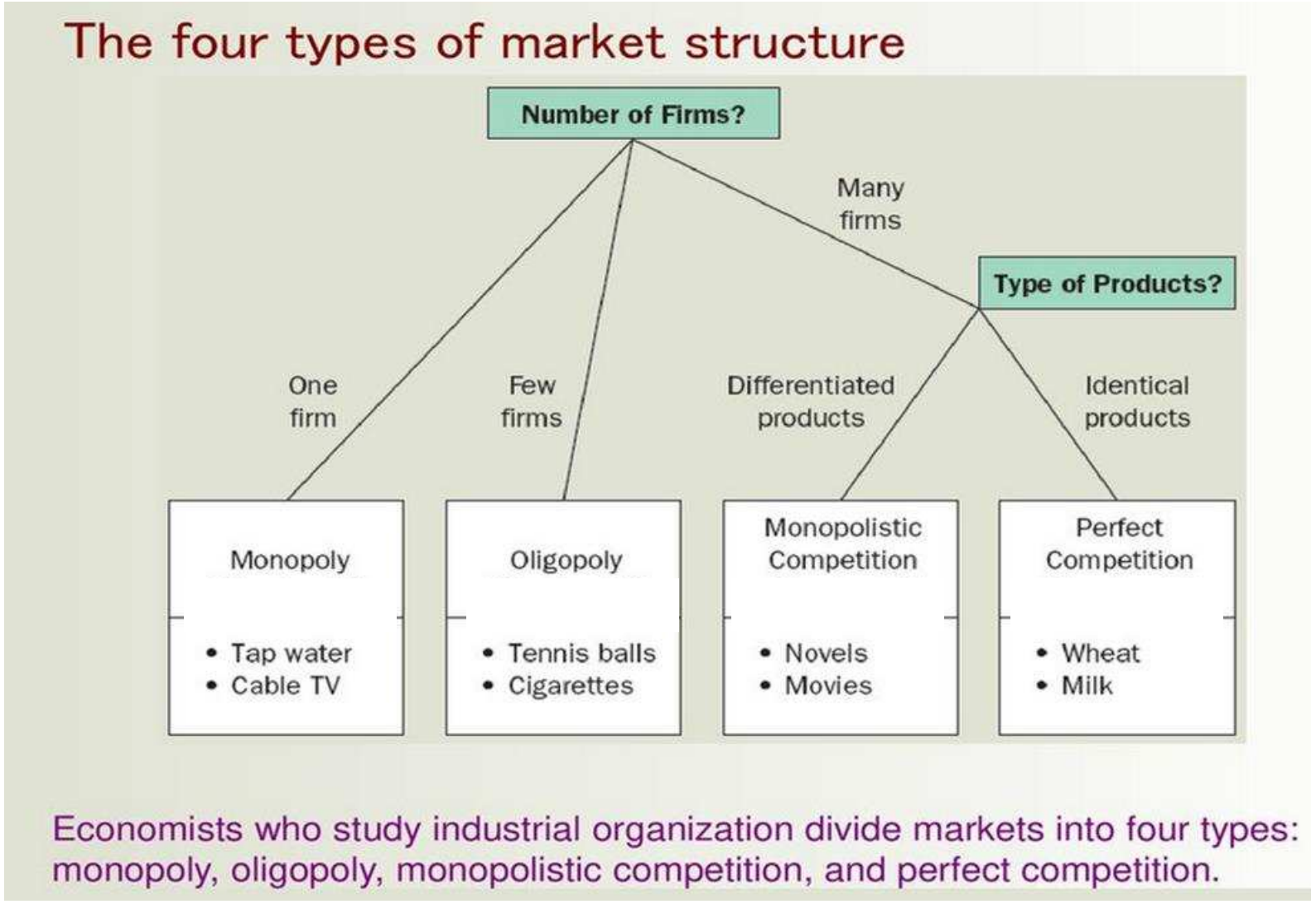
Market structures

Lecture


GETTY IMAGES


FIFA

Types of market structures



Perfect competition

Also known as competitive markets or perfectly competitive markets

Perfect competition

- A form of market structure in which there are a large number of producers, but also consumers
- The producers offer the same, homogeneous product

- Some characteristics of this market structure:
- A large number of sellers and buyers
- Complete freedom of entry or exit from the market
- Transparent market and fully informed customers
- Mobility of production factors
- Free, uncontrolled and undirected market
- Mutual knowledge of producers and consumers
- Existence of perfect substitutes
- Product: homogeneous (identical)
- Price: taken, regulated by the market
- Producers are price takers - they must accept the price set by the market

The revenue of the firm in perfectly competitive market

- A firm in a competitive market, like most other firms in the economy, tries to maximize profit (total revenue minus total cost).
- Example the Vaca Family Dairy Farm
- Because the Vaca Farm is small compared to the world market for milk, it takes the price as given by market conditions. Price is decided by big wholesalers buying their milk (Lactalis, Dukat, Vindija etc.)
- This means, in particular, that the price of milk does not depend on the number of gallons that the Vaca Farm produces and sells.
- If the Vacas double the amount of milk they produce to 2,000 gallons, the price of milk remains the same, and their total revenue doubles to $12,000. As a result, total revenue is proportional to the amount of output.

Revenue of firm in perfectly competitive market – Vaca Family Dairy Firm

(1) Quantity (Q)	(2) Price (P)	(3) Total Revenue (TR = P × Q)	(4) Average Revenue (AR = TR / Q)	(5) Marginal Revenue (MR = ΔTR / ΔQ)
1 gallon	$6	$6	$6	
				$6
2	6	12	6	
				6
3	6	18	6	
				6
4	6	24	6	
				6
5	6	30	6	
				6
6	6	36	6	
				6
7	6	42	6	
				6
8	6	48	6	

- Average revenue (AR)– How much revenue does the farm receive for the typical gallon of milk? – in average a gallon of milk is 6 USD
- Marginal revenue (MR)– How much additional revenue does the farm receive if it increases production of milk by 1 gallon? = 6 USD
- For the firms in perfect competition marginal revenue is equal to the price of good P=MR
- (1 gallon = 3,76 l)

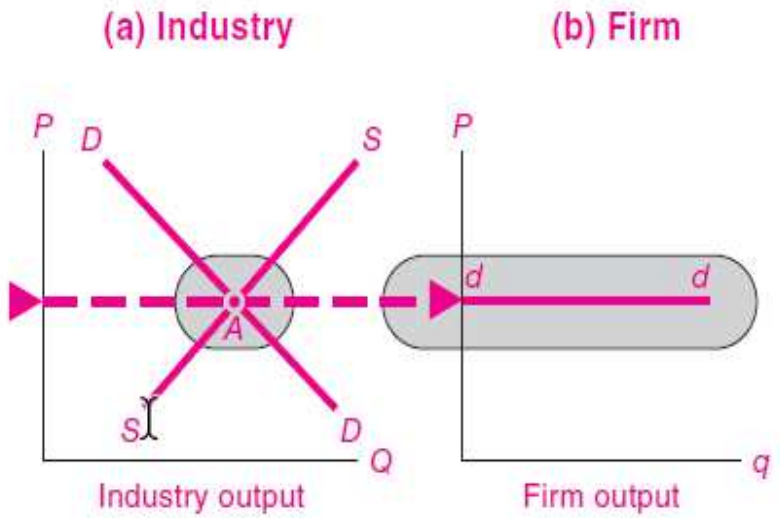


FIGURE 8-1. Demand Curve Is Completely Elastic for a Perfectly Competitive Firm

The industry demand curve on the left has inelastic demand at the market equilibrium at *A*. However, the demand curve for the perfectly competitive firm on the right is horizontal (i.e., completely elastic). The demand curve on the right is horizontal because a perfect competitor has such a small fraction of the market that it can sell all it wants at the market price.

The demand curve is horizontal because a perfect competitor has such a small fraction of the market that it can sell as much as it wants at market price.

The firm maximizes its profit when P= MR=MC

(1) Quantity (*Q*)	(2) Total Revenue (*TR*)	(3) Total Cost (*TC*)	(4) Profit (*TR* − *TC*)	(5) Marginal Revenue (*MR* = *ΔTR* / *ΔQ*)	(6) Marginal Cost (*MC* = *ΔTR* / *ΔQ*)	(7) Change in Profit (*MR* − *MC*)
0 gallons	$ 0	$ 3	−$3			
				$6	$2	$4
1	6	5	1			
				6	3	3
2	12	8	4			
				6	4	2
3	18	12	6			
				6	5	1
4	24	17	7			
				6	6	0
5	30	23	7			
				6	7	−1
6	36	30	6			
				6	8	−2
7	42	38	4			
				6	9	−3
8	48	47	1			

Explanation of the table on previous slide

- If we are comparing the values of Total revenue (TR), total cost (TC) and profit (TR-TC) we read the table as follows:
- If the farm produces nothing, it has a loss of $3 (its fixed cost). If it produces 1 gallon, it has a profit of $1. If it produces 2 gallons, it has a profit of $4 and so on. Because the Vaca family's goal is to maximize profit, it chooses to produce the quantity of milk that makes profit as large as possible. In this example, profit is maximized when the farm produces either 4 or 5 gallons of milk, for a profit of $7.
- There is another way to look at Vaca Farm's decision: The Vacas can find the profit-maximizing quantity by comparing the marginal revenue and marginal cost from each unit produced. Columns (5) and (6) in Table compute marginal revenue and marginal cost from the changes in total revenue and total cost, and column (7) shows the change in profit for each additional gallon produced.:
- The first gallon of milk the farm produces has a marginal revenue of $6 and a marginal cost of $2; hence, producing that gallon increases profit by $4 (from -$3 to $1). The second gallon produced has a marginal revenue of $6 and a marginal cost of $3, so that gallon increases profit by $3 (from $1 to $4). As long as marginal revenue exceeds marginal cost, increasing the quantity produced raises profit. Once the Vaca Farm has reached 5 gallons of milk, however, the situation changes. The sixth gallon would have a marginal revenue of $6 and a marginal cost of $7, so producing it would reduce profit by $1 (from $7 to $6). As a result, the Vacas would not produce beyond 5 gallons.

Imperfect competition

- Imperfect competition prevails in an industry whenever individual sellers can affect the price of their output. The major kinds of imperfect competition are monopoly, oligopoly, and monopolistic competition.

Key factors of imperfect competition – barriers to entry (difficulties for new competitors to enter into industry)

a) Legal and governmental restrictions – patents, tariffs, franchise monopolies (e.g. electricity) - the firm gets an exclusive right to provide a service, and in return the firm agrees to limit its prices and provide universal service in its region even when some customers might be unprofitable; government concessions - exclusive rights to e.g. exploit water – Jana)

b) Advertising and product differentiations– Advertising can create product awareness and loyalty to well-known brands. Pepsi and Coca-Cola spend hundreds of millions of dollars per year advertising their brands, which makes it very expensive for any potential rivals to enter the cola market. In many industries—such as breakfast cereals, automobiles, household appliances, and cigarettes— it is common for a small number of manufacturers to produce a vast array of different brands, models, and products – not profitable for new entries due to high costs of producing individual products

c) Economies of scale – due to lower costs of production for some producers they become more efficient in producing than many in the market

d) High entry costs– In some industries the price of entry simply may be very high (e.g. shipyard, aircraft industry,)

e) Pricing strategies– when entering the market big players can manipulate prices – predatory pricing - low prices imposed with the intention to eliminate competition

Consequences of imperfect competition

1. Prices are too high
2. We consume less
3. Higher costs (consumers pay more)

Monopoly

Microsoft has monopoly on Windows

Definition of monopoly

- A firm is a monopoly if it is the sole seller of its product and if its product does not have any close substitutes.
- The fundamental cause of monopoly is *barriers to entry*.
- A monopoly remains the only seller in its market because other firms cannot enter the market and compete with it.
- Monopolist is price maker!

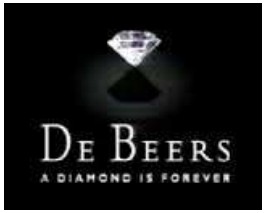
Why does monpoly occur?

- *Monopoly resources:* A key resource required for production is owned by a single firm.
- *Government regulation:* The government gives a single firm the exclusive right to produce some good or service.
- *The production process:* A single firm can produce output at a lower cost than can a larger number of firms. – Natural monopoly - a market in which the industry's output can be efficiently produced only by a single firm.

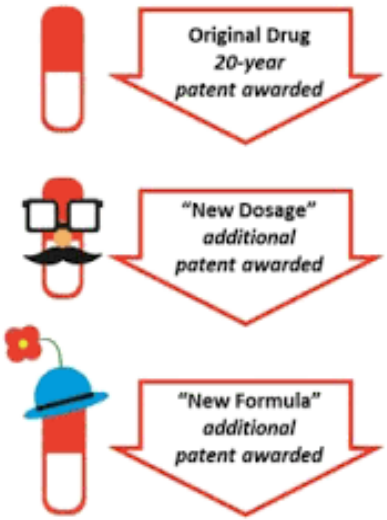
Example of owning a key resource

- DeBeers, the South African diamond company. Founded in 1888 by Cecil Rhodes, an English businessman (and benefactor of the Rhodes scholarship),
- DeBeers has at times controlled up to 80 percent of the production from the world's diamond mines.
- Because its market share is less than 100 percent, DeBeers is not exactly a monopoly, but the company has nonetheless exerted substantial influence over the market price of diamonds.
- Market power- depends on substitutes (rubies, emeralds, sapphires are they substitutes or not for diamond?)
- DeBeers spends huge amounts of money on advertising to differentiate diamond from other precious gems; diamond as engagement ring

- "Diamonds are forewer"
- Sponsorship of songs, movies etc.
- 1980s- became exclusive distributor of newly found Siberian diamonds for the Russian government



Example when government gives a single firm the exclusive rights



"EVERGREENING"

WATER CONCESSIONS – exclusive right given to a firm to commercially exploit water resources – in return for a fee paid to the government

In 1990s American government gave exclusive right to this company to provide domain name registration servicesfor .com, .net i .org. NSI also maintained the central database of assigned names - WHOIS.

Natural monopoly

- Occuring due to the nature of particular business
- type of monopoly that arises because a single firm can supply a good or service to an entire market at a lower cost than could two or more firms
- E.g. monopoly in smaller towns – one gas station, one dry cleaner
- The first to come to a small place and open a gas station will invest a lot in its opening (building, fuel dispensing pumps, employees, marketing), but with the increased number of customers, the cost per unit will begin to fall. - achieves economies of scale
- It is not worth the competition to enter such a small market because there are not so many customers, they have to invest heavily in that business, and with the division of the market only one part of the customers will switch to them, but the other part will stay with the existing "provider". - ATC grow for both gas stations then -diseconomies of scale

EXAMPLE - MICROSOFT AND WINDOWS – can the monopolist's profit be unlimited?

- Marginal cost of a copy of WINDOWS is close to nothing – perhaps several dollars. However, market price is much higher
- It is not surprising that monopolies charge high prices for their products. Customers of monopolies might seem to have little choice but to pay whatever the monopoly charges.
- But if so, why does a copy of Windows not cost $1,000? Or $10,000? The reason is that if Microsoft were to set the price that high, fewer people would buy the product. People would buy fewer computers, switch to other operating systems, or make illegal copies. A monopoly firm can control the price of the good it sells, but because a high price reduces the quantity that its customers buy, the monopoly's profits are not unlimited.

Key factor of imperfect competition – important for oligopolies!

- *Strategic interaction* . When only a few firms operate in a market, they will soon recognize their interdependence.
- Strategic interaction , which is a genuinely new feature of oligopoly, occurs when each firm's business depends upon the behavior of its rivals.
- It occurs due to interdependence on the market
- E.g. telecommunication, Detroit – car industry.

Oligopoly

- a market with only a few sellers, each offering a product that is similar (cars, household appliances) or identical (aluminium, steel) to the products offered by other sellers in the market.
- There are barriers to entry
- Oligopolist is a price maker
- Oligopolistic firms are interdependent in a way that competitive firms are not.
- Companies in general will compete with anything but prices – price wars

Oligopoly price

- **Oligopoly price:**
  - Is higher compared to perfect competition – quantites sold are smaller as well
  - Leader in price policies – the company with lowest costs
  - They have supernormal profits– higher than in perfect competition

Duopoly

- oligopoly with only two members is called a *duopoly*.
- Duopoly is the simplest type of oligopoly
- Entire supply is controlled by two companies
- They occur in industries with high barriers to entry.
- Products are homogeneous or differentiated

Types of oligopolies

- Cooperative
- Non-cooperative

Cooperative oligopolies

- Firms operate in a cooperative mode when they try to minimize competition.
- When firms in an oligopoly actively cooperate with each other, they engage in collusion. This term denotes a situation in which two or more firms jointly set their prices or outputs, divide the market among themselves, or make other business decisions jointly.
- The price agreed is higher than ATC – achieving supernomal profits
- Sometimes called secret oligopolies, although they not need to be

- "People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.... But though the law cannot hinder people of the same trade from sometimes assembling together, it ought to do nothing to facilitate such assemblies, much less to render them necessary. Adam Smith, Wealth of Nations

Types of cooperative oligopolies

- Cartel
- A gentleman’s agreement
- Price leadership model

Types of cooperative oligopolies

- Cartel – an organization of independent firms, producing similar products, that work together to raise prices and restrict output.
- In most countries illegal type of cooperation
- Exception: OPEC (Organization of petroleum exporting countries).
- Cooperate on the basis of formally signed written agreement.
- What is specified is prices and quotas of production per country

Press release | 16 May 2019 | Brussels

Antitrust: Commission fines Barclays, RBS, Citigroup, JPMorgan and MUFG €1.07 billion for participating in foreign exchange spot trading cartel

Page contents

In two settlement decisions, the European Commission has fined five banks for taking part in two cartels in the Spot Foreign Exchange market for 11 currencies - Euro, British Pound, Japanese Yen, Swiss Franc, US, Canadian, New Zealand and Australian Dollars, and Danish, Swedish and Norwegian crowns.

The first decision (so-called "Forex - Three Way Banana Split" cartel) imposes a total fine of €811 197 000 on Barclays, The Royal Bank of Scotland (RBS), Citigroup and JPMorgan.

The second decision (so-called "Forex- Essex Express" cartel) imposes a total fine of €257 682 000 on Barclays, RBS and MUFG Bank (formerly Bank of Tokyo-Mitsubishi).

UBS is an addressee of both decisions, but was not fined as it revealed

Breaking competition law: construction cartel in rolled lead

Competition and Markets Authority

6-8 minutes

In 2020, the Competition and Markets Authority (CMA) fined 2 rolled lead companies a total of over £9 million collectively for their part in anti-competitive collusion to manipulate the market to their advantage. Rolled lead is a widely used product in the UK construction industry, mainly in roofing and cladding. Three directors - Mr Jocelyn Campbell (BLM), Mr Graham Hudson and Mr Maurice Sherling (ALM) - were personally held to account for their wrongdoing and disqualified from acting as company directors. The businesses involved sold their products to building merchants who in turn sold them off to construction contractors. Their illegal practices included:

- colluding on prices
- sharing the rolled lead market by arranging not to target certain customers
- agreeing not to supply a new business due to the risk of disrupting the firms' existing customer relationships
- each of the practices also involved exchanges of commercially sensitive information

This is the latest in a number of recent cartel cases involving the construction sector.

Types of cooperative oligopolies – cont'd

- Gentleman's agreement – oral agreement while playing golf, on banquets, via phone etc.
- Price leadership model– dominant company will initiate the price change and the rest will follow. Every increase in price is done with the explicit knowledge of directors of company.

Gentleman’s agreement hybrid

Apple, Google, others settle antipoaching lawsuit for $415 million

US District Judge Lucy Koh has approved the settlement, which is $90.5 million more than a previous offer she rejected last year.

Lance Whitney
Sept. 3, 2015 8:32 a.m. PT

16

Apple, Google, Intel, and Adobe will shell out $415 million to put to rest an antipoaching civil lawsuit that accused the companies of conspiring not to hire each other's employees.

Federal Judge Lucy Koh has approved a $415 million settlement by Apple, Google, Adobe and Intel related to agreements not to poach each other's employees.
Shara Tibken/CNET

On Wednesday, US District Judge Lucy Koh ruled that the settlement was "fair, adequate, and reasonable" for the thousands of plaintiffs involved in the class action suit. The $415 million settlement was proposed by the four tech companies in January after Koh had rejected a previous attempt to settle the case for $324.5 million on the grounds that the employees harmed by the antipoaching policy deserved more money. In March, Koh already appeared to be leaning toward approving the $415 million

Price leadership model example

of a phone conversation between two airline executives in the early 1980s. The call was reported in the *New York Times* on February 24, 1983. Robert Crandall was president of American Airlines, and Howard Putnam was president of Braniff Airways, a major airline at the time.

CRANDALL: I think it's dumb as hell . . . to sit here and pound the @#$% out of each other and neither one of us making a #$%& dime.
PUTNAM: Do you have a suggestion for me?
CRANDALL: Yes, I have a suggestion for you. Raise your $%*& fares 20 percent. I'll raise mine the next morning.
PUTNAM: Robert, we . . .
CRANDALL: You'll make more money, and I will, too.
PUTNAM: We can't talk about pricing!
CRANDALL: Oh @#$%, Howard. We can talk about any &*#@ thing we want to talk about.

Putnam was right: The Sherman Antitrust Act prohibits competing executives from even talking about fixing prices. When Putnam gave a tape of this conversation to the Justice Department, the Justice Department filed suit against Crandall.

Non-cooperative oligopoly

- Firms act non-cooperatively when they act on their own without any explicit or implicit agreements with other firms
- Prices are stabile in a longer run – due to competition based on non-price basis (marketing, additional services)
- Avoidance of price war

Example of oligopolistic hybrid price war

The Coffee Wars

America's two largest coffee brands, Phillip Morris' Maxwell House and Procter and Gamble's Folgers, have been battling for over ten years for the dominant share of the US coffee market. They have used price cutting, advertising (including hostile, competitive advertisements), and tens of millions of cents-off coupons as weapons in this war. Both companies spent $100 million on coffee advertising in 1990, roughly four times what was spent only three years ago.

This escalatory action has created major problems for the industry. The American consumer now pays an average of just 3.5 cents for a serving of coffee, a depressed price that hurts all firms in the industry. Despite the erosion of profitability and the large expense of the competition, neither Maxwell House nor Folgers has significantly improved its market share during this period.

Source: Neale, M.A. and Bazerman, M (1992).: "Nonrational Escalation of Commitment in Negotiation" in *Negotiating Rationally*, US: Free Press

Monopolistic competition

- a market structure in which there are many firms selling products that are similar but not identical.
- In a monopolistically competitive market, each firm has a monopoly over the product it makes, but many other firms make similar products that compete for the same customers.

Monopolistic competition describes a market with the following attributes:

- *Many sellers:* There are many firms competing for the same group of customers.
- *Product differentiation:* Each firm produces a product that is at least slightly different from those of other firms. They compete through design, added services (e.g. home delivery), location, marketing etc.
- *Free entry and exit:* Firms can enter or exit the market without restriction.

Difference - monopoly, monopolistic competition, perfect competition

- Difference monopoly – monopolistic competition
- Demand more elastic than in monopoly since there is competition and existance of substitutes. Monopoly has no competition/substitutes.
- Difference perfect competition – monopol. competition
- Demand is not perfectly elastic – smaller number of competitors than in p.c. Products are not perfect substitutes (due to product differentiation)

Conclusion: Characteristics of imperfect competition

- There is the possibility of price fixing due to the limited number of firms in the market
- Firms in the imperfectly competitive markets are price makers.
- When determining their business policy, they are guided by price and quantity setting.
- There is a greater or lesser restriction on the entry and exit of other firms to the industry.
- Unlike perfectly competitive firms whose demand curve is horizontal, the demand curve of firms in imperfect competition has a negative slope