight orientated railways have been similarly privatised.

Figure 1.2 attempts to contextualise the above discussion and further illustrate its relevance to transport markets. What it shows is a simplified version of transport markets in most of today’s developed and developing countries. ‘Transport markets’ lie at the centre, around which revolve a combination of government agencies and private individuals. It is through the interactions of these parties in the form of their market actions that result in the production of all transport services, whether private, public or freight. Government intervention in transport markets comes in a number of different forms which can be broadly split between direct provision, where the state effectively does it itself, or through control by legal measures the actions of private agents (buyers and sellers) in the market. In many instances financial measures, both persuasive and punitive, will also be used to ‘steer’ these agents towards a particular outcome. Much debate in transport economics surrounds the reform of the provision of transport services and infrastructure



■ Figure 1.2 The mixed transport market



through a switch in the balance between direct provision by the state and the implementation of state policy/actions through the direction of others. This in a nutshell is the public v private debate. Much debate and reform also surrounds the question of the extent to which the state should continue to 'do it (all) itself' or the degree to which it should make individuals far more responsible for their own transport related activities. Both of these aspects are considered throughout the book.

Whilst applying to most of today's developed and developing countries, the level of control and intervention between the two tiers of government illustrated in Figure 1.2 will vary from country to country. The level of action at the national and local levels will depend upon the political constitution of the country concerned. Some hold far more political power at the 'state' or regional level, whilst in others this power is heavily centralised. The figure very much reflects the British model, where most transport policy is set and generally implemented at the national level; this is particularly true of air, rail and shipping services. Locally based public transport, however, such as the bus, light rail and local ferries, are generally implemented at the local level, and clear divisions of responsibility exist in the provision of private transport facilities between national and local governments. Other forms of this general overview exist, however, such as the 'regionalisation' of many rail services in countries such as Germany and Sweden and to a lesser extent in Britain, where some rail services are specified and financed at the local level, hence creating a clear division of responsibilities for rail services in much the same way as there are clear divisions within Britain between 'national' and 'local' roads.

In many respects Figure 1.2 illustrates exactly what this book is about. Chapter 2 sets the context of the importance of transport to economic welfare and society in general, Chapters 3 through to 8 explain the workings of the market and their relevance to transport provision, Chapter 9 sets transport markets in the wider context of the natural and built environments, Chapters 10 and 11 concern the actions of government agencies in the workings of transport markets. Chapter 12 then specifically examines the economics of freight and the wider global economic environment, and finally Chapters 13 and 14 examine some of the technical aspects of forecasting future transport demands and appraisal methods for future transport projects.

To return however to the issue of economic systems, a practical example may help to reinforce and expand on a number of the ideas outlined in the above text. The example used is the provision of public transport services in Glasgow, as the various modes operated provide an interesting mix in terms of command (or planned) v free market economics.

### **Case study 1.1 Private and public sector roles in the provision of public transport in and around the Glasgow conurbation.**

Glasgow makes an interesting case study of different economic systems in the provision of its public transport services. It is nevertheless very typical of the type of model of public transport delivery that can be found in all of the major cities in Britain outside of London, and all aspects of provision can be found in every major city including London across the globe. In Glasgow there are basically three main forms of public transport: the bus, the train and the iconic Glasgow underground. Whilst all three operate through the price mechanism, i.e. a fare is charged for their use, the provision of each mode operates along very different economic

principles. Bus services tend to operate along the lines of the free market system, where privately owned and operated companies decide which bus services they will operate.<sup>1</sup> This is usually based upon providing a network of services that they believe will make them a profitable return, i.e. services that consumers are willing to pay for. Thus if there should be a reduction in the number of users of a particular bus service, the revenue (amount taken through the fare box) associated with that bus route will fall. If say this trend was to continue, then the point would be reached where the revenue gained from the service would fail to cover the cost of its operation and the service would be withdrawn.

In simple terms, through the market system 'consumers' have effectively decided that they no longer want that bus service and the operator, now making losses, consequently withdraws the service. This may lead to a 'downsizing' of the company, or more radically where this was the only service operated, the liquidation of the firm, i.e. it goes bust. The 'resources', i.e. land, labour and capital, that were employed in the provision of the service are then 'freed' to be engaged in producing something more profitable, i.e. something that consumers have decreed they want through showing their willingness to pay for it. That's the theory at least but one that does not always work out in practice, as it can often leave resources unemployed, i.e. inefficiencies in the system.

With regard to rail services, Glasgow has the largest suburban rail network in the UK outside of London and is thus a crucial element in the transport system of the city. The provision of services however is quite different in nature to that of the provision of bus services. Transport governance in Scotland, however, particularly with regard to the railways, is a complicated issue but one that should not distract from the key points in this case study. It is a government body, Transport Scotland, that decide what services to provide based not on the profit motive, but rather on the basis of the public interest. Thus Transport Scotland determines the pattern of rail services to be provided and sets the fares to be charged. It then however contracts a private sector operator – First Scotrail – to provide the services to the specified pattern and fare structure. This contract is on a fixed price basis, where First are awarded a fixed financial sum and expected to operate the service on that amount. Any revenue or cost reductions First can achieve above/below that will contribute to the company's overall profits. Thus if say patronage on a particular route was to fall, the decision as to whether to continue operating that service would lie with Transport Scotland and not with the private operator. The latter would have to continue to operate the service until the contract was up for renewal. At that time, Transport Scotland would then have to decide whether to spend the extra funds to retain the service in the face of falling passenger revenue. This decision would be taken on the grounds of what could be done with the funds if the service was to be withdrawn, i.e. the opportunity cost of the service. Therefore, unlike in the case of buses, the service would not be automatically terminated as it is not provided on the basis of the profit motive.

The 'model' of provision of services on the Glasgow underground is different again. In this case the public body, the Strathclyde Passenger Transport (SPT), act as both operator and principal funder of the system. Hence the SPT owns all the rolling stock and operates the service. SPT sets the fare and service patterns, and as with rail services these are provided on the basis of the public interest, hence passenger revenues fail to cover the cost of operation. The economics of the whole venture however still need to add up, thus the difference between costs and revenues are made up by subsidy (which amounted to £7.2m in 2006/07). This has been

reduced over the last few years through increases in fares in real terms, i.e. above the rate of inflation, in order to lessen the financial burden of the underground on SPT's funds.

This case very effectively illustrates the operation of all three different types of market systems in the provision of transport services – buses are planned and operated by private sector companies in pursuit of profits, i.e. largely along free market principles, rail services are provided along mixed market principles through the combination of a private sector operating company and a public sector planning body, and the underground along planned or command economy principles, with the services planned, owned and operated by the public sector. In some ways, these differences in the mode of delivery are related to the economic characteristics of each mode of transport, which results in the outcome that one mode of delivery does not fit all. These are facets to be explored later in the text. It is also worth highlighting that the distinction between the different 'types' of economic approaches/systems in the delivery of public transport services was based on a division between three different functions, that of ownership of the actual transport assets, i.e. buses, trains and related infrastructure, the planning of the services and finally the operation of the services. This division of responsibilities is also another facet of transport services that will be further developed in the course of the text, but it is one that has particular significance with the reform of public transport services.

One final point of reflection on this case study, and one repeatedly seen in later chapters, is that there has been a considerable shift away from direct public sector involvement in the provision of public transport services throughout the world, towards one that involves far more private sector involvement. If we were to travel back to 1980, which we can do through Youtube,<sup>2</sup> then we would find that Glasgow bus services were owned and operated by the SPT and rail services in the city provided by the nationalised British Rail in conjunction with the SPT. Since that period only the Glasgow underground remains in public ownership and operation, but it is now one of the few examples of such a model of provision remaining in Great Britain.

## CHAPTER SUMMARY AND REFLECTION

In this chapter we have considered the economic problem and identified that this is primarily concerned with scarcity, as individuals can't always get what they want. This leads to choices being made, hence, to follow the analogy, individuals should get what they need. How society's economic problems are resolved is through a market based system, specifically a 'mixed' market based system, and in transport markets the 'mix' is probably larger than in most others. Transport services are therefore provided on the basis of the interactions between private agents in the market and central and local government agencies 'guiding' their behaviour either through direct command or through the imposition of financial penalties or incentives. Importantly, however, the market lies at the centre of this activity. The following chapter takes these ideas further to examine the basic workings of the market for transport services. You should not forget however that it is mainly through the market mechanism that society resolves the basic economic questions outlined in this introductory chapter, they should never be considered as separate issues.

## CHAPTER EXERCISES

As an introduction, this chapter only has one exercise in identifying transport economic issues.

### Exercise 1.1 Transport economic problems?

Listed below are nine major transport related issues facing society today. Your task is to identify which ones are related to 'the economics of transport', in other words those you believe to be economic issues, as opposed to being related to other dimensions such as political or social factors. Although you should always try to come to a clear answer for each issue, what you may find is that for some the division is not always entirely clear or in other cases there may be several different factors present. Where you find this to be the case you should consider those other factors and thus where the economics of the issue 'fit' in the wider picture.

- 1 Politicians and business managers in general in Britain are often said to suffer from a disease known as 'short-termism'. This is where only the short term is considered with no or little thought given to the longer term. There are numerous examples of this disease in British transport policy, the prime example probably being the privatisation of the railways.
  - 2 The negative impact on the natural environment of all transport related activities.
  - 3 Increasing levels of traffic congestion in towns and cities.
  - 4 The high levels of subsidy required to sustain public transport industries.
  - 5 The increasing amounts of land that are being given over to support transport activities.
  - 6 The role of transport in 'unifying' the European Union.
  - 7 The subsidisation of public transport services in rural and socially deprived areas.
  - 8 The role of education in changing travel behaviour to reduce local and unnecessary journeys.
  - 9 The impact of an ageing population and the changing transport needs that this presents.
-