



## Questions & Answers

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**Part 1: True or false**

No.	Question	Ans.
1	Transport economics is the study of the allocation of transportation resources in order to meet the needs of a society. It involves the relation between firms and individual consumers.	T
2	Transport economics deals with the interaction and conflict between firms and individual consumers. Moreover, it deals with the overall economic activities. Thus, government's involvement in transportation has both a macro- and a microeconomic significance.	T
3	Transport is a service aims at carrying people or goods from one place to another by means of a vehicle, aircraft, or ship.	T
4	Transportation activities form a portion of a nation's total economic product. They are necessary for developing the nation's economy. Thus, when calculating GDP, it is important to consider the output of transportation activities.	T
5	The principal role of transport is to provide access between spatially separated locations for the business and household sectors, for both commodity (freight) and person movements.	T
6	Well-developed transportation network promotes connections between businesses and their input sources, between businesses and other businesses, and between businesses and their markets.	T
7	The government's involvement in each mode of transportation differs within a country and across countries.	T
8	Transportation system provides people with access to workplaces and education facilities, shops, and social, recreational, community and medical facilities.	T
9	Transportation helps in promoting trade, competition and specialization in an economy by allowing each geographic area to produce whatever it does best and then to trade its product with others. In addition, it helps in linking together a number of different steps in the production process occurring at different geographic areas.	T
10	Speedy modes of transportation allow perishable foods to be distributed to wider market areas.	T

11	Developed transportation network could positively and significantly affect production economies of scale.	T
12	A transportation system improves the allocation process because it widens the number of opportunities for suppliers and buyers.	T
13	Improved transport vehicles and transport networks, through effects on transport costs, access and connectivity, have been major factors underpinning economic growth and opening up formerly isolated areas to people and economic activity.	T
14	When transport fuel prices increase substantially, it is expected that household expenditure on other goods and services will be reduced.	T
15	The GCR transport system and its use give rise to some external costs (externalities). These include global environmental impacts, e.g., greenhouse gas emissions, and local environmental and health impacts such as noise, particulate pollution and road accident costs.	T
16	Although some components of the transportation externality costs are recovered from government charges on transport users and operators, not all externality costs are recovered from such charges.	T
17	The direct effects of transport investment are to reduce transport time and costs through reducing travel times, decreasing the operating costs of transport and enhancing access to destinations within the network.	T
18	The indirect effects of transport investment are to augment overall productivity through improving the spatial networks of an economy and expand markets by lowering production costs due to better transport links and services.	T
19	As a contributor to economic development, transport infrastructure by its very nature has important spatial impacts, for example on intra-regional and inter-regional transport time and costs, and thus potentially on the location of households and businesses.	T
20	A distinguishing feature of the transport sector is that its function is considered primarily as an input into many other activities.	T



21	The vehicle (equipment) is what moves objects or traffic (people, goods). The vehicle consists of a container and some type of motive power, either onboard or elsewhere.	T
22	The guideway is where the vehicles move along. It consists of links and nodes that together form a network.	T
23	A sequence of links is called a route.	T
24	A node in a network is either a redistribution point or an endpoint. It is an area where the transport infrastructure of the transport network is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic.	T
25	A terminal is the end of a railway or other transport route. It is a node where traffic is transferred from one vehicle to another.	T
26	The operations plan is the set of procedures by which traffic and vehicles are moved over the guideway, including schedules or timetables, crew assignments, and control systems.	T
27	There are some markets where transport itself is the product demanded.	T
28	High cost, low volume goods are usually moved by air.	T
29	Electronic component parts for machinery whose down time, particularly in 'just-in-time' contexts, has a high loss-of-output cost are moved by air.	T
30	Clothing (especially fashion goods), and food with short shelf life (e.g. fruits) will often be air freighted.	T
31	Urgent medical supplies are likely to be moved by private jet or military aircraft.	T
32	Low value goods (e.g. coal, cotton, steel) will be moved by rail and heavy tonnage ships.	T
33	Pricing of transportation is not an easy task. In most case, like in airplane's tickets, the prices depend on mathematical algorithms applied by major airlines operators.	T
34	Petrol prices, fuel taxes, and vehicle taxes are considered direct cost of transportation.	T
35	expenditures for roadway construction and maintenance, highway services, and parking are considered indirect cost of transportation.	T
36	In a large urban area like London, the size of the passenger transport market will be determined by price of transport services.	T



37	More trips will be made when fares and petrol prices are low than when prices are high.	T
38	A household or individual having more disposable income is increasingly likely to travel further on a summer holiday, make more and longer evening and weekend leisure trips.	T
39	The transfer of business between modes or companies in passenger or freight transport is determined to a large extent by the relative levels of fares on transport services.	T
40	If a freight or passenger road vehicle can travel in short period of time, the number of journeys per day that the vehicle can make increases.	T
41	If productivity of a freight or passenger road vehicle is increased and its capital cost per ton mile and the operating costs are reduced, the tariff charged to customers will fall.	T
42	The increased productivity of a road vehicle will improve vehicle availability to meet the increased demand without the need to purchase additional vehicles.	T
43	A rapid transit system with high frequency increase the demand for transportation services.	T
44	Only effective demand is of interest to the transport economist; that is demand which can be put into effect because the consumer is able to pay.	T
45	Both of the price of the services on offer and the income of the consumer will be important determinants of whether the consumer is able to buy.	T
46	A subsidy is likely to reduce public transport charges, in graphical terms, the supply curve will shift to the right, reducing the equilibrium price.	T
47	The degree of competition in the market or industry is considered one of main determinants of own-price elasticity for transport services.	T
48	The higher the value of the cross-elasticity, the stronger will be the degree of substitutability between different modes of transportation.	T
49	The cross-price elasticity of demand will be negative for cars and petrol because they are complements.	T
50	In the short term, income elasticity for bus travel is negative, and hence as real incomes increase consumers will use other forms of transport, most notably the private car.	T



51	Price discrimination is considered legal unless it substantially limits competition.	T
52	A firm with monopoly power has some control over output price when it is facing a negatively sloping demand curve. It may be able to increase profits by discriminating among consumers.	T
53	A firm desire to sell additional output if it can find a way to do so without lowering price on units it is currently selling by separating market into two or more segments.	T
54	Price discrimination is analogous to a multiproduct firm's supplying products in different markets.	T
55	A price discrimination strategy is feasible depends on the inability of buyers to practice arbitrage, which means if resale is costly.	T
56	When resale is possible, arbitrage will eliminate any price discrepancies and Law of One Price will hold.	T
57	A monopolist can maximize profits by selling its product at different prices in two separate markets. In this case, the monopolist will charge the higher price in the market with a less elastic demand ( when the demand curve is steeper).	T
58	In markets where price discrimination is possible aggregate data will not allow for accurate predictions of demand responses in the relevant market segments.	T
59	It is expected that the demand for air transport will be less elastic for longer flights than for shorter flights.	T
60	It is expected that the demand for international travel to be less sensitive to changes in ticket prices when compared with domestic travel.	T
61	It is expected that the demand for air transport for leisure reasons will be more elastic than business travel.	T

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## Part 2: Define the Following Items

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### 1. Transport Economics

**Ans.**

It is the study of the movement of people and goods over space and time. It is a branch of economics that deals with the allocation of resources within the transport sector.

### 2. The guideway

**Ans.**

It is where the vehicles move along. It consists of links and nodes that together form a network.

### 3. The vehicle

**Ans.**

It is what moves objects or traffic (people, goods). It consists of a container and some type of motive power, either onboard or elsewhere.

### 4. A node in a network

**Ans.**

It is either a redistribution point or an endpoint. It is an area where the transport infrastructure of the transport network is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic.

### 5. A terminal

**Ans.**

It is the end of a railway or other transport route. it is a node where traffic is transferred from one vehicle to another.

### 6. The operations plan

**Ans.**

it is the set of procedures by which traffic and vehicles are moved over the guideway, including schedules or timetables, crew assignments, and control systems.



## **7. The cruise**

**Ans.**

It is a floating hotel and leisure Centre with meals, entertainment, sunbathing and sports, as well as a form of transport to ports.

## **8. Chartered aircraft**

**Ans.**

It is the business of renting an entire aircraft (i.e., chartering) as opposed to individual aircraft seats (i.e., purchasing a ticket through a traditional airline). While the airlines specialize in selling transportation by the seat, air charter companies focus on individual private aircraft and itineraries, urgent or time-sensitive cargo, air ambulance service, and other forms of ad hoc air transportation.

## **9. Just-in-time system**

**Ans.**

It is a manufacturing system in which materials or components are delivered immediately before they are required in order to minimize inventory costs.

## **10. Downtime**

**Ans.**

Time during which production is stopped especially during setup for an operation or when making repairs or when a machine is out of action or unavailable for use.

## **11. Haulier**

**Ans.**

A business or a person involved in a business which transports goods by road.

## **12. Coach transportation**

**Ans.**

Coach is more related to vehicles that carries passengers with extra comfort and wider equipment capability. Usually they are used for long distance travels and managed by private sector.



### **13.Frequency of a transport service**

**Ans.**

The number of times vehicles travel within a particular period.

### **14.Satellite cities**

**Ans.**

They are smaller cities that are near to a large city that is the center of a metropolitan area. They are different from suburbs, subdivisions and bedroom communities because they have their own center. They are planned to be self-sufficient . Satellite cities could be separate cities outside of the larger metropolitan areas.

### **15.Own-price elasticity of demand for transport services**

**Ans.**

The responsiveness, or sensitivity, of passengers or potential passengers to the transport operator's own price.

### **16.Cross price elasticity of demand for transport services**

**Ans.**

It is a measure of the effect of a change in the fares or rates of one operator on the demand for the services of another. It can take place between transport modes, within modes or even within an operator if the transport company is offering a variety of fares for the same journey, but with different standards of service.

### **17.The income elasticity of demand for transport services**

**Ans.**

It is the proportionate change in the quantity demanded resulting from a proportionate change in income. When income elasticity is measured, it is not the total income of consumers that is used in the assessment but rather disposable income, i.e. net of income tax.

### **18.Price discrimination**

**Ans.**



It is a pricing strategy that charges customers different prices for the same product or service. This is possible, if a firm is able to sell identical units of output at different prices. Thus, firms will actively price discriminate in an effort to enhance profits.

### **19.No arbitrage case**

**Ans.**

The case where it becomes impossible to purchase a commodity in one market and sell it in another market. When resale is possible, arbitrage will eliminate any price discrepancies and Law of One Price will hold.

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## **Part 3: Answer the following questions**

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### **1. Differentiate between direct cost and indirect cost of transportation**

direct cost includes: petrol prices, fuel taxes, and vehicle taxes; while indirect cost includes: expenditures for roadway construction and maintenance, highway services, parking.

### **2. Differentiate between first-degree price discrimination and second-degree price discrimination**

1st degree is different prices for both consumers and units (both A and B are changed). It includes pricing strategies such as two-part tariffs. 2nd degree is different prices for different units (A changed). It offers potential social benefits. If a firm did not price discriminate, it might not be able to produce a desired commodity.

### **3. Differentiate between first-degree price discrimination and third-degree price discrimination**

1st degree is different prices for both consumers and units (both A and B are changed). It includes pricing strategies such as two-part tariffs. 3rd degree is different prices to different consumers (B changed). It segments the market, for instance, into a foreign and a domestic market.

### **4. what are the three main components of transportation system?**

1. The vehicle (equipment) is what moves objects or traffic (people, goods). The vehicle consists of a container and some type of motive power, either onboard or elsewhere.



2. The guideway is where the vehicles move along (see figure 1). The guideway consists of links and nodes that together form a network. A sequence of links is called a route. A terminal is a node where traffic is transferred from one vehicle to another.

3. The operations plan is the set of procedures by which traffic and vehicles are moved over the guideway, including schedules or timetables, crew assignments, and control systems.

### **5. how is transportation system linked to economics?**

Transportation systems are subject to constraints and face questions of resource allocation. The topics of supply and demand, as well as of equilibrium and disequilibrium, arise and give shape to the use and capability of the transportation system. Demand for public transport, road freight facilities or airline services is usually derived from some other economic function. For example, A company producing clothes or food sees transport as a means of moving its products from factory or warehouse to the retail store. As the demand for products increases so the demand for transport facilities will increase.

### **6. what are the main objectives of a transport operator?**

One objective of a transport operator (or in-house transport fleet) is to establish a demand pattern for its service. It also has to relate its prices to the perception and consequent demand of its customers, and derive a pricing policy and a development or operating strategy for the transport operation which will optimize the use of the fleet. Examples of these operators are Express Mail Service (EMS), Egypt Post, EgyptAir, Egyptian National Railways, cruise ships, Cairo Metro.

### **7. Give some examples of transport operators in Egypt.**

Express Mail Service (EMS), Egypt Post, EgyptAir, Egyptian National Railways, cruise ships, Cairo Metro.

### **8. why are precious metals usually transported by multinational companies?**

All these goods require urgent and guaranteed delivery internationally or internally. This is usually done by multinational companies (e.g. TNT Express



(a subsidiary of FedEx)), which provide services involving the collection, storage, sorting, transport and distribution within 'specific time-frames' enhanced by data/document management systems.

**9. Give some examples of major airlines operators.**

American Airlines Group, Delta Air Lines, Lufthansa Group, China Southern Airlines, Turkish Airlines, Japan Airlines, and The Emirates Group.

**10. How does transport cost affect a factory location?**

If transport costs are low compared with other costs, a company will be able to take advantage of lower land costs away from its large urban markets; thus, more tonne miles are operated.

**11. Describe the structure of travel demand in Cairo.**

Region-wide, Cairo governorate transportation accounted for about 9 percent of GCR's gross regional product, but regional transportation output accounted for 38 percent of national transportation output in Egypt, the highest such proportion for any sector.

Pedestrian movements are quite important in the Cairo region, accounting for nearly 40 percent of all trips, and almost 70 percent of shopping trips.

**12. What are various available modes of transportation in GCR?**

- The public bus system

It is owned by Egypt's Cairo Transport Authority (CTA). It is used in both planned and unplanned areas.

- Cairo Metro

This heavily used method of transportation accommodates more than 4 million passengers per day. It is ran by the Egyptian Cooperation for Metro Management and Operation, the authority has established metro line networks of more than 100 km. It serves the planned area.

- Private Bus

Private sector companies can be contracted to operate buses within the Cairo Transport Authority, with the routes determined by the authority itself. It serves both the planned and unplanned areas.



- Microbus

This mode of transportation is available nearly everywhere in Cairo, and is used more often than CTA buses due to its day and night availability. It serves the planned area, unplanned area, and peri-urban area.

- White taxi

The white taxi service was first introduced by the government under a program of "vehicle scrapping and recycling" that aimed to revamp the cab service through newer and better-equipped cars, bringing the shabby black taxi to an end. It serves planned and desert areas.

### **13. what are causes for traffic congestion in Cairo?**

There are many causes for traffic congestion in Cairo. Fuel subsidies make gasoline and diesel inexpensive, encouraging more private cars on the road, and even large investments in highways will not keep pace with growing traffic congestion. Cars are either circulating or parked on the streets, thereby blocking the traffic, since there are no or few parking facilities. The metro ridership is high, but the metro coverage is very limited for a city as big as Cairo, and buses are few and old. Minibuses and taxis help transporting a lot of people, but generally need to be safer, cleaner and be able to pick up and drop off passengers more easily. There are few road crossings for pedestrians and sidewalks are often blocked by vendors. There are also few traffic lights and intersections, and U-turns are badly managed and slow traffic substantially. Drivers' behavior and poor enforcement often result in the general disregard of traffic rules.

### **14. What are the possible measures of economic costs of traffic congestion?**

In general, there are three possible measures: 1) how sitting in traffic reduces productivity of the labor force; 2) how inflated transport costs push up the prices of goods, measured by: wasted fuel and time that could be better spent elsewhere; 3) the carbon-equivalent cost of the fumes that exhausts splutter out).

### **15. Why is important to measure own-price elasticity of demand for transport services?**



The changes in those prices have to be measured to determine the extra passengers and extra revenue which will be achieved from this type of fares policy. Furthermore, measuring elasticity helps decision makers in understanding how price sensitive consumers are in the market. For example, how sensitive are people to purchasing train tickets if the fare was to rise by 2 per cent, 5 per cent or even 20 per cent?

### **16. How could the availability of substitutes influence the elasticity of demand for transport services?**

The availability of substitutes could influence own price elasticity of demand for transport services. This means the existence of other close alternative modes of travel. The closer they are in meeting the same basic travel need, the higher will be the price elasticity for a particular transport service. Commonly, there are different available transport services, which include:

- a) Conventional public transport services.
- b) Bus service routes using small vehicles that pick up and discharge passengers close to origin and destination. This service is particularly appropriate for areas where demand is low (e.g. in rural areas).
- c) Conventional taxis.
- d) Dial-a-Ride service for door-to-door travel for passengers who require assistance and/or who use a wheelchair that cannot be accommodated by a taxi or accessible bus.
- e) Accessible pedestrian infrastructure to allow access to all transport services and to make journeys wholly on foot.

### **17. How could the nature of the commodity influence the elasticity of demand for transport services?**

Nature of the commodity could influence own price elasticity of demand for transport services. The transport service can be categorized as luxury or necessary service. This depends on the purpose of using transport services: business travel or leisure travel. Business travel is less elastic than leisure travel. Furthermore, the transport service can be categorized based on the distance: short/long or domestic/international. Long trips are considered less



elastic than short trips. International trips are considered less elastic than domestic trips.

**18. How could the proportion of income spent on the particular transport service influence the elasticity of demand for transport services?**

The proportion of income spent on the particular transport service could influence own price elasticity of demand for transport services, particularly the proportion of disposable income purchased on the mode of travel. The higher the proportion of disposable income spent on the mode of travel, the higher the price elasticity of demand.

**19. How could the time period influence the elasticity of demand for transport services?**

The time period (long run or short run) could influence own price elasticity of demand for transport services. In the short term, individuals used to purchase a certain company's services. In this case demand would be less elastic. However, time may bring about a change in behavior. In the longer term, one may decide to purchase a car or alternatively use another bus company. In this case demand would be more elastic.

**20. How does the nature of the services relative to their uses influence the elasticity of demand for transport services?**

The nature of the services relative to their uses influence the cross-price elasticity of demand for transport services. If two services can satisfy equally well the same need, the cross-elasticity is high, and vice versa.

**21. What are the main determinants of income elasticity of demand for transport services?**

- The initial level of income of a country: the higher the income, the greater the use of transport services. Higher income countries usually use more routes compared with lower income countries.
- The time period, because consumption patterns adjust with a time-lag to changes in income.

**22. What are the conditions required for a firm in order to practice price discrimination?**



In order for a monopolist to price discriminate, he have to change one of the following cases: A) charges same price for all units, B) charges Same price to all customers. By changing one or both of these cases, the monopolist price discriminates. Successful price discrimination requires the monopolist to know the demand function for each potential buyer. In terms of demand elasticities, if elasticities associated with market segments are the same, there will be no incentive on part of a firm to price discriminate. This is because profit-maximizing output and price are identical in both markets. Two necessary conditions for price discrimination are:

- Ability to segment market: this means the monopoly can separate its buyers into a few identifiable markets. In this case, the monopolist needs to know the demand function for each potential buyer. This is possible if resales become so difficult, i.e. no arbitrage, that it becomes impossible to purchase a commodity in one market and sell it in another market. When resale is possible, arbitrage will eliminate any price discrepancies and Law of One Price will hold.
- Existence of different demand elasticities for each market segment. All the monopolist needs to know in this case is the price elasticity of demand for each market. If the marginal cost is the same in all markets, the profit-maximizing price will be higher in markets where demand is less elastic.

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#### **Part 4: Explain/Analyze the Following Statements**

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- 1. "A distinguishing feature of the transport sector is that its function is considered primarily as an input into many other activities".**

Firms transport products to distribution centers and retail outlets; businesses send their employees to meet with customers, suppliers, regulators and co-workers; people travel to work and for leisure pursuits.

- 2. The demand for travel by individuals and households is essentially a function of their desire for physical access to workplaces, educational establishments, shops, and social, recreational and community facilities. The extent to which these desires translate into actual travel will be moderated by the time and costs involved in making the desired trip.**



Travel times and costs will be dependent on: 1- The supply of suitable transport services, including speed, quality and convenience factors relating to the services (for example, service frequency, reliability, crowding), 2-the financial cost (price) of the services, 3- perceptions of any social and environmental costs associated with the trip and the services involved (for example, level of safety and security, adverse environmental effects).

**3. "When developing a comprehensive network in urban nodes, countries should consider a number of objectives"**

- I. for passenger transport: interconnection between rail, road, air and, as appropriate, inland waterway and maritime infrastructure of the comprehensive network.
- II. for freight transport: interconnection between rail, road, and, as appropriate, inland waterway, air and maritime infrastructure of the comprehensive network.
- III. adequate connection between different railway stations, ports or airports of the comprehensive network within an urban node.
- IV. promotion of efficient low-noise and low-carbon urban freight delivery.

**4. "Transportation systems are subject to constraints and face questions of resource allocation".**

The transport sector is one of the key engines of growth in an economy. The overall objective of transport policy is to provide an efficient, safe and environmentally friendly transport system that meets society's need for transport and promotes regional development. Appropriation of financial resources to transport sector is considered major factor in attracting domestic and foreign investment, and expanding access to economic opportunities. Transport sector faces a number of economic constraints such as low investment in the development and maintenance of the physical infrastructure, and insufficient public-sector capacity to deliver the required transport services.

**5. "In transport sector, the number of miles operated and the number of journeys per day made by each delivery vehicle will depend on the demand pattern"**

As retail companies, such as Carrefour and Hyper One, Spinneys, On the Run, and Metro Markets increase their number of stores, they increase the number



of vehicles operated on their behalf, by transport contractors or transport operators. The demand pattern for transport services might be different from one place to another or from a season to another. For example, the retail delivery services usually hire more vehicles in cities compared to villages. Another example, At Christmas time, the Post Office hire additional vehicles to cope with the Christmas mail peak. This implies that the demand for transport facilities is affected by the geographical area as well as the period when the service is provided such as public holidays and summer vacations. In all these cases, the demand level for transport (measured in numbers of vehicles or vehicle miles) is related directly to the demand level for the product or service.

**6. There are some markets where transport itself is the product demanded**

In this case, transport is sold as a travel experience. For example, river or sea Cruise are considered luxury ships which were built to serve regular runs from one place to another with a very high standard of comfort in business class or first-class cabins, e.g., Nile Cruise from Luxor to Aswan.

**7. "Physical characteristics are considered one of the main determinants of demand for transport services."**

In the case of freight, the choice of mode will depend largely on the physical characteristics of the goods. High cost, low volume goods are usually moved by air. Electronic component parts for machinery whose down time, particularly in 'just-in-time' contexts, has a high loss-of-output cost are moved by air. Clothing (especially fashion goods), and food with short shelf life (e.g. fruits) will often be air freighted. Gold or diamonds will be air freighted in chartered aircraft which can provide the security level required, while urgent medical supplies are also likely to be moved by private jet or military aircraft.

**8. "Prices are considered one of the main determinants of demand for transport services."**

The lower the price is, the more people are likely to demand the transport service offered. In a large urban area like London, the size of the passenger transport market will be determined by price. More trips will be made when fares and petrol prices are low than when prices are high. The level of



transport costs will also be an element in determining factory location. If transport costs are low compared with other costs, a company will be able to take advantage of lower land costs away from its large urban markets; thus, more tonne miles are operated.

**9. "Relative prices are considered one of the main determinants of demand for transport services."**

The transfer of business between modes or companies in passenger or freight transport is determined to a large extent by the relative levels of fares on rail, coach, bus and air services, and the perceived costs of car travel (i.e. petrol prices and parking charges). This justifies the significant rises in demand for low cost airline services and falls in passenger traffic of high cost airline services.

**10."Passenger incomes are considered one of the main determinants of demand for transport services."**

Overall income available for travel and other consumer/business expenditure is linked to growth in gross domestic product (GDP), representing an income elasticity effect. As income increases so the amount of travelling for both business and leisure (either of trips or number of miles) will increase. This implies that a household or individual having more disposable income is increasingly likely to travel further on a summer holiday, make more and longer evening and weekend leisure trips, and take an additional winter holiday.

**11."Speed of service is considered one of the main determinants of demand for transport services."**

In terms of operating cost, if a freight or passenger road vehicle can travel in short period of time, the number of journeys per day that the vehicle can make increases. Thus, its productivity is increased and its capital cost per ton mile is reduced, with consequent reductions in operating costs and the tariff charged to customers. The lower price will encourage greater use by customers and the increased productivity will improve vehicle availability to meet the increased demand without the need to purchase additional vehicles.



**12."Frequency as a measure of quality of transport service is considered one of the main determinants of demand for transport services."**

The departure times or arrival times must be those which the customer requires. To encourage long term growth, there must also be departures during the day for those leaving work early, and in the evening for those staying on late for working or entertainment reasons. A rapid transit system with high frequency increase the demand for transportation services.

**13."Standard of Service as a measure of quality of transport service is considered one of the main determinants of demand for transport services."**

The quality of service provided has been a key marketing strategy of major transport operators worldwide. The quality of service is measured by number of factors including Comfort, Reliability, and Safety. For example, the following indicators are used to measure the quality of service: reputation for time keeping enhanced by reliability and speed of vehicles, increase the commitment to certain locations, provide a secure environment, provide integrated transport links with other vehicles, ease of purchase of tickets, fast frequent direct on-time vehicles.

**14.Evaluate the impact of low-cost airlines on the air transport market.**

Although low-cost airlines offer low quality services- such as: no beverages or food are served, and less comfort because of greater number of seats and maximum utilization of the passenger cabin, and they mainly land at less frequented airports- the transfer of business between modes or companies in passenger or freight transport is determined to a large extent by the relative levels of fares. So, it is expected that there will be a rise in demand for low-cost airline services and falls in passenger traffic of high cost airline services.

**15."The effort of shifting the growth pole of Cairo has resulted in the development of a Satellite City program"**

In the 1960's, the Egyptian government began developing a government center in the east of Cairo on desert land. This project, Nasr City, was the first of number of projects which tried to re-orient land development and population



growth from a north-south to an east-west orientation, thereby protecting precious agricultural land along the Nile. More recently, the effort at shifting the growth pole of Cairo has resulted in the development of a Satellite City program. Development of these communities has been significantly slower than expected. Experience elsewhere suggests that such planned, “self-sufficient” communities almost never retain their self-sufficiency status. The absence of any transport facilities other than planned roadway access to these communities suggests that as they lose that self-sufficient status, they may become important generators of traffic.

**16." Cairo's passengers waste hundreds of hours every month reaching their destination in a capital that was never designed to accommodate such a high population"**

The Greater Cairo Metropolitan Area (GCMA), with more than 19 million inhabitants, is host to more than one-fifth of Egypt’s population. The GCMA is also an important contributor to the Egyptian economy in terms of GDP and jobs. The population of the GCMA is expected to further increase to 24 million by 2027, and correspondingly its importance to the economy will also increase.

Traffic congestion is a serious problem in the GCMA with large and adverse effects on both the quality of life and the economy. In addition to the time wasted standing still in traffic, time that could be put to more productive uses, congestion results in unnecessary fuel consumption, causes additional wear and tear on vehicles, increases harmful emissions lowering air quality, increases the costs of transport for business, and makes the GCMA an unattractive location for businesses and industry.

**17.The economic cost of traffic congestion in Cairo is overwhelming.**

The economic costs of congestion are beyond travel delays, and they include wasted fuel, health impacts due to poor air quality and accidents, and impacts on economic productivity. When all combined, the yearly economic cost of traffic congestion could reach up to 4% of Egypt’s GDP. This means an economic cost to Egypt of up to EGP 50 billion a year (USD 8 billion/year). Almost all large metropolises of the world pay a heavy price for congestion, but Cairo’s costs are excessive. New York loses about USD 10 billion/year on delays and wasted fuel alone, and Jakarta USD 5 billion/year<sup>3</sup>. Cairo’s



losses are particularly significant given the relative importance of the city to Egypt's overall economy: New York's losses relative to the US GDP are negligible (0.07%) while Jakarta's losses represent about 0.6% of Indonesia's GDP; the relative cost of Cairo's congestion to Egypt's GDP therefore stands high at 4%.

**18."The extension of demand for transport services due to a lower equilibrium price is the combined result of the income and substitution effect."**

At a lower price, alternatives to specific transport service appear more expensive (the substitution effect), and, assuming money income remains constant, cheaper transport service results in an increase in real income (the income effect).

**19."In air travel demand estimations, income and prices of other relevant goods should be included in the estimated equation"**

This is because when estimating demand systems over time, one can expect that some important shift variables will not be constant. It is important that these shift variables be explicitly recognized and incorporated into the analysis, as they will affect the value of elasticity estimates. This will also be true with some cross-sectional studies or panels. In particular, changes in real income and the prices of substitutes or complements (alternative transportation modes (road and rail)) will affect demand. The absence of an income coefficient and prices of other relevant services coefficient in empirical demand studies will result in own-price elasticity estimates that can be biased. With no such coefficients, observed price and quantity pairs will not distinguish between movements along the demand curve and shifts of the demand curve.

**20."It should be noted that a firm may price discriminate across any category of consumers"**

A firm may price discriminate across any category of consumers based on various criteria such as income level, type of business, quantity purchased, geographic location, time of day, brand name, or age. For example, doctors

may charge less for treatment of low-income patients, and a defense contractor may charge military \$500 for a hammer that costs other costumers only \$20.

## 21. Graphically explain the main conditions for price discrimination in transport market

Two necessary conditions for price discrimination are:

Ability to segment market

Existence of different demand elasticities for each market segment

This can be graphically illustrated as shown in the following figure.

**Price Discrimination for Transport Services**

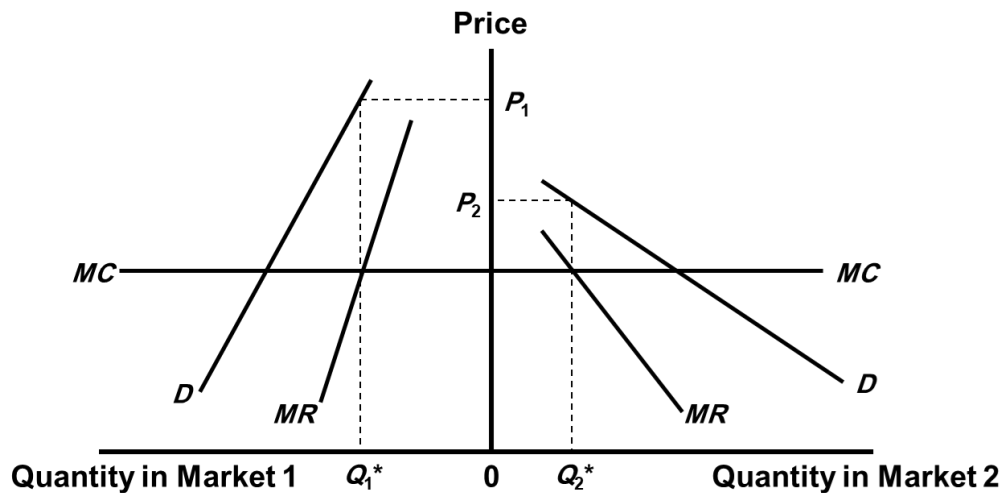


Figure 1: The two markets are separate. A monopolist can maximize profits by selling its product at different prices in market 1 and market 2. Market 1 will be charged the higher price ( $P_1$ ) because it has a less elastic demand (the demand curve is steeper)