The pricing of transport activities

EE382

The principle of pricing

- A method of resource allocation
- Optimal pricing strategies permit specified goals to be obtained
  - To achieve profit maximization may differ from that needed to maximize welfare or ensure the highest sales revenue
  - To achieve certain objectives for the transport supplier in term of the supplier's welfare

Features of various market structures

Feature	Perfect competition	Monopoly
Profit maximization	Yes	Normally
Barriers to entry/exit	No	Yes
Perfect mobility of inputs	Yes	No
Ubiquitous information	Yes	No
Large number of firms	Yes	No
Homogenous service	Yes	Yes
Firms confronted by the cost function	Yes	Yes
U-shaped AC function	Yes	Maybe
Profit	Normal	Monopoly rent

- The price determine who gets and who doesn’t get a particular service but also determines the distribution of the rewards between the provider and the user of transport services, with imperfect market structures characterized by higher rewards for the providers of such services

- Pricing in public transport services
- Pricing in private transport services

Pricing in public transport services

Pricing in public transport services

- Price discrimination
- Predatory pricing
- Price fixing

Price discrimination

- A company charges particular consumers a higher price than others for the same product for reasons unrelated to cost

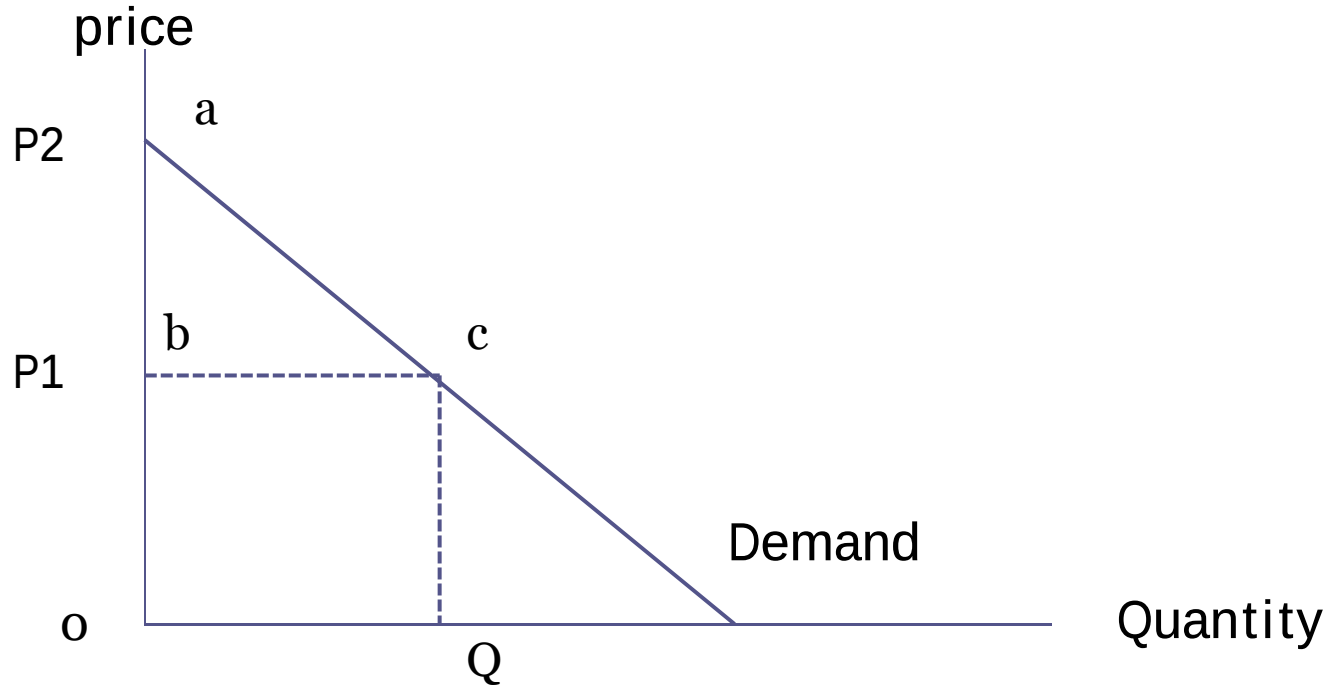
- is extensively used in the transport sector with bus, coach , rail and airline operators charging a range of prices for the same service depending on the time of the day, when the tickets are booked or the particular period time of the year

Weekday and Saturday opening times and daytime charges, Grand Arcade 7.30 am-5.00pm, Cambridge, from April 2008

Hours	Weekday tariff (British pounds)	Saturday tariff (British pounds)
0-1	1.60	1.80
1-2	3.20	3.60
2-3	4.80	5.40
3-4	8.00	8.80
4-5	14.50	16.50
5+	21.00	21.00

- The basic principle of price discrimination is to increase an operator's total revenue and earn higher profits, and as a result reduce consumer surplus

- Consumer surplus refers to the difference between the actual price a consumer pays for a product and what they would be willing to pay

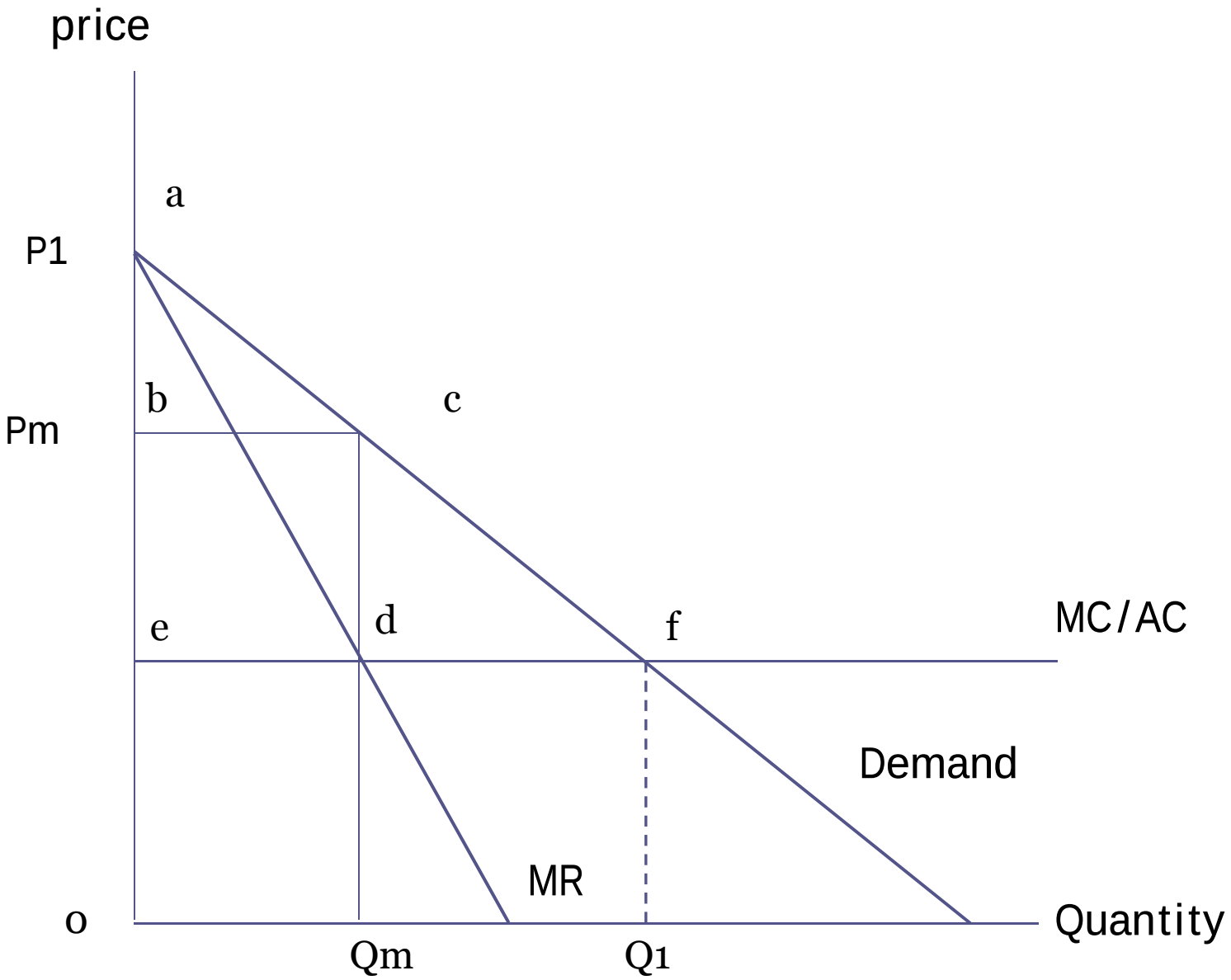


- The seller must possess a degree of market power, although the operator does now have to be a monopolist

- The seller must be able to divide the market into individual segments and thus separate different customers within a particular market, such as peak and off-peak

- Each market segment must have differing elasticities of demand

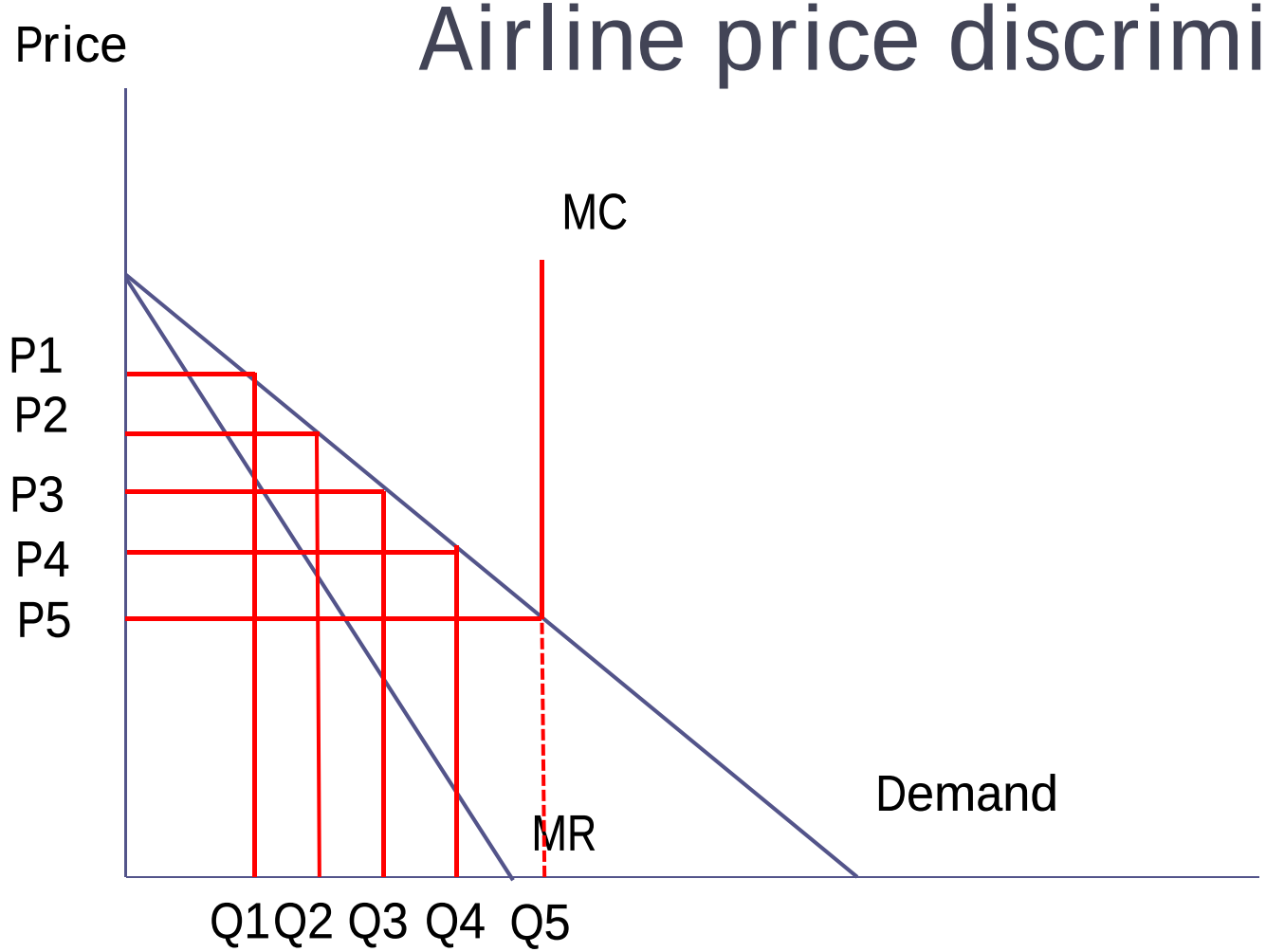
Perfect price discrimination



Case study

Sale of airline tickets

Airline price discrimination



- If the airline operator was to profit maximise it would set a price equal to P2 and sell a quantity of Q2 tickets

- However, this would mean that the airline would be operating at below full capacity, with Q5-Q2 seats empty at the time of departure

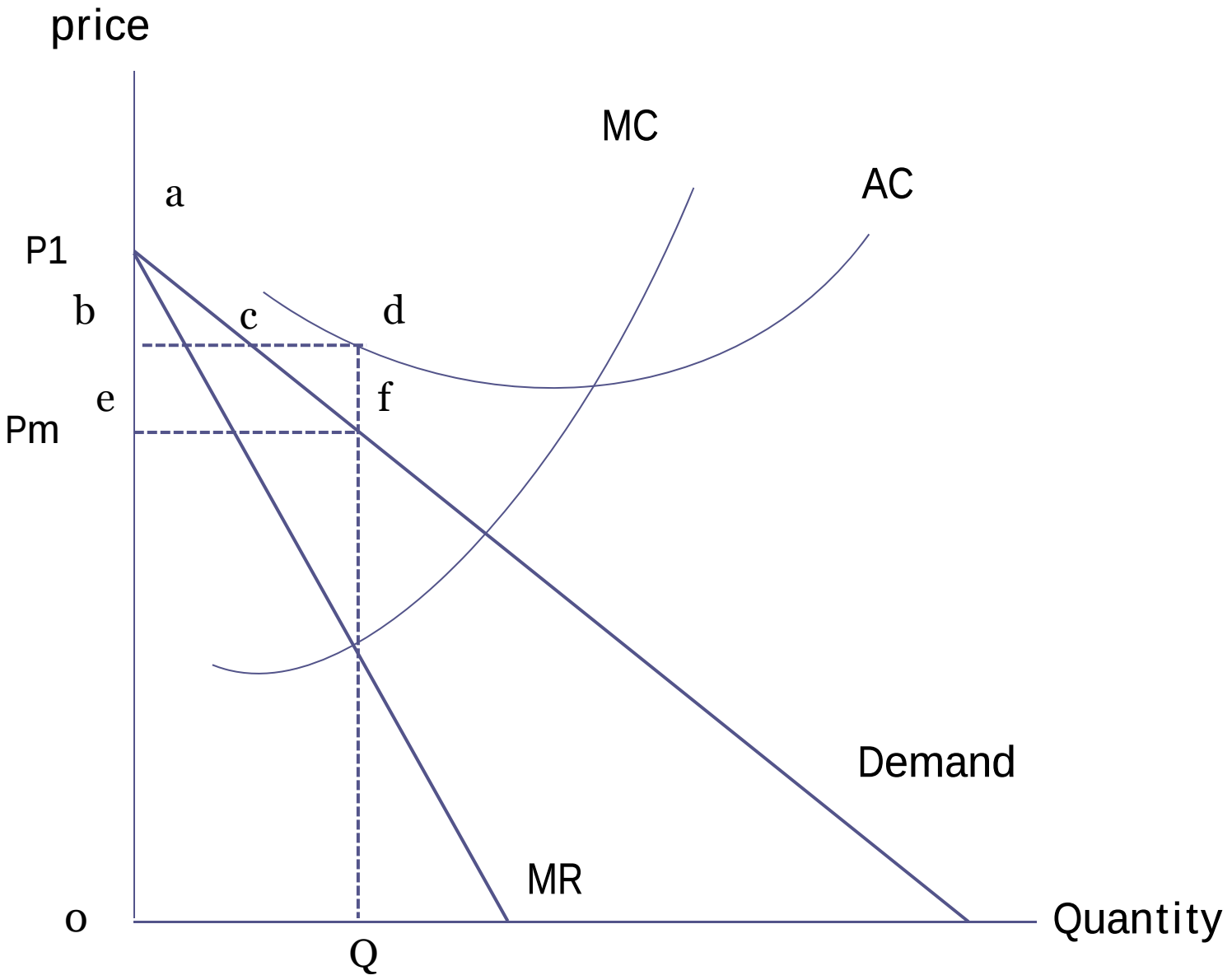
- The airline operator would seek to price discriminate and release seats onto the market at different prices at different time periods

- This it is able to do because consumers will purchase their tickets at different times

- As these consumers have different price elasticities, this allows the airline to price discriminate

- Airline operators are able to price in this way since they are able to separate their customers and prevent arbitrage and this is possible since tickets when purchased are not transferable

Loss making operator and perfect price discrimination

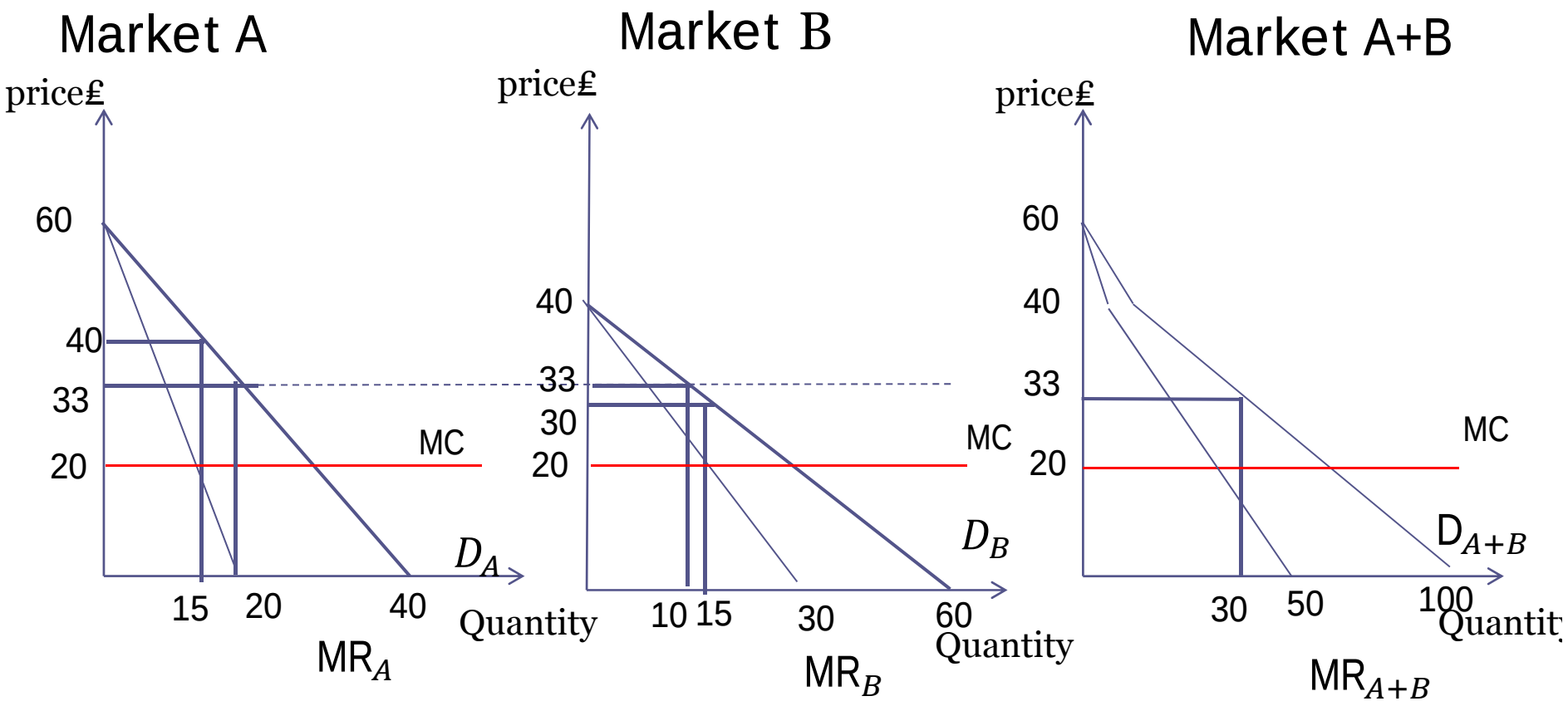


- A situation in which a transport operator charging a single price of P1 is making a loss of bdef

- Example - an airline operator serving a remote sparely populated area and as can be seen it is not covering its AC and consequently it would cease operating in the long run

- If however it were to charge more than one price it might be able to make a profit and continue to operate the service

Price discrimination in two different markets



- Two markets (A and B)
- The demand in market A is less elastic than it is in market B
- Represents the peak and off-peak nature of rail travel with the split between the commuter and the leisure rail user
- If only one price were to be charged, under conditions of profit maximization (MR=MC), then the price would be £ 33 and 30 units would be sold

Predatory pricing

- When a firm, normally with market power in more than one market, reduces its price below cost in the short run so as to obtain abnormal profit in the long run
- Aim to achieve or maintain a monopoly situation
- An appealing strategy in a segmented market- the dominant firm is able to impact a rival firm without changing the prices it charges in other markets that it serves

Case study

EWS (English, Welsh and Scottish Railways) and predatory pricing

Case 1 The heavy haul sector

- EWS is the main heavy haul operator in the UK and the largest rail freight company in Britain
- A major part of its business is in coal haulage and for this Enron Coal Services (ECSL) acted in the role of a freight forwarder and offered customers in the sector end-to-end services in the transportation of coal
- It acted both as a partner for EWS and as a competitor to EWS

EWS was accused of

- Discriminatory pricing practices in relation to ECLS by offering selective price reductions to various customers

- Predatory behavior towards freightliner – offered prices to two electricity generators that were significantly below its average costs for these flows

- Exclusive contracts

Case 2 Chartered passenger trains

The complaint against EWS highlighted a number of issues

- EWS had offered prices to certain customers that were significantly below its published terms and that these were designed specifically to undercut the prices offered by a competitor

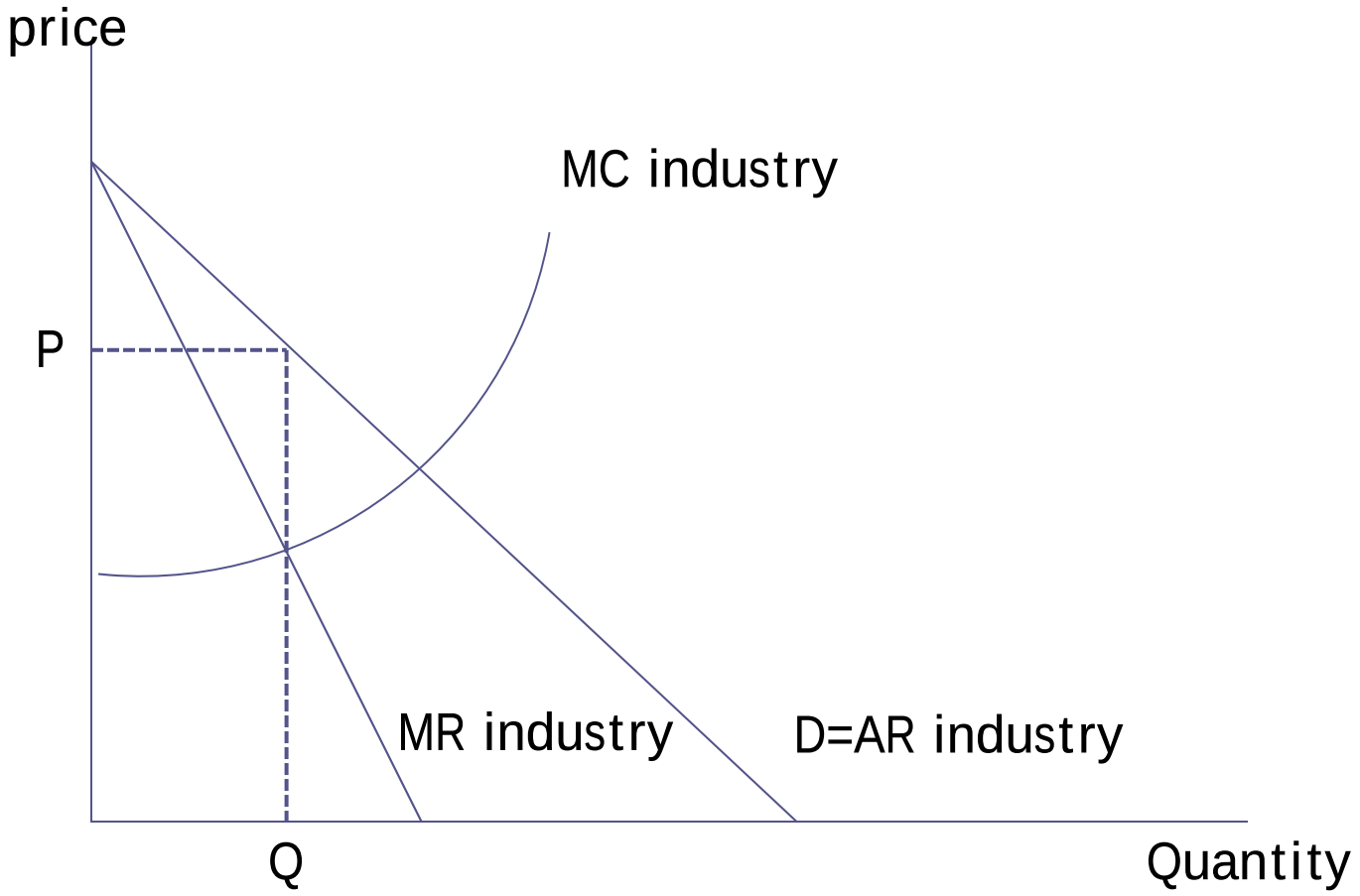
- EWS had offered certain concessions on its usual terms of trade to specific customers, conditional on those customers continuing to deal exclusively with EWS- these concessions were, in effect, also designed to exclude a competitor

Price fixing

- Collusion allows firms to act as a monopolist with the aim of maximizing their joint profits

- A situation where firms within a market agree on the price they are going to sell their goods or services at in order to remove price competitiveness and thus increase their profits

Cartel based profit maximization



Collusion by organizations is more likely to occur if:

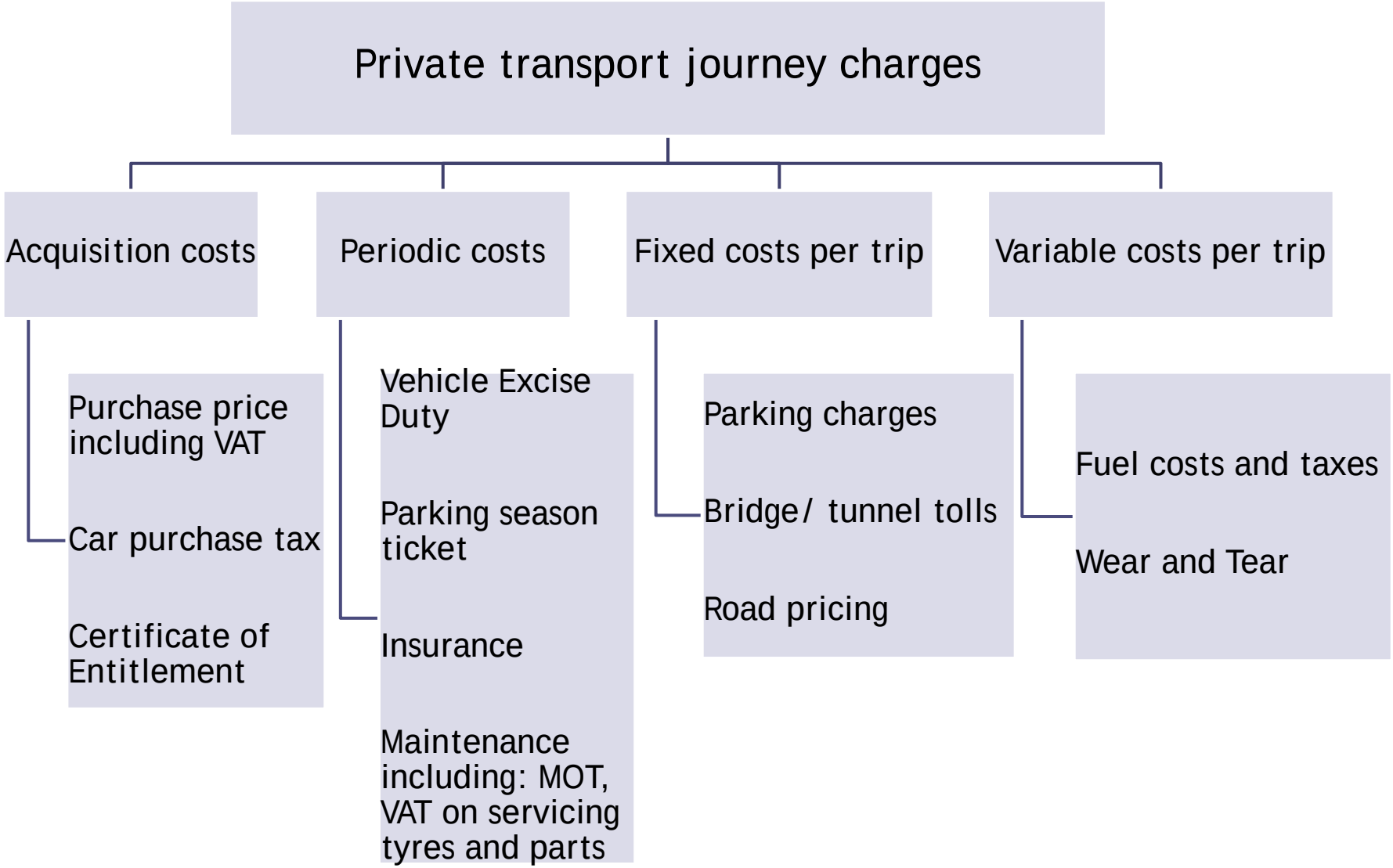
- There are only a few organizations operating in the market
- The organizations trust each other, so that the agreement reached is not reneged on
- The organizations have similar costs and as such are likely to agree on the proposed price change
- The organizations provide similar products so there is little scope for competition based on the quality or level of service
- The market is fairly stable in that neither demand nor costs are changing dramatically. If they were, then agreement on the price to charge would be difficult
- There are barriers to entry into the market such that new firms will find it difficult to penetrate the market in order to take advantage of the increased profits

Pricing of private transport services

Pricing of private transport services

- Acquisition costs
- Periodic costs
- Fixed costs per trip
- Variable costs per trip

Charges incurred when undertaking a private transport journey



Acquisition costs

- Purchase price including VAT
- Car purchase tax
- Certificate of Entitlement
  - Singapore – to limit car ownership and the number of vehicles on the road

August 2008 second bidding exercise for COE

	Quota premium	Total bids received	Number of successful bids
Non-transferable categories			
Category A (Cars 1600 cc and below, and taxis)	$13,289	2,318	2,036
Category B (Cars 1601 and above)	$13,890	1,362	1,071
Category D (Motorcycles)	$1,310	548	445
Transferable categories			
Category C (Goods vehicles and buses)	$12,989	492	370
Category E (Open)	$14,001	1,318	878

Periodic costs

- Standing charges
- Basic costs of owning a car for use on the roads network
- Charges that have to be paid whether or not the car is used e.g. annual registration tax (vehicle excise duty) and insurance

UK vehicle excise duty rates (£ 12 month rate), 2008-09(for private vehicles registered from March 2001)

VED band	CO_2(g/km)	Petrol and diesel cars	Alternative fuel cars
A	100 and below	£0	£0
B	101-20	£35	£15
C	121-50	£120	£100
D	151-65	£145	£125
E	166-85	£170	£150
F	186-225	£210	£195
G+	Over 225	£400	£385

Fixed costs per trip

- May be incurred by those undertaking a journey include parking charges
- A river crossing
- Road pricing is designed as a measure to reduce congestion

Case Study

Central London congestion charging

- Central London in February 2003
- Aims of the scheme being to reduce congestion
- Motorists entering the congestion charging zone between the hours of 7 am and 6 pm Monday-Friday (excluding holidays) are charged £8
- If the motorist has failed to pay the charge before midnight a fine of £100 is imposed and if the offender pays within 14 days then the fine is reduced to £50

Advantages of the scheme

- Congestion in urban areas can be viewed as market failure with the actions of road users in Central London affecting other road users
- Economics is concerned with the optimum use of scare resources and since road space in Central London can be viewed as a scare resource then charging for its use will mean that it can be used more efficiently
- The revenue raised from congestion charging is to be used to improve the public transport
- Encourage efficient transport systems in terms of land use space

Disadvantages of the scheme

- The invasion of privacy given that the system relies on taking a photograph of vehicle number plates
- A regressive measure as those who pay the charge and are on lower incomes pay a larger proportion of their income than those on higher incomes in order to drive in central London

Variable costs per trip

- Costs that are incurred on each trip and which vary in accordance with one or more of the characteristics of the trip

Retail price of premium unleaded petrol and tax (2008)

	Tax as % of retail price	Retail price (Eurocents per liters)
Netherlands	64	1.69
Denmark	62	1.58
Germany	65	1.57
Finland	64	1.57
Italy	61	1.54
Belgium	61	1.53
France	64	1.51
United Kingdom	67	1.51
Portugal	60	1.50
Sweden	63	1.47
Irish Republic	57	1.34
Austria	56	1.33
Luxemburg	54	1.32
Greece	47	1.27
Spain	53	1.23

Reference

- Cowie J. (2010). The Economics of Transport. Routledge.