Market Structure: Monopoly

08 September 2025

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Introduction

- The genesis of the term lies in the Greek words, *mono* (i.e., one) and *polist* (i.e., seller)
- Microsoft and Windows
  - Copyright means Microsoft has exclusive rights to make and sell Windows; only one seller in the market
  - We say, Microsoft has monopoly in the market for Windows
- Perfect competition vis-à-vis monopoly
  - No close competitors (no close substitutes)
  - Likely presence of barriers to entry
- Implication
  - Here, the firm is a price-maker
  - A monopolist may charge a price above marginal cost. Recall that a competitive firm takes price as given and then chooses quantity
  - The marginal cost of Windows is little but Microsoft charges a price that may be many times higher than the MC

Why monopolies arise?

- The fundamental cause is barriers to entry
  - As a result, it is difficult for other firms to enter the market
- Three main causes
  - Monopoly resources
  - Government regulation
  - Production process

Monopoly resources

- When a firm owns a key resource
  - Think of situations when resources such as water (e.g., borewell) in a town are owned by an individual
- DeBeers
  - A South African diamond company (founded in 1888 by an English businessman Rhodes) controlled up to 80 per cent of production from world's diamond mines and exerted substantial influence over the market price of diamonds
- In practice, resources are owned by many people and monopolies seldom arise because of this reason

Auto dealers worry rare earth magnet crisis will hit supplies

If Chinese curbs don't ease, production may be disrupted, hurting inventories at dealerships

" Automobile dealers have started ringing the alarm bells about the rare earth magnet crisis affecting the supply of vehicles in the coming months, nearly 100 days after China restricted the export of the critical component. For the first time since April when the rare earth magnet crisis began, India's largest dealers body, Federation of Automobile Dealers Association (Fada), voiced its concerns over supply of vehicles from automakers in its outlook for the coming...

Rare earth magnets are used in the traction motors of electric vehicles along with other electronic parts of vehicles including the telemetry system, which collects vehicle data on speed, and acceleration etc…

Experts highlight that any disruption of supplies with dealerships at the current stage can dampen prospects of the industry… The second half of the calendar year is usually an important time for the automakers as sales pick up around festivals like Ganesh Chaturthi, Diwali and Dussehra, among others"

- *Source*: Livemint (07 July 2025) https://www.livemint.com/auto-news/auto-dealers-vehicle-supplies-rare-earth-magnet-crisis-china-india-electric-vehicles-fada-11751890212151.html

Pakistan hopes rare earths, crypto and Nobel support will woo Trump

- “Pakistan is pitching itself as a bitcoin mining hub, a source of rare earths and offering its support for a Nobel Peace prize for Donald Trump, as a cash-strapped Islamabad seeks to stave off hefty trade tariffs and deepen ties with the White House…
- Asim Munir, Pakistan's army chief, discussed trade and his country's potential for mining bitcoin and rare earth minerals in a lunch with Trump last month, readouts of the meeting show…
- Officials say crypto and mining could help to fix Pakistan's long-troubled economy, provide pathways to employ its youth and deliver fresh investment to free it from its mounting public debts… Islamabad has signed a "letter of intent" with the founders of Trump-backed crypto group World Liberty Financial…
- Along with crypto ventures, Munir has called on US investors to help it access what officials claim is trillions of dollars of untapped mineral wealth in its volatile western provinces… Pakistani and US officials say the US government is particularly interested in Pakistan's reserves of antimony, a mineral used in flame retardants and batteries”

- *Source*: FT, 03 July 2025, https://www.ft.com/content/38314737-bc69-4e0a-b88c-20e779b6fd86 Also, https://edition.cnn.com/2025/05/01/world/what-we-know-about-trumps-ukraine-mineral-deal-intl for Ukraine

Government created monopolies

- The government gives exclusive rights to a person or firm to sell some good
  - Sometimes, political clout also determines who would sell (e.g., kings, post-independent India)
- Patents and copyrights
  - A drug-producing firm
  - A novelist
- The laws governing patents and copyrights have benefits as well as cost
- The DU Xerox case

Delhi High Court orders Sci-Hub to be blocked in India

The websites must take steps to immediately block these websites within the next 24 hours

Published – August 23, 2025 12:49 pm IST

THE HINDU BUREAU

The Delhi High Court has reportedly ordered Sci-Hub, Libgen and other shadow libraries to be banned in India. The Court has ordered the Ministry of Electronics and Information Technology (MeitY) and the Department of Telecommunications (DoT) to take necessary

The case against shadow libraries was filed in 2020 by a group of publishers including Elsevier, Wiley Periodicals and the American Chemical Society. They alleged that Libgen and Sci-Hub were infringing copyright and "substantially indulged in online piracy."

Groups of researchers across the country have defended these websites as they are source for vital information. In February 2021, the Delhi Science Forum and the Society for Knowledge Commons became intervenors in the case, arguing that the Copyright Act permits "fair dealing" of any work that is for "research," which absolved these allegations.

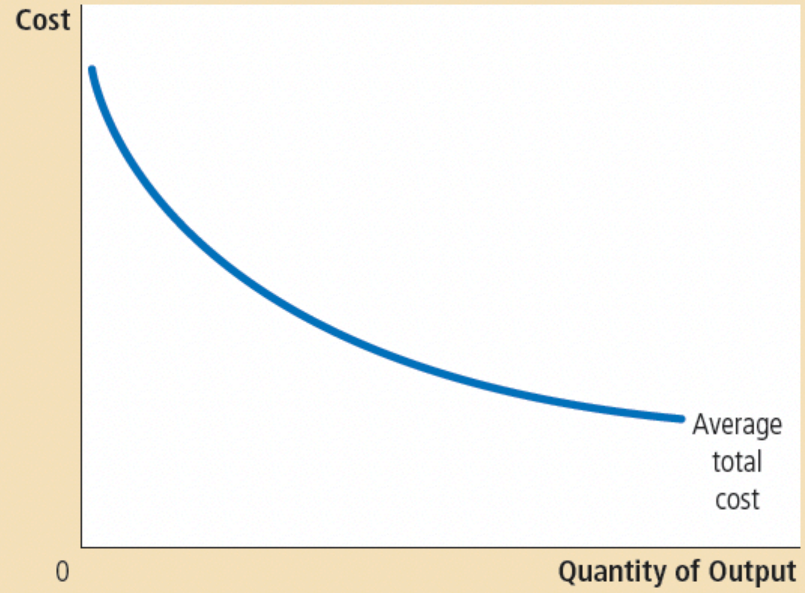
Production process

- A single firm can produce output at a cost lower than two or more firms
- Such a case is referred to as natural monopoly
  - The firm enjoys economies of scale (shown in the the next slide)
  - Examples, networks: telecommunication, water supply, electric power, and railways
  - The economies of scale implies “when a firm is a natural monopoly, it is less concerned about new entrants eroding its monopoly power”

Figure 1

Economies of Scale as a Cause of Monopoly

When a firm's average-total-cost curve continually declines, the firm has what is called a natural monopoly. In this case, when production is divided among more firms, each firm produces less, and average total cost rises. As a result, a single firm can produce any given amount at the smallest cost.



The Standard Oil Company

- John D Rockefeller and the Standard Oil Company

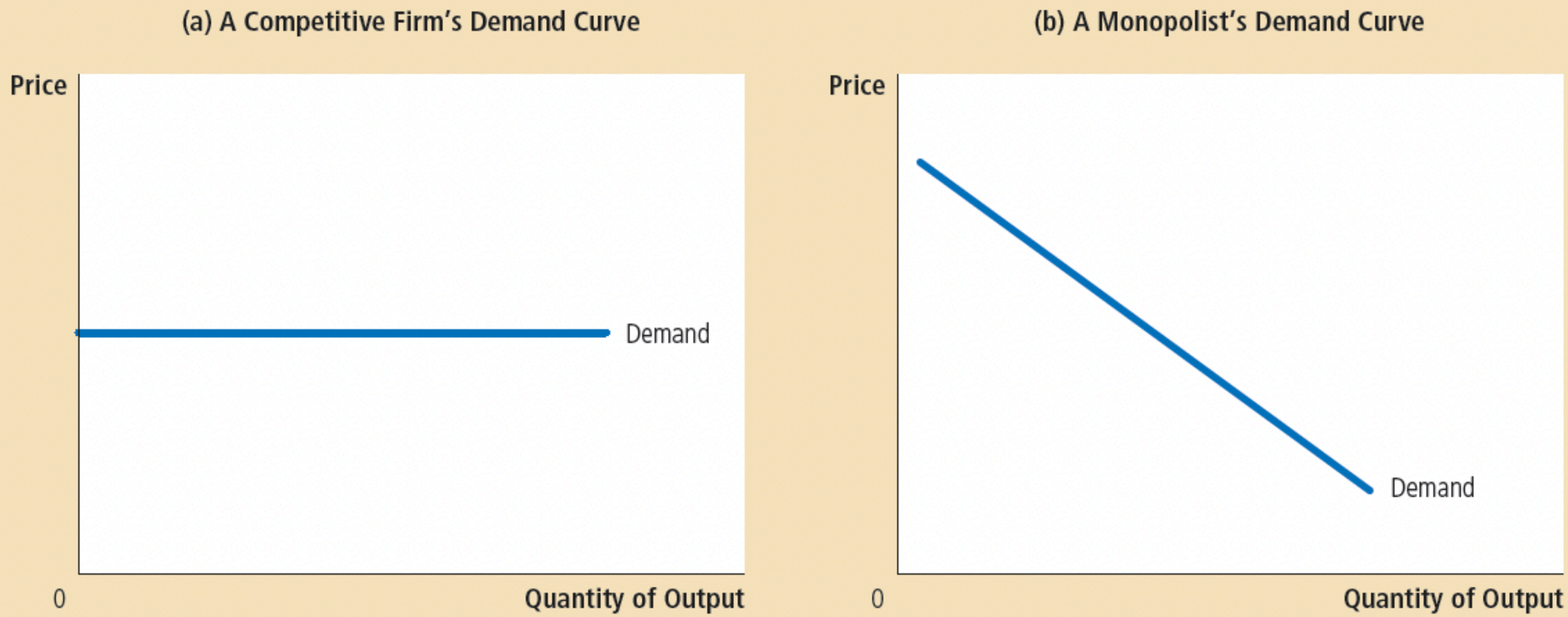
Demand curve of a monopolist (1)

- Ability to influence prices
  - Perfect competition: firm has a small share in the market
  - Monopoly: firm is the sole producer
- Now consider the demand curve in each case
  - Perfect competition: demand curve is a horizontal line; perfect substitutes are available, and the demand curve is perfectly elastic
  - Monopoly: demand curve is downward sloping. The sole producer means the firm's demand curve is the market demand curve – recall the industry demand curve in a competitive market.
  - If the monopolist reduces the output, the price increases

Figure 2

Demand Curves for Competitive and Monopoly Firms

Because competitive firms are price takers, they in effect face horizontal demand curves, as in panel (a). Because a monopoly firm is the sole producer in its market, it faces the downward-sloping market demand curve, as in panel (b). As a result, the monopoly has to accept a lower price if it wants to sell more output.



Demand curve of a monopolist (2)

- Thus, the demand curve provides a constraint on the profit of the monopolist. If the monopolist firm increases the price, the quantity demanded will reduce
  - Ideally, a monopolist would like to sell a higher quantity as well as to charge a higher price
  - However, market demand curve makes that impossible
  - By adjusting the quantity produced a monopolist can choose any point on the demand curve

Revenue (1: Monopoly)

Q	P	TR	AR	MR
0	13	0		
1	12	12	12	12
2	11	22	11	10
3	10	30	10	8
4	9	36	9	6
5	8	40	8	4
6	7	42	7	2
7	6	42	6	0
8	5	40	5	-2

Revenue (2: Perfect competition)

Q	P	TR	AR	MR
0	7	0		
1	7	7	7	7
2	7	14	7	7
3	7	21	7	7
4	7	28	7	7
5	7	35	7	7
6	7	42	7	7
7	7	49	7	7
8	7	56	7	7

Revenue (3)

- Note that
  - AR = Price, both under perfect competition and monopoly. Though the price is constant in the former case
  - MR = P under perfect competition, but
  - MR < P (generally) in monopoly.
    - Note that the monopoly faces a downward sloping demand curve. To sell a higher output, it must lower the price on all units. As a result, in monopoly MR is less than price.
  - Moreover, MR can be negative
- The question now is how much to produce

Monopolist’s revenue

- When a monopoly increases the amount it sells, there are two effects on TR
  - Output effect: Q increases, TR increases
  - Price effect: P decreases, TR decreases
- Note that in the case of perfect competition, the price effect is absent, but the monopolist must reduce the price it charges for every extra unit that it sells
- The demand (AR) and MR curves

Profit maximization

- The profit is maximized when MR=MC
- Once the output is determined, we can trace out the profit maximizing price from the demand curve
- Illustration
  - Perfect competition: P = MR = MC
  - Monopoly: P > MR = MC
- Profit = TR – TC = (AR – AC)*Q
  - illustration

Welfare cost of monopoly (1)

- Perfect competition: P = MC, no abnormal or supernormal profit
- Monopoly: P > MC
  - Could be undesirable from consumer’s point of view
- Efficient level of output
  - The socially efficient quantity is found where the demand (viz., value to the buyers) and the MC (viz., cost to the producer) curves intersect
- Inefficiency of monopoly: deadweight loss

Welfare cost of monopoly (2)

Who Bears the Welfare Costs of Monopoly? The Case of the Credit Card Industry

Kyle F. Herkenhoff, Gajendran Raveendranathan

NBER Working Paper No. 26604
Issued in January 2020
NBER Program(s): Asset Pricing Program, Industrial Organization Program

How are the welfare costs from monopoly distributed across U.S. households? We answer this question for the U.S. credit card industry, which is highly concentrated, charges interest rates that are 3.4 to 8.8 percentage points above perfectly competitive pricing, and has repeatedly lost antitrust lawsuits. We depart from existing competitive models by integrating oligopolistic lenders into a heterogeneous agent, defaultable debt framework. Our model accounts for 20 to 50 percent of the spreads observed in the data. Welfare gains from competitive reforms in the 1970s are equivalent to a one-time transfer worth between 0.24 and 1.66 percent of GDP. Along the transition path, 93 percent of individuals are better off. Poor households benefit from increased consumption smoothing, while rich households benefit from higher general equilibrium interest rates on savings. Transitioning from 1970 to 2016 levels of competition yields welfare gains equivalent to a one-time transfer worth between 1.87 and 3.20 percent of GDP. Lastly, homogeneous interest rate caps in 2016 deliver limited welfare gains.

Price discrimination (1)

- Until now, we assumed that a monopoly firm charges the same price to all customers
- But the firms may sell the same good to different customers at different price despite the cost of production being the same. This is known as price discrimination
- Is price discrimination possible in perfect competition?
  – For a firm to be able to price discriminate, it must have some market power

Price discrimination (2)

- Examples:
  - Telephone and electricity: time of the day tariffs
  - Airline prices: different prices for weekdays and weekend
  - Financial assistance: MCM scholarship

Schedule of Time of Day (TOD) Tariff

Month	Peak hours	Surcharge on Energy Charges	Off-Peak hours	Rebate on Energy Charges
May-September	1400-1700 hrs and 2200-0100 hrs	20%	0400-1000 hrs	20%

For other than peak & off-peak hours normal energy charges are applicable. Mandatory for >10kW / 11kVA other than Domestic. Optional for 3 Phase Domestic Consumers.

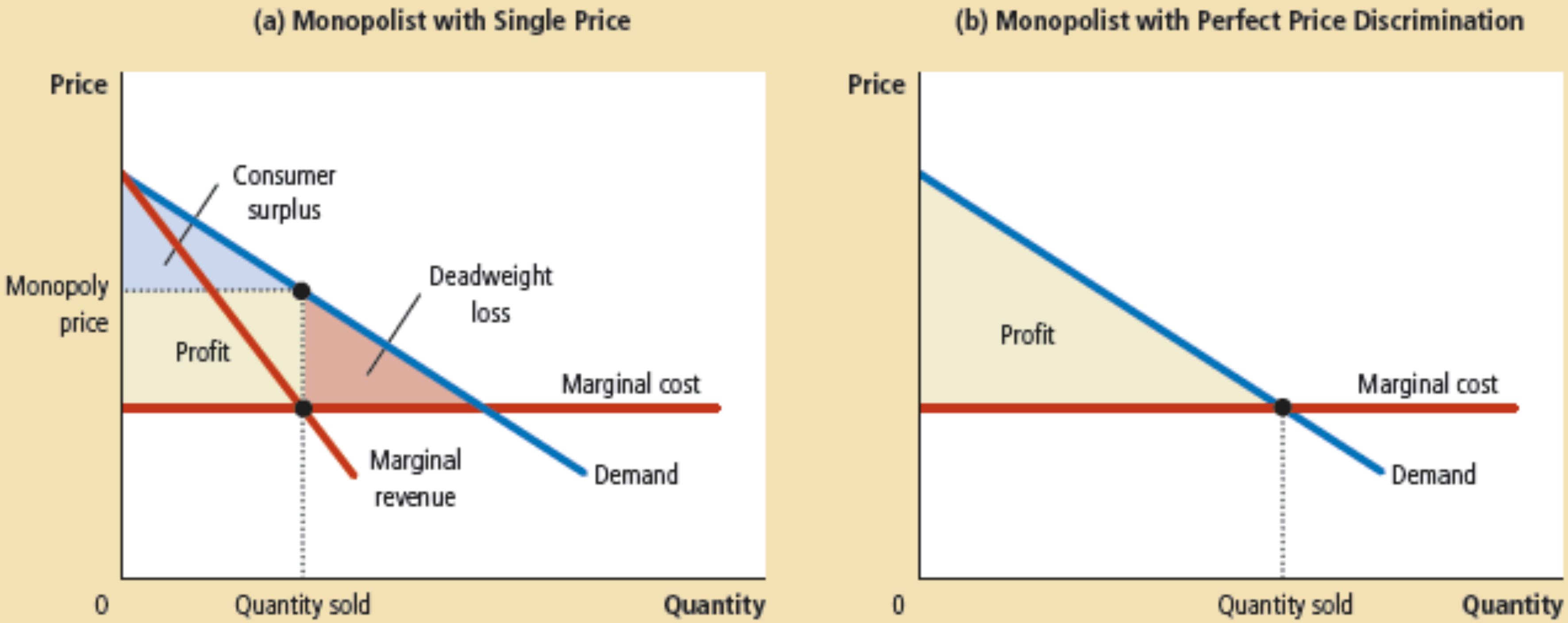
Consumption History (खपत का विवरण) :

- Perfect price discrimination refers to the situation when the monopolist knows exactly the willingness to pay of each customer and can charge each customer a different price

Figure 9

Welfare with and without Price Discrimination

Panel (a) shows a monopolist that charges the same price to all customers. Total surplus in this market equals the sum of profit (producer surplus) and consumer surplus. Panel (b) shows a monopolist that can perfectly price discriminate. Because consumer surplus equals zero, total surplus now equals the firm's profit. Comparing these two panels, you can see that perfect price discrimination raises profit, raises total surplus, and lowers consumer surplus.



Monopoly and public policy

- Need for the policy
  - Production at lower level than the socially optimum output. Thus, unlike the perfect competition, inefficient allocation of resources
  - Also, P > MC
- What can governments do?
  - Increase the competition in the industry
  - Directly regulate monopoly behavior
  - Change the private entities to public entities
  - Do nothing

Increasing competition

- Why the governments are skeptical about merger of certain firms?
  - In Europe, merger of GE and Honeywell was blocked
  - If Coca-cola and Pepsi want to merge, it may come under close scrutiny of the US government
  - Air India and Indian Airlines – is it a different case?
- To restrict monopoly practices, governments have laws that encourage competition. In India, we have the Competition Act (2002). It supersedes the Monopoly and Restrictive Trade Practices (MRTP) Act

The Competition Act, 2002

- "An Act to provide, keeping in view of the economic development of the country, for the establishment of a Commission to prevent practices having adverse effect on competition, to promote and sustain competition in markets, to protect the interests of consumers and to ensure freedom of trade carried on by other participants in markets, in India, and for matters connected therewith or incidental thereto"
- Prohibition of agreements… that can cause adverse effect on competition within India.
- Prohibition of abuse of dominant position

Business Standard

CCI slaps fine on Ferozepur chemists & druggists body

Press Trust of India | New Delhi February 06, 2014 Last Updated at 20:52 IST

Clamping down on unfair trade practices in pharma business, Competition Commission has slapped a penalty of over Rs 55 lakh on a Punjab-based Chemists & Druggists Association and its office bearers.

Competition Commission of India (CCI), which has been making efforts to sensitise the public on unfair ways in the pharma industry, has also asked the Ferozepur-based association to "cease and desist" from such practices that restrict supplies of medicines into the market.

Besides, CCI has imposed a penalty of nearly Rs 55.43 lakh on Chemists & Druggists Association Ferozepur (CDAF), its president and six other senior officers for violations of competition norms.

In an order dated February 5, the Competition Commission of India (CCI) said: "It is evident that CDAF because of its position is able to continuously engage in limiting and controlling the supply and market of drugs and pharmaceutical products by insisting upon NOC (No Objection Certificate) for appointment of stockists".

Accordingly, the fair trade regulator has directed the association and its officers "to cease and desist from indulging in such anti-competitive practices".

The watchdog has also imposed a penalty on the entities at the rate of 10 per cent of their respective average turnover. The penalty together amounts to Rs 55.43 lakh.

Passenger body drags airlines to CCI over fares

By ENS Economic Bureau - BANGALORE |
Published: 09th September 2013 10:07 AM
Last Updated: 09th September 2013 10:08 AM

The steep increase in airfares announced by private carriers has earned them the ire of consumer forums who have dragged them to competent authorities alleging 'cartelisation'.

Private carriers like SpiceJet and Jet Airways announced a 25-30 per cent fare hike after oil companies announced a 6.9 per cent increase in aviation turbine fuel (ATF).

The Air Passengers Association of India (APAI) is reported to have taken the matter to competition watchdog, Competition Commission of India.

"There has been a hike in the aviation turbine fuel a few days back and all the airlines have increased the fares by 25% one after the other. This clearly goes to show that a cartel is in operation," agencies quoted Chennai-based association president D Sudhakara Reddy's statement from the petition. They alleged that carriers did this during the festive season.

Airline operators in India have not been able to cope with high costs of ATF and gloomy economic conditions. Most carriers in India have reported losses owing to the conditions. Jet fuel is said to account for over 40% of a carrier's operating cost.

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Airline operators in India have not been able to cope with high costs of ATF and gloomy economic conditions. Most carriers in India have reported losses owing to the conditions. Jet fuel is said to account for over 40% of a carrier's operating cost.

"We would like to request you to conduct a detailed enquiry and ensure that cartelisation does not continue and justice is done to the travelling public," they reportedly said in a statement. There is no regulatory mechanism to monitor fare pricing in India. The recently announced airfare monitoring cell is yet to be set up.

The new increased airfare adding to the declining consumer sentiment. Earlier authorities decided to 'unbundle' services to charge for specific services separately which included paying additional fares for based on the preferences of customers including seating, food & beverage and check in baggage charges among other services.

Earlier in July, Aviation Minister Ajit Singh had reportedly talked about commissioning of an economic cell in the ministry to monitor the pricing mechanism.

"The airfare monitoring cell is ready and will soon be commissioned under the aegis of the ministry. The economic cell would analyse data on tickets sold by airlines under different price buckets and make the information public to bring in transparency in airfare pricing," he had said.

"In case there are discrepancies, it would be referred to the Competition Commission," the minister had said. (With Agency input)

UK regulator puts hurdle in Murdoch's $15.7-bn Sky deal

REUTERS
LONDON, JANUARY 23

RUPERT MURDOCH'S $15.7-billion takeover of European broadcaster Sky should be blocked unless a way is found to prevent the media tycoon from influencing the network's news output, Britain's competition regulator said.

The initial ruling complicates a separate plan by Walt Disney Co to buy the majority of Murdoch's assets, including Sky. Disney had hoped Murdoch would own 100 percent of the company by the time it completed its takeover.

Shares in Sky rose on Tuesday as investors said concerns about Murdoch's influence could still be overcome, for example by spinning off Sky News, Britain's first 24-hour news channel. The regulator also indicated it would not object to Disney owning Sky eventually.

"It's good news today that the regulator isn't going to block the deal outright," said Michael Wegener, managing director at Case Equity Partners, a Sky shareholder. "The Murdochs will come up with remedies that work around Sky News."

'FB should pay for news'

New York: Media mogul Rupert Murdoch says Facebook should pay fees to "trusted" news producers for their content. Facebook said last week that it would boost news sources that its users rank as most trustworthy. **AP**

The Microsoft case (1)

(Acemoglu, Liabson and List 2016)

- "In May 1998, the [US] Department of Justice filed a lawsuit under the Sherman Act against arguably the most successful corporation of the 1990s, Microsoft. It claimed that Microsoft was engaging in unfair practices in order to monopolize the market. The crux of the case concerned the fact that Microsoft was bundling its Windows operating system with its Internet Explorer browser. The Department of Justice argued that Microsoft made it effectively impossible for alternative browsers, such as Netscape, to maintain a large market share. As a result, Microsoft was accused of achieving monopoly power through unfair practices. The suit was filed the day Windows 98 was released with Internet Explorer bundled into the operating system."
- "After a long trial, the ruling ultimately went against Microsoft—both in this case brought by the U.S. Department of Justice and in similar cases brought against it in Europe by the European Commission."
- "In the end, Microsoft paid various fines and agreed to change its operating system and marketing practices to make it easier for alternative browsers and other applications to be used with Windows."

The Microsoft case (2)

(Acemoglu, Liabson and List 2016)

- “The Microsoft case is interesting, not only because it illustrates the power of antitrust laws in the United States but also because it raises questions about what should be considered monopoly power in today’s new and dynamic industries. Could Microsoft really develop a monopoly in the same way as Standard Oil did in the oil business? Some believe that the answer is yes, and this reasoning was the one that prevailed in the courts. In fact, some economists believe that the dangers of such monopolization are even stronger today, because many software products are subject to network externalities. Compatibility issues are the main source of such network effects, and they are undoubtedly present in many products.”
- The Covid-19 and the subsequent expansion in virtual meetings may well have increased such possibilities. Sending an invite through a platform (say, Teams) necessitates the other party too uses the same platform.

Regulation (1)

- The government can also regulate the behavior of monopolists directly. More so, with natural monopolies
- The government regulates the price charged by monopolists
- What price should the government set?
- What about P = MC? It will maximize the total surplus and will result in efficient allocation of resources

Regulation (2)

- However, there is a problem with P = MC
  - Natural monopolies have economies of scale and a declining average cost function
  - When AC is declining, MC is always less than AC
  - Thus, if we set P = MC the firm will incur loss
- Two options
  - Subsidize the monopolist; the government finances the loss
  - Allow the monopolist to charge a price higher than MC

Public ownership

- Rather than regulating a natural monopoly run by a private firm, the government can run it
- Examples: postal service, electricity (?)
- However, the change in ownership has an important consequence
  - While private owners have an incentive to reduce costs, and thus be efficient, the managers in the government do not (who are the losers? customers and taxpayers)

Do nothing

- Policies are not made in vacuum
  - There are political and other considerations which interfere with the best policy option
- Populist measures
  - Free power to farmers!
- Stigler : “the degree of market failure arising out of monopoly may be smaller than the political failure arising from the imperfections of the economic policies found in real political systems”