

Managing Services
Prof. Jayanta Chatterjee
Department of Industrial Management and Engineering
Indian Institute of Technology, Kanpur

Lecture – 36
Service Pricing

Hello, so we are discussing raising strategies in services businesses and we concluded yesterday with this particular slide, which is in front of you.

(Refer Slide Time: 00:22)

MAXIMIZING REVENUE FROM AVAILABLE CAPACITY AT A GIVEN TIME

- Most effective in the following conditions:
 - High fixed cost structure
 - Relatively fixed capacity
 - Perishable inventory
 - Variable and uncertain demand
 - Varying customer price sensitivity
- Revenue management (RM) is price customization
 - Charge different value segments different prices for same product based on price sensitivity

Handwritten notes in red: Airlines, Hotels, Cruise Ships, Car Rental Service

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

And you remember that, we said that revenue management the advanced topic that we are discussing today is most applicable in those services, which have high fixed cost structure, relatively fixed capacity, perishable inventory, variable and uncertain demand and varying customer price sensitivity. I requested you to think about, what services can match these criteria and as many of you have rightly pointed out, we can look at airlines, we can look at hotels, we can look at cruise ships, we can look at car rentals, car rental services.

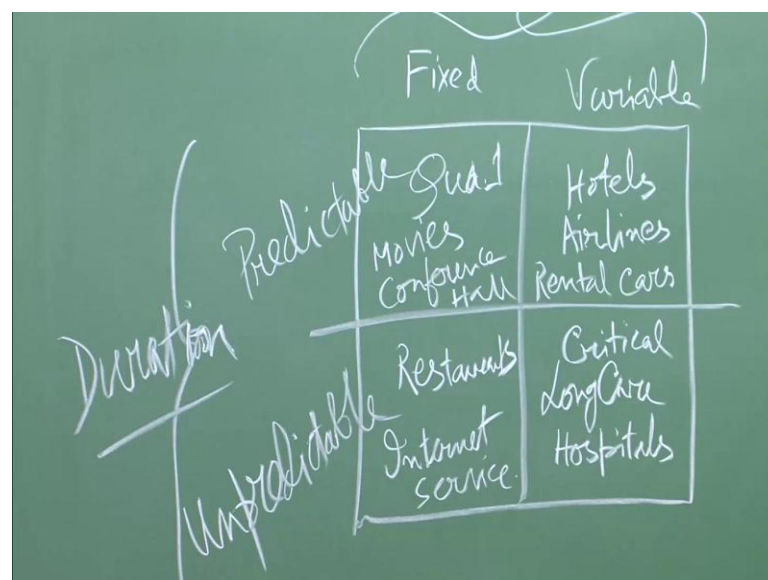
These are services, which match these five criteria, which we are talked about and a revenue management, which is basically charging different prices for different types of customers and different types of demands within the same episode. So, if you are looking at airlines we are looking at a particular flight of an airline. Say for example, Bombay to Goa or we are looking at Delhi to Goa or Delhi to Trivandrum and similar flights, flights,

where we have a mix of customers, some are traveling on business, some are traveling for conferences, some are traveling for pleasure and tourism and so on.

So, these different customers have different types of demands and different types of price sensitivity. And also have different kinds of budgets for their travel and airlines or hotels involved in this paradigm are services, where there is a big infrastructure fixed cost, relatively fixed capacity like number of rooms or number of seats on the airlines. And we are looking in to one particular episode; that means one particular flight or one particular day or season of a hotel or one particular cruise of a ship or one particular day of rental car services.

And therefore, we will have this perishable inventory, because if that flight has taken off and if some seats are vacant or if some seats have been sold at a price too low or some seats are not filled with the right kind of customer. Then, we are losing opportunities, which we can never get back and to that extent we are discussed earlier that this is what we call the perishable characteristics of service and these services like airlines, hotels are particularly sustainable to this characteristics, this perishability.

(Refer Slide Time: 04:05)



Now, on this, on the board you have another set of possibilities, as you can see here we have fixed price and variable price on the x axis, on the y axis we have the duration of the service. There we have taken predictable duration and unpredictable duration. So, if you are looking at a, say restaurant, then how long a customer will be in the restaurant,

having his or her meal or the group and what all they will order, how long they will spend between ordering, etcetera, these are unpredictable.

Similarly, in case of movies the duration is predictable and therefore, the price is usually fixed. So, the quadrant we are most interested in is this particular quadrant, which is variable price with predictable demand. If the demand is unpredictable, then variable pricing has certain other problems. So, for our purpose, for the revenue management we are interested in this particular quadrant.

Now, as it is shown here, a whole purpose of revenue management is to maximize the revenue per episode of service by matching different types of demands, different types of customers with different paying capacities with different sections of your service facility. We have to gather lot of data to apply revenue management correctly; we have to observe the demand pattern day by day in some cases, hour by hour or week by week. We have to see, what kind of customers are coming up with what kind of demand at what point of time and so on and so forth.

(Refer Slide Time: 06:15)

MAXIMIZING REVENUE FROM AVAILABLE CAPACITY AT A GIVEN TIME

B1 | *B2* | *B3*

➤ **RM uses mathematical models to examine historical data and real time information to determine**

- What prices to charge within each price bucket
- How many service units to allocate to each bucket

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

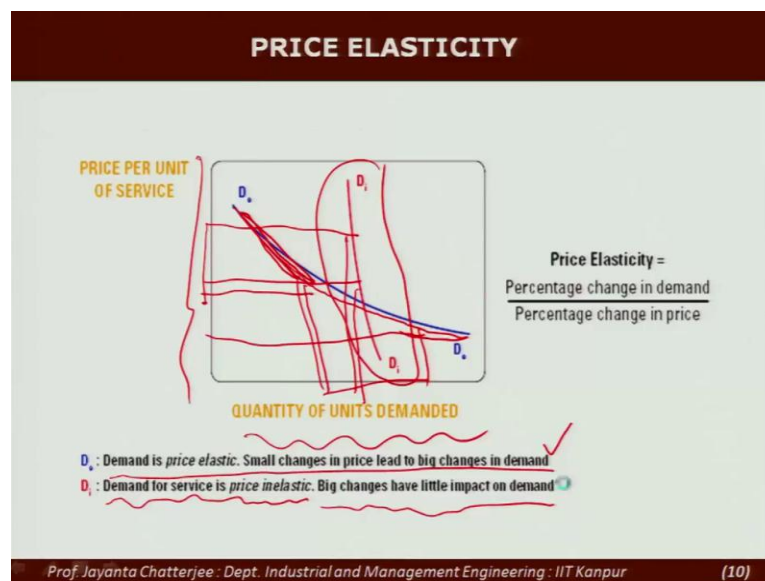
So, as I discuss a little bit more and show you some example, this will become clear. But, at this point it is important to note that we have to, ultimately what we are trying to do is if there is a finite capacity, we are trying to develop different buckets. So, this is bucket number 1, this is bucket number 2, this is bucket number 3, where we will be charging

different prices. And we have to create the buckets in such a way that they, we have some allocable capacity or we can migrate some capacity from one bucket to the other bucket.

These are relatively well done in a hotel or on an airlines, because on the capacity side also we can do some innovation, whereby we can actually easily convert the space allocated for business class seats to economy seats or the space allocated for economy seats to business class seats depending on shifting demand.

The seats are so constructed there often plug in plug out type or in some cases you can create different kinds of facilities, which are add on facilities and you can even create an inter immediate class like say economy, business and in between you can create a variable capacity for, what we call a premier economy, where seats may be an economy seat, but the services will be equivalent to business class and so on. These are some different possibilities that we have discussed before.

(Refer Slide Time: 08:02)



But, the way I just now drew the graph for different types of buckets, you can easily therefore, understand, that what we are looking at is, that the demand, again this we have seen earlier that the quantity of units demanded have a correlation with price per unit of service. So, there are certain types of demand this is the demand, this demand is quite elastic with respect to... So, as you if the price per unit comes down, then your demand will be shifting, so a small change in price can mean a large change in demand pattern.

On the other hand we can have this type of demand, where the price may change, but that will cause practically no change or very little change in demand. So, this is the, this D i is therefore, called demand for services price in elastic, big changes, price changes have little impact on demand. And this is the other D dot, which is demand is price elastic, small changes in prices lead to big changes in demand. These are, now interestingly we find that in this kind of services, these variable price for predictable duration; that means, like a Bombay, Goa flight.

(Refer Slide Time: 09:43)

KEY CATEGORIES OF RATE FENCES: PHYSICAL (PRODUCT-RELATED) FENCES	
➤ Product-Related Fences	
Rate Fences	Examples
Basic Product	<ul style="list-style-type: none"> ❖ Class of travel (Business/Economy class) ❖ Size and furnishing of a hotel room ❖ Seat location in a theater
Amenities	<ul style="list-style-type: none"> ❖ Free breakfast at a hotel, airport pick up, etc. ❖ Free lounge facility on arrival
Service Level	<ul style="list-style-type: none"> ❖ Priority wait listing ❖ Increase in baggage allowances ❖ Dedicated service hotlines ❖ Dedicated account management team

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

There are different types of demands and therefore, different types of what we call rate fencing; that means, creating different buckets at different prices become quite feasible. Now, this rate fences can be product related, so as you see on this chart that they can be like class of travel, business class versus economic class or it could be the type of room executing room, premier room, deluxe room, standard room etcetera in a hotel or it could be seat location in a theater.

So, it could be like the platinum seats, which are right at the back with some luxury seating arrangement and there could be gold, silver and that sort of different types of seats. And these as you easily see, that you are all familiar with these products based rate fencing and usually as consumers, we do not feel much of a disturbance when business class people get more facilities.

Because, we know they are paying almost double the price or we do not know, that the platinum class of customers or the platinum class of seats are given to certain customers, we do not, because we know that they are paying much higher. Sometimes it can be, the rate fencing can be done on the basis of some amenities like very popular is bread and breakfast, the breakfast cost is included or the airport pickup.

So, when you arrive at your destination there can be a certain kind of fear, where there will be a losing provided, which will drop you at your destination in that city or there could, even earlier there use to be pickup service from your home for your flight. These days that is not very much prevalent, but drop of service when you arrive are provided by many airlines for their business class or first class travelers or there could be free launch facility before your departure, you can relax or on your arrival you can freshen up and take a shower and so on, and go straight to your appointment.

These are therefore, fencing better doing; that means we are creating a boundary of different types of services, supplementary services or enhancing services around the core service. So, the core service is the travel from London, from Delhi to London and so in that course service there can be product based fencing, which is class of travel etcetera. There can be based on amenities, which are the augmentation or service supplementary services or it could be even with respect to service level, like if you are a frequent traveler, then you have a certain kind of fencing, which is relating to priority wait listing or it could be increase in baggage allowances.

Normally, all airlines for their business class travelers will provide 30 kilo gram of checking baggage allowance, 10 kg or 12 kg of hand luggage allowance, whereas the economic class will have may be 15 kg of checking luggage allowance and may be 7 kg of carry on allowance, in some cases there is no checking package, free checking baggage facility. So, these are as you see based on service level you can create different kinds of buckets.

(Refer Slide Time: 13:53)

KEY CATEGORIES OF RATE FENCES: NON PHYSICAL FENCES	
➤ Transaction Characteristics	
Rate Fences	Examples
Time of booking or reservation	✦ Requirements for advance purchase ✦ Must pay higher fare closer to departure
Location of booking or reservation	✦ Passengers booking air tickets for an identical route in different countries are charged different prices
Flexibility of ticket usage	✦ Fees/penalties for canceling or changing a reservation (up to loss of entire ticket price) ✦ Non-refundable Vs Refundable

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

Fencing could be also based on transaction characteristics, for example time of booking. So, if you are booking for a flight for tomorrow, then you will always expect that this, you will be almost paying the highest price. But, on the other hand if you actually make your booking 2 hours prior to departure, you might get a very attractive rate, because it will be almost a sale initiated by the air lines for the few remaining seats, which are not yet filled.

So, the peek will be at they are 3 days a prior to the flight, there could be a much lower rate, which is if you book 3 weeks, 4 weeks in advance. Similarly, it could be quite low if you are actually are taking the last minute seats available, so we are in a standby move. So, this is what we do fencing based on time, time of booking or reservation. It could be also booking done for location, like for example, if you are buying a ticket for return ticket between Delhi and London and if your ticket is purchased in India, it is quite possible that your ticket will be, the price will be lower than the price which somebody will be paying for the same return, but the ticket is purchased in London for a London Delhi, Delhi London, whereas you are buying a Delhi London, London Delhi.

So, you are, though the two segments are same, but your price may be different compare to somebody who buying the ticket in London. Of course, it can also be different, because you are travelling on Wednesday and therefore, your price will be higher, then somebody whose travelling may be on Saturday. Because, normally in certain segments

the weekend traffic may be lower, but as you see it is not always true the week end traffic may be much higher on a Delhi, Goa flight.

So, which means as I mention right in the beginning of today's session, revenue management needs lot of good data collection and good interpretation of the data using statistical mathematical models. Sometimes you may have to pay higher price if you are looking for flexibility in usage of a ticket. So, if you are taking a fixed day, fixed flight ticket, usually the price will be lower than a ticket which is refundable or changeable. Sometimes a fixed price ticket may be changeable with a penalty, these are all different types of rate buckets that we are creating.

(Refer Slide Time: 17:01)

KEY CATEGORIES OF RATE FENCES: NON PHYSICAL FENCES	
➤ Consumption Characteristics	
Rate Fences	Example
Time or duration of use	✦ Happy Hour in restaurant before 6pm ✓ ✦ Must stay over on Sat for airline, hotel ✓ ✦ Must stay at least five days ✓
Location of consumption	✦ Price depends on departure location, especially in international travel ✦ Prices vary by location (between cities, city centre vs. edges of city)

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

Another kind of rate fencing is based on consumption characteristics; that means, set time and duration of use. So, like happy hours, which is usually between 4 PM and 6 PM or 3 PM and 6 PM in a restaurant may provide you 2 for 1 type of deal in drinks or it can provide you certain special snakes at special prices and so on. So, this is the that is why the period is called happy hours very popular at pops bars and a restaurants, where drinks are served; that is where this being happy hours comes from.

So, you actually get your happiness at a lower price or sometimes airlines give a deal in consumption in the tourism board, that the, you will have to lower price if you travel on Thursday and do not return on Saturday, but you return on Sunday or you return on Monday. So, the weekend if you stay in Hong Kong then some of the ticket will be at a

price which is lower, because the airline works in consumption with Hong Kong to receive in board and so on and this is applicable to many other countries.

Are sometimes you pay a lower price if you are staying for 7 days, because that destination economy will be enriched if you are staying in hotels touring around travelling around visiting the sights. So, if you are taking a ticket for Paris for a week; that means, you returning after 1 week the price is most likely to be cheaper than a price which is you go today and comeback tomorrow or 2 days later.

Also price will depend on departure location, so sometimes flights taking off from Bangkok for London may be cheaper than flight shaking off from Delhi for London again depends on pattern of demand. So, ultimately as you are seeing based on consumption characteristics product and product related additional benefits are time and time related additional benefits leads to different kinds of rates and ultimately the last characteristics is buyer characteristics.

(Refer Slide Time: 19:35)

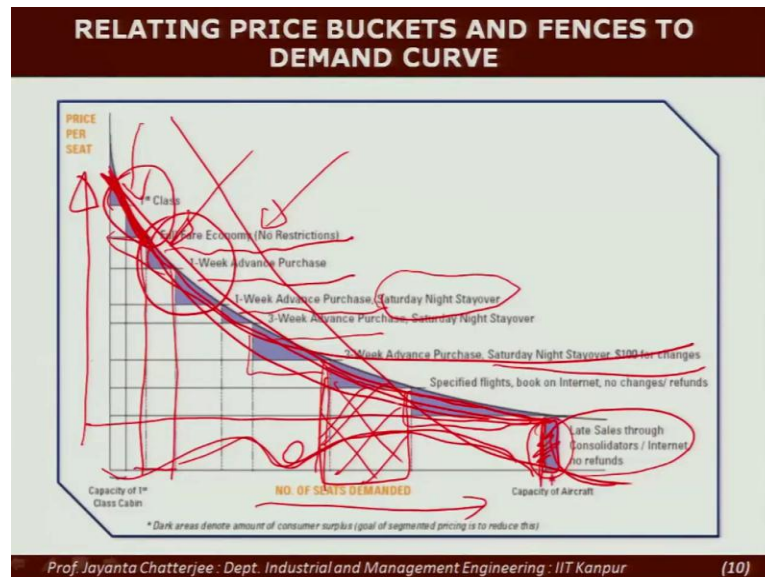
KEY CATEGORIES OF RATE FENCES: NON PHYSICAL FENCES	
➤ Buyer Characteristics	
Rate Fences	Examples
Frequency or volume of consumption	❖ Member of certain loyalty tier with the firm get priority pricing, discounts or loyalty benefits
Group membership	❖ Child, student, senior citizen discounts ❖ Affiliation with certain groups (e.g., Alumni)
Size of customer group	❖ Group discounts based on size of group

Prof. Jayanta Chatterjee : Dept. Industrial and Management Engineering : IIT Kanpur (10)

So, people who are regular travelers they may get a certain kind of rate advantage people who are travelling in a group. So, you are getting at onetime bulk booking of 35 people as part of a touring group and therefore, there can be special price consideration you are making a block booking of a hotel for a whole cricket team and therefore, the cricket team will can demand and will normally get certain additional privileges like may be laundry for the players and a special meal almost free breakfast and so on and so forth.

And the hotel will have to pay this kind of package with their demand pattern. So, if you are looking for a special price at a time on the hotel is very busy peak season, then it is not likely that you will get a special package. So, buyer characteristics will be the matched with the time based possibilities.

(Refer Slide Time: 20:43)



And ultimately you will get a diagram of like this, where this is the access, which shows number of seats demanded and this shows price for seats as you can see here is the first class and this is actually the part of the demand graph, which is quite in elastic. Therefore, this is the area where a certain capacity will be booked for this, this is not very price and sensitive and this will be a this part of the if this is the total capacity if this is the total capacity, then this part will be reserve for first class.

Then, there can be another section another quota, which is set aside for a full fare economy again these are usually people who are traveling on business people who are actually on corporate travelers. Again they are in this part, where they are not very sensitive to price change little bit more than the first class travelers, then accordingly you can actually have a one week advance purchase with some Saturday night stay over 3 week advance purchase as you see prices as coming down your coming down on the price for seat and accordingly your bucket size is also expanding.

So, here we have three weeks advance purchase with Saturday night stay over and this is actually a preferred segment for a particular promotion period. And again you see late

sales for the last minutes seats that can also be at a very low price, because here the capacity is in determinant it will be the seats left out of the last minute and, so many times people take this stand by opportunity we may go to the airport 3 days consecutively and want particular they there will get that very low price see that there looking for.

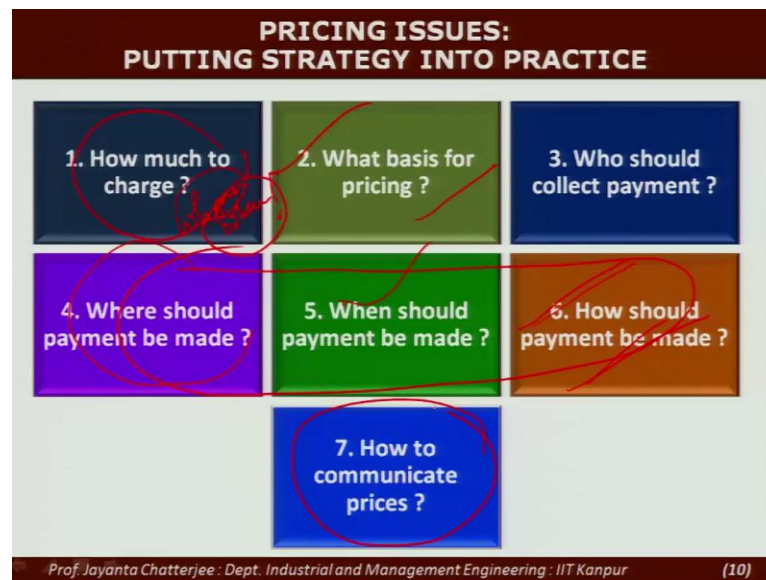
But obviously, somebody has an appointment business appointment has to be in Bombay and certain particular day, then that person will have to pay price at this level, where as price somebody who can wait and take chance and go to the airport three times and does not care, which day he or she arrives in Goa, then the price can be quite low. Sometimes airlines looking at their demand pattern, so like many time you have monsoon sale; that means, there may be a two weeks period in August, where the Bombay Delhi price may be slashed.

So, people you may get 50 percent discount 40 percent discount. So, people normally would not have those people who normally would not have travel will take this opportunity and occupied those seats may visit a relatives visit friends and so on. So, this is a depiction of what we have been discussing; that is creating price buckets and princesses understanding, but as you can see you have to create first get a lot of good data to know whether your demand graph looks like this or it looks like this, or it looks like this; that is based on the kind of data that you have seen of your demand pattern.

Also you have to know that what kind of demand as what kind of what percentage of your capacity is serve by what kind of demand, what kind of paying capacity, what kind of customers, what are there are different other requirements. So, the giving a free breakfast make may be almost mandatory for a business sweet in a hotel, but it may be chargeable for normal rooms or you can create a baggage, which is bread and breakfast package even for normal rooms.

So, all will depend on what is your service what kind of demand patterns you observe, what kind of people you serve with, what kind of paying capacity, what kind characteristics and so on, with all these good data you can, then create this graph and then you can create this fences.

(Refer Slide Time: 25:29)



So, putting service pricing into practice is fundamentally answering this question, which are in front of you this seven question, how much to charge and I think I should add a how much to charge whom and when, what is the basis for pricing, who will be collecting the payment, what kind of payment is it credit card payment? Is it cash payment? Is it long credit? Is it a corporate credit and so on.

And when should the payment we made where these are more not, so critical, but what is critical is how much to charge whom and when and how do you communicate your prices. Because, one thing is that if you practice revenue management or yield management as it is no variable pricing you have to be very clear and transparent and that why and how you are doing this and at least people who are interested they should be able to access your methodology.

So, that people do not feel that you are taking them for a right or trying to finishing them when somebody's in great demand. And in the book as I have mentioned chapter number 6 is what you have to look at and in addition to that there is an excellent article I think it is called a strategic levers for yield management and that paper it is a very famous very interesting research paper and I think is it is available page number 196 page 196.

So, if you want to understand it in greater depth then please read this particular paper in addition to the more detail discussion that you can have act page 196 and at this stage I might mention that in this text book that is our services marketing seventh edition we

have a very interesting case, which is for a hotel and there challenge of revenue management. And the kind of data that one as to collect to make this to practice revenue management we will understand quite well if you study case number 8, which is the Agra beach hotel block booking of capacity during a peek period very interesting case.

About a cricket team approaching a hotel which is a big great tourist destination for hotel booking and what should be the approach taken by the hotel management. And you can, then analyze an advice the hotel management with the, should except the cricket teams request should declare and that will give you much better understanding award this revenue management this all about.

Thank you.