Rapid Revision Handbook

- Step by step guide to key concepts
- Question and Answer format
- Glossary

Q&A

Richard Young
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Introduction to Transport

Transport and transport modes

Define transport. Transport refers to the movement of people and goods between destinations.

List the main type of transport. Passenger transport is the movement of people from one place to another. Freight transport is the movement of goods from one place to another.

Define infrastructure. The stock of capital used to support the economic system

What is transport infrastructure? Transport infrastructure is capital items such as road and rail networks, airports that facilitate transport operations.

What are transport operations? Transport operations are decisions about the type of transport mode to use (demand) or provide (supply). Demand side decisions are made by consumers and firms eg what journey to make, by what mode, and at what time. Supply side decisions are mainly made by private sector firms eg what transport services to offer over what routes and what time and price.

Define mode of transport. A mode of transport is a method of transferring passengers and freight from one destination to another

Summarise the main characteristics of each mode of passenger transport.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Appropriate mode for</th>
<th>Impacts</th>
</tr>
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<tbody>
<tr>
<td>Road (car)</td>
<td>For short and long distance journeys, convenient &amp; flexible eg door-to-door 24/7</td>
<td>Generates negative externalities eg air pollution and congestion</td>
</tr>
<tr>
<td>Bus</td>
<td>Commuting in or between cities</td>
<td>Limited, fixed routes and timetables</td>
</tr>
<tr>
<td>Rail</td>
<td>Commuting, city to city travel middle to long distance travel</td>
<td>Generates positive externalities by diverting journeys from roads</td>
</tr>
<tr>
<td>Air</td>
<td>Fastest mode for long distance journeys</td>
<td>Limited routes &amp; timetables. Unsustainable.</td>
</tr>
</tbody>
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Summarise the main characteristics of each mode of freight transport.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Appropriate mode for</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>All journeys. Dominant mode</td>
<td>Generates negative externalities eg noise, pollution &amp; congestion</td>
</tr>
<tr>
<td>Rail</td>
<td>bulky items over long distances</td>
<td>+ve externalities ie diverts freight from roads</td>
</tr>
<tr>
<td>Air</td>
<td>for high value low bulk items over long distances where speed is important</td>
<td>Limited routes &amp; timetables. Unsustainable.</td>
</tr>
<tr>
<td>Sea</td>
<td>for bulky items over long distances where speed is unimportant</td>
<td>slow</td>
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What is loading? Loading or load factor is the percentage. Eg a loading factor of 80% means 20% of seats or space is unused in a journey. High loading indicates means few empty seats.

Define private transport. Private transport is when people use their own vehicles to travel.

Define public transport. Public transport involves the mass movement of people at one time - usually by bus or train and using a scheduled service on a fixed route.
**Demand for transport**

**Define the demand for transport.** The demand for transport is the number of journeys consumers or firms are willing and able to purchase at various prices in a given time period.

**What does derived mean?** Derived means got from or obtained from something else.

**Define derived demand.** Derived demand occurs when the demand for a particular product depends on the demand for another product or activity

**Why is the demand for transport a derived demand?** Transport is rarely demanded for its own sake, the journey, but for what the journey enables eg commuting, taking a holiday or distribution.

**Give examples of how the demand for transport is derived.** People do not use transport for its own sake, the journey, but for what the journey enables eg economic growth leads to more

- **Commuting** as a rise in GDP increases employment hence the number of commuters
- **Leisure** as households higher incomes to take more holidays raising the demand for eg air flights
- **Distribution**: eg firms hire lorries to transport products to customers. An increase in GDP or international trade raises the demand for products increasing in the demand for freight transport

**Explain an increase in the demand for transport.** Transport demand is derived. Increases in GDP or population raise the overall demand for travel for commuting, distribution and holiday purposes.

**How does the purpose of a journey affect demand?** Commuters have to be at work in a given place at a given time. Shopping or social journeys are less time sensitive. This means the price elasticity of demand for commuters is more inelastic than for leisure journeys

**How does a fall in the bus fares affect bus use?** A fall in the price of bus fares from P1 to P2 results in an extension in demand. Lower fares cause an increase the number of journeys undertaken from Q1 to Q2

**Explain the substitution effect.** A price fall encourages consumers to buy more of a relatively lower priced product and less of a higher priced substitute

**Explain the income effect.** A price fall leaves consumers with income left over after buying the same amount of the product. Extra income may be spent buying more of this item – if it is a normal good

**What determines the impact of a price change on demand?** The bigger the price change, the greater the impact on quantity demanded. The impact of a price change also depends on own **price elasticity of demand.** Given few close and available substitutes demand for a product is price inelastic and so insensitive to own price changes.

**Explain the rise in car use in recent years.** Increased use is the result of higher demand for cars eg:

- Lower car **prices** or running costs causes a rise in quantity demanded. The substitution effect of a price fall causes modal shift as some users switch from relatively higher priced substitutes eg rail to using their car more often
- Increases in in real GDP have increased **income** increasing the demand for cars and causing a rightward shift of the demand curve. Given the demand for cars has a high and positive income elasticity of demand, a rise in incomes leads to a proportionately larger increase in demand
- The **price of substitutes** eg bus and rail fares have risen in real terms resulting in some users switching to the relatively cheaper alternative, cars, increasing demand and shifting the demand curve for cars to the right. Given cars and buses/rail have a high and positive cross elasticity of demand, a rise in the price of public transport leads to a proportionately larger rise in car demand.
Subsidies

What is a subsidy? A subsidy is a payment made by the government to producers or consumers to encourage production or consumption.

How are subsidies used in public transport? Subsidies can be given by the state to reduce operating costs and so allow operators to lower fares or the cost of capital and infrastructure improvements eg for new buses and bus lanes.

How do subsidies affect price? A producer subsidy lowers costs of production. Firms increase supply resulting in a lower price and higher output.

How do subsidies affect modal shift? Subsidies for public transport reduce their price and encourage car user to switch to relatively cheaper alternative modes of transport.

Draw a diagram to illustrate producer subsidy. A subsidy = Su reduces firm’s costs of production. Firms increase supply at all market prices causing an outward shift in the supply curve to S2. Equilibrium market price falls from P1 to P2 and output rises to Q2.

What is the cost of the subsidy? Consumers use to pay P1 but now pay P2. Firms use to receive P2 but now get P3. The subsidy costs the gov (P3-P2) x Q2.

How are subsidies financed? State subsidies are financed from general taxation or by borrowing.

Why subsidise public transport? Advocates argue effective state subsidies

- move output away from the market to social optimum level so improving allocative efficiency
- encourages a modal shift away from private cars and so create positive externalities and improves sustainability
- improve social equity and reduce social exclusion as low income households who cannot afford cars now have access to transport

How effective are subsidies in encouraging commuters to switch from road to rail? Road and rail are substitutes. A rail subsidy makes tickets cheaper and encourages car commuters to switch from cars, depending on the cross elasticity of demand value between cars and trains. The easier it is for commuters to switch easily from cars to rail, the more effective subsidies are in reducing road travel.

Outline arguments against state subsidies. Critics argue state transport subsidies

- may encourage x-inefficiency as firms can use subsidies to cover the cost of organisational slack
- are ineffective if the demand for public transport is price inelastic. Very large subsidies are required to increase the number of travellers using public transport
- affect only one factor determining demand: price. Non price factors such as poor reliability and comfort may mean consumers do not use public transport even after a price fall from subsidy
- may be absorbed by firms as profit rather than passed onto consumers as lower prices
- are expensive and represent an opportunity cost

Comment of the effectiveness of subsidies. The impact of subsidies depends on the size of the subsidy and whether or not demand is price elastic. Subsidies used in isolation are less effective than if part of strategic integrated solution eg in combination with a road pricing scheme.

Effectiveness also depends on how the subsidy is used: capital subsidies improve the quality of public transport and so improve consumer perceptions increasing demand and making income elasticity of demand for public transport positive and more elastic.
Regulation

Define regulation. Laws that ban or restrict specified activities.

What are standards? Government standards set out legal requirements for a given economic activity eg the allowable level of CO2 emissions above which a car fails its MOT.

Why use regulation? Governments can use the law to change the behaviour of economic agents in ways which the state believes will improve the use of scarce resources. Compliance with regulation and standards moves market output towards the social optimum level.

Give examples of transport regulations. MOTs, the London Emissions Zone and restrictions on car usage in city centres.

How can regulation correct market failure? In a free market, the forces of supply and demand determine the level of output. Regulation overrules market forces and sets a standard for desired consumer and producer behaviour. Compliance moves market output towards, or ideally to, the social optimum where marginal social cost equals marginal social benefit.

Describe the regulation process. Regulation uses two-step process: command and control.

- command: regulation sets a standard for a given activity defining what is and is not legal behaviour eg the maximum level of CO2 emissions above which a car fails its MOT.
- control: regulations are enforced using sanctions. Economic agents must comply with a regulation or risk fines or imprisonment thus giving an incentives to change behaviour.

Explain the role of monitoring and enforcement. Regulation corrects market failure only if it causes economic agents to change their behaviour in desired ways. Some consumers and producers may choose to ignore regulations. Effective regulation requires:

- monitoring by police to check economic agents are complying with the law.
- enforcement using fines or imprisonment to compel observance of the law.

Describe various forms of regulation. The government can pass and enforce laws that:

- ban activities leading to market failure eg price fixing by cartels.
- limit a given activity eg cap allowable noise levels airplanes; introduce output quotas.
- require a given activity from eg compulsory wearing of seatbelts.

How can regulation affect costs of production? Costs may increase if firms have to change production processes or hire staff to meet legal standards. Firms cut supply at all market prices and the supply curve shifts to the left. Price rises and output falls.

Use a diagram to show how regulation can affect supply. In each diagram P1 and Q1 is the equilibrium price and output in free markets. Q2 is the social optimum level. Regulation can:

- aim to increase firm’s costs of production so shifting the supply curve shifts to the left. The price increase to P2 leads to a contraction in demand with output at Q2 – the optimal level.
- set a quota, ie a legal limit on the amount that can be produced, equal to the optimum level Q2. The supply curve shifts to S2 and become perfectly price inelastic.
Give examples of regulations used to solve market failures arising from negative externalities

- Set legally enforced standards for eg maximum level of air and noise pollution from planes
- restrictions over landing slots and number of flights allowed at night

Give examples of regulations used to solve market failures from abuse of market power

- *Price controls:* use a $RPI - X\%$ formula. If the RPI is 3% and the inflation rate is 2%, then firms must reduce prices by 1% every year through increased efficiency or lower profit margins.

Define a regulator? A government agency that monitors the performance of firms in an industry

Give an example of a transport regulator. The Office of Rail Regulation (ORR) ensure Network Rail complies with standards on eg punctuality, productivity, investment for dynamic efficiencies

Explain yardstick competition. Regulators assess the performance of a firm against other similar firms. Eg he McNulty Report found UK rail industry costs are 30% higher than European railways. Yardstick competition can introduce 'comparative competition' eg the ORR has set Network Rail a target of closing this 'efficiency gap by 2019 to match the performance of European railways.

Describe the benefits of regulation.

- set clear standards for activities to avoid market failure, and the costs of non-compliance
- can be introduced quickly and at little cost to the state. Laws can have an instant impact.
- Fines give economic agents an incentive to comply and can finance enforcement costs

Describe the difficulties in using regulation to correct market failure.

- incur monitoring and enforcement costs depending on the level of public support
- require externalities be easily identified and valued so the optimum level of output can be set.
- Does government have accurate and complete information?
- needs to set the right standard to change behaviour to optimum levels: difficult to assess
- may have unintended consequences eg encourage illegal activity in the shadow economy
- may 'export' harmful economic activity to other countries with less stringent regulations
- offer no incentive for improvement once standards have been set
- may be too expensive, ineffective or lead to unintended consequences causing government failure ie state intervention increases economic inefficiency in a market

Identify factors that determine the effectiveness of regulations.

- standards are simple and the costs of non-compliance are known, certain and high risk
- externalities are easily identified and valued so the optimum level of output can be set
- monitoring and enforcement costs are low
- measures command public support so reducing enforcement costs
- there are no harmful unintended consequences eg black markets

Does regulation always work? Government intervention can lead to government failure if the costs of regulation are high or regulators act on the basis of imperfect information or forecasts.

What if economic agents ignore regulations? Regulations are legally enforced rules that override economic agents own preferences. Offenders risk legal action, fines and imprisonment

Why is monitoring important? Monitoring helps ensure compliance ie consumers and firms observe regulations and meet standards. Law breakers can be prosecuted.

What are the drawbacks of regulations? New laws, regulations or standards usually

- increase costs of production causing higher prices or lower profit margins
- impose monitoring and enforcement costs and restrict consumer and producer choice

Comment on the London Emission Zone (LEZ). The LEZ covers most of greater London. HGVs are regulated to help reduce air pollution. To avoid a daily £200 charge, lorries must meet exhaust emissions standard - Euro IV from 2012. HGV owners register their vehicles. Camera, automatic number plate recognition and databases are used for monitoring and enforcement.
A2 Transport Economics Glossary

**Agent-principal**: the relationship between a principal (owners) and an agent of the principal (eg managers)

**Airline alliances**: An agreement between two or more airlines to cooperate. Used by scheduled airlines to increase their reach eg codesharing

**Allocative efficiency**: scarce resources are used in a way that maximises consumer satisfaction

**Allocatively efficient output**: the level of output where MSB = MSC ie the socially optimum output level

**Appraisal**: an assessment of a project undertaken at the planning stage

**Average cost**: The cost of making one item sometimes called unit cost; cost per unit of output

**Average fixed cost**: total fixed costs of production divided by the quantity produced; unit fixed cost

**Average revenue**: the amount a firm receives per unit sold - another name for price

**Barriers to entry**: obstacles preventing or restricting firms entering a market

**Barriers to exit**: obstacles that restrict existing firms from leaving a market eg sunk costs

**Behavioural economics**: a branch of economics that studies the impact of psychological and social factors on economic decision making.

**Benefit cost ratio (BCR)**: the ratio of the benefits of a project expressed in monetary terms, relative to its costs

**Billion**: £ billion denotes £1,000 million ie £1,000,000,000

**Capacity utilisation**: the proportion of current resources used; the extent to which resources are used: eg operating at 80% capacity means 20% of resources are unused

**Carbotage**: the transport of passengers or freight within country by a means of transport eg plane registered in another country

**Cartel**: when a group of rival firms join together to take common action eg agree prices, market share or exchange information on costs

**Ceterus paribus**: a Latin phrase meaning ‘all other things (influences) being equal’

**Civil Aviation Authority (CAA)**: the UK's aviation regulator

**COBA**: a decision making tool used by central government to establish the net present value of a new road or road improvement scheme

**Codesharing**: two airlines share the same flight and sell tickets in their own name

**Collusion**: when rival producers decide to act together rather than compete

**Competition**: when rival firms contend for customers

**Competition Commission**: an independent public body which investigates situations where firms may exploit market power

**Competition policy**: government action to promote rivalry between firms and reduce abuse of market power eg banning cartels or blocking mergers

**Competitive market**: a market made up of many rival firms who are free to enter or leave the industry

**Concentration ratio**: measures the percentage of total market held by of the largest firms in the industry eg the top 4

**Congestion**: when demand exceeds supply on a given network at a given period in time eg bank holiday on holiday routes

**Congestion charging**: A direct charge for use of roads in a defined zone eg central London

**Consumer sovereignty**: buyers ultimately determine what is produced and how scarce resources are used by means of their purchases

**Contestability**: the extent to which firms can enter or leave a market without cost

**Contestable market**: a market that has no barriers to entry or exit and a pool of potential entrants

**Contract logistics**: manufacturers outsource of transport and distribution activities

**Cost benefit analysis**: a decision making tool which compares the social costs and social benefits of a project over time

**Costs**: expenses of production; a payment incurred by a firm in producing a good or a service; monetary value of inputs used in production

**Cross elasticity of demand**: the responsiveness of demand for one product to a change in the price of another product

**Cross-subsidisation**: an internal subsidy where a firm uses profits from one activity to reduce the price of another product

**Deadweight loss**: an estimate of allocative inefficiency from market failure

**Demand for transport**: the number of journeys consumers or firms are willing and able to purchase at various prices in a given time period

**Demerit good**: products that have less private benefits than consumers may recognise because of imperfect information