Week 4: Channel and Direct-to-Consumer Pricing

UNIVERSITY of VIRGINIA
DARDEN SCHOOL OF BUSINESS

Intro to Channel and Direct-to-Consumer Pricing

Channel and Direct-to-Consumer Pricing

- The basics of double marginalization
- Time value of money
- Customer lifetime value
- Pricing methods
  - Marginal cost-plus pricing
  - Peak-load pricing
  - Index-based pricing
- Case application: Retail Relay

By the end of this module you'll be able to…

- Define double marginalization and explain its impact on pricing
- Calculate the time value of money
- Measure customer lifetime value and use it to determine marketing spending

By the end of this module you'll be able to…

- Describe the advantages and disadvantages of various pricing methods and recognize when to use each
  - Marginal cost-plus pricing
  - Peak-load pricing
  - Index-based pricing
- Apply knowledge of channel and direct-to-consumer pricing to a real-world case

Channel Pricing and Double Marginalization

What is missing for the manufacturer's pricing decision?

LED Bulbs Sold	Distributor Price
250	$40.00
160	$50.00
111	$60.00
82	$70.00
63	$80.00
49	$90.00
40	$100.00

Prices, Sales, and Profits*

LED Bulbs Sold	Distributor Price	Manuf. Price to Distribute	Manuf. Cost	Channel Profits
250	$40.00	?	$30.00	$2,500
160	$50.00	?	$30.00	$3,200
111	$60.00	?	$30.00	$3,330
82	$70.00	?	$30.00	$3,280
63	$80.00	?	$30.00	$3,150
49	$90.00	?	$30.00	$2,940
40	$100.00	?	$30.00	$2,800

Manufacturer Charges $45

LED Bulbs Sold	Distributor Price	Manuf. Price to Distribute	Distrib. Profit	Manuf. Profit
250	$40.00	$45.00	-$1,250	$3,750
160	$50.00	$45.00	$800	$2,400
111	$60.00	$45.00	$1,670	$1,670
82	$70.00	$45.00	$2,050	$1,230
63	$80.00	$45.00	$2,210	$950
49	$90.00	$45.00	$2,210	$740
40	$100.00	$45.00	$2,200	$600

Manufacturer Offers a Quantity Discount

LED Bulbs Sold	Distributor Price	Manuf. Price	Distrib. Profit	Manuf. Profit	Channel Profits
250	$40.00	$48.00	-$2,000	$4,440	$2,500
160	$50.00	$48.00	$330	$2,840	$3,200
111	$60.00	$48.00	$1,332	$1,980	$3,330
82	$70.00	$69.00	$82	$3,198	$3,280
63	$80.00	$79.00	$63	$3,087	$3,150
49	$90.00	$88.00	$98	$2,842	$2,940
40	$100.00	$94.00	$240	$2,560	$2,800

Dangers of Volume Discounts

- Forward buying, diverting
- Larger, more powerful customers take advantage of small customers
- Accounting confusion about costs, margins, prices

Channel Pricing, Part 2

	Leader	Follower	Laggard
Retail Price	$1.00	$0.90	$0.80
Retail Margin	**$0.10**	**$0.18**	**$0.24**
Manuf. Price	$0.90	$0.72	$0.56
Manuf. COGS	$0.50	$0.50	$0.50
Manuf. Profit	$80.00	$79.00	$63

Some Conclusions

- Selling through resellers is tough!
- A simple, single price strategy may leave you vulnerable
- Pricing up and dealing back, properly managed is likely to give you more control over end prices/volumes
- Accounting & management confusion over costs and prices is also likely

Introduction to Customer Lifetime Value

Customer Lifetime Value (CLV)

- How prices and margins translate into money
- Computes a dollar value of an individual customer relationship.
- Looks both backward and forward
  - Computing value of past customers
  - Using that information to project forward
- A staple metric of direct marketing (electronic commerce)

The Many Uses of CLV

- To understand the financial implications of various prices
- To determine how much to spend to acquire a customer
- To determine how aggressively to spend to retain a particular customer or group of customers
- To value a company

CLV and NPV

- NPV—Used to evaluate investments and companies
- CLV—Used to evaluate customer relationships
- CLV is the expected NPV of the cash flows from a customer relationship

CLV = the discounted sum of all future customer revenue streams — product, servicing and marketing costs

A Simple CLV Model

ASSUMPTIONS

$GP	Contribution per period from active customers. Contribution = Sales Price – Variable Costs
$R	Retention Spending per period per active customer.
r	retention rate (fraction of current customers retained each period)
d	discount rate per period

A Simple CLV Model

EXPECTED CASH FLOWS

t=0	$GP — $R
t=1	r $GP — r $R
t=2	r^2 $GP — r^2 $R
t=3	r^3 $GP — r^3 $R
	etc.

Phase I – Measurement of CLV

CLV = Present Value of Contribution Margin – Present Value of Marketing Cost

Customer Lifetime Value calculated as:

$$CLV = \sum_{t=1}^{n} \frac{r^{(t-1)} M_t}{(1+i)^{(t-1)}}$$

M = amount of money you make per customer per period

r = retention rate

i = discount rate per period

n = number of periods to forecast

Measuring CLV: Examples

Example of CLV (1)

- Customer pays $10 per year for a subscription to an on-line service
- Servicing this customer costs $5 per year
- Customers have to sign up for one year and the contract is renewed yearly
- The appropriate discount rate is 10%.
- Company data show that only 30% of customers who sign up stay an additional year, but of those who stay 2 years 80% stay a third year.

3-Year CLV

$$\$5 + .3 * \left(\frac{\$5}{1.1}\right) + (.8 * .3) * \left(\frac{\$5}{1.1^2}\right) = \$7.35$$

Example of CLV (2)

- Customer pays $15 per year for a subscription to an on-line service, which will reduce their initial customer base by 20%
- Servicing this customer costs $5 per year
- Customers have to sign up for one year and the contract is renewed yearly
- The appropriate discount rate is 10%
- Company data show that only 20% of customers who sign up stay an additional year, but of those who stay 2 years 50% stay a third year.

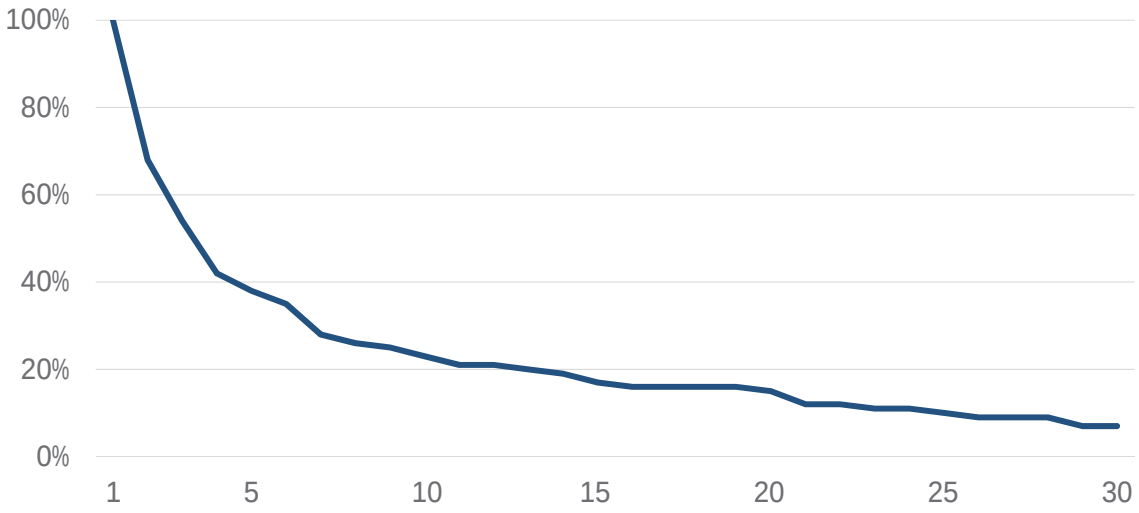
3-Year CLV

- $\$10+.2*(\$10/1.1)+(.5*.2)*(\$10/1.1^2) = \$12.63$
- Remember, the customer base was reduced by 20%, so only 80% of the customers who would buy at $10 per year will buy at $15 per year
- To account for this, multiply $12.63 by 80%, which is $10.10
- Comparing this to the $7.35 we got from charging $10, we see that the price increase is worth it!

Purchase Occasion Probabilities

Purchase Occasion	Transition Probability	Average Basket Size	Probability of New Customer Reaching State *t*
1	N/A	$49.51	100%
2	68%	$62.28	68%
3	80%	$57.01	54%
4	77%	$62.03	42%
5	91%	$63.06	38%
6	90%	$72.90	35%
7	82%	$60.30	28%
8	91%	$63.68	26%
9	95%	$72.04	25%
10	95%	$67.89	23%
11	89%	$70.07	21%
12	100%	$82.48	21%
13	94%	$82.17	20%
14	94%	$61.12	19%
15	93%	$65.79	17%
16	93%	$82.29	16%
17	100%	$65.32	16%
18	100%	$99.20	16%
19	100%	$73.74	16%
20	92%	$92.91	15%
21	83%	$59.57	12%
22	100%	$75.69	12%
23	90%	$60.33	11%
24	100%	$84.83	11%
25	89%	$87.55	10%
26	88%	$60.99	9%
27	100%	$87.95	9%
28	100%	$99.33	9%
29	86%	$77.30	7%
30	100%	$99.70	7%

Retention Rates



Where do you get these figures?

- Transition Probability
  - If you have 1000 people in your database that made at least one purchase and 850 that made at least two, then the transition probability between purchase one and two is 85%
- Average Basket Size
  - Self evident from data

Not all customers are alike!

Improve firm performance by treating different categories of customers differently, and developing relationships accordingly.

Most Valued Customers

Customer to Reward

Second Tier Customers

Customer to Grow

Customer to Fire (or not acquire?)

Below Zeros

Avatar Image Credit: http://www.icons-land.com/

Early segmentation is possible

- What you might know soon
  - Size of the first order
  - Early subsequent orders (On-line groceries)
  - Zip code (Economic status)

Challenges with CLV

- You have to go far back into the data to get accurate purchase occasion probabilities
  - If not, data is censored and later-stage purchase probabilities are biased
- New customers may behave differently than old customers—and you're using historical data

CLV – Strategic Implications

- Provides a comprehensive forward looking measure of the customer relationship
- Can connect marketing strategies to financial consequences

CLV – Strategic Implications

- Allows us to determine the full financial impact of pricing decisions
- Allows for selecting customers for marketing communication and determining the level of resources to be allocated for each customer
- Strategic alternatives can be evaluated based on whether they improve customer satisfaction, retention, and lifetime value

Retail Relay Case Debrief

Retail Relay Case Debrief

- Launched into Richmond, VA
- No longer used door-hanger promotions
- Used Val-Pak

Marginal Cost Pricing

How is it possible?

Last minute deal for
1-week trip to the Bahamas

-70% off

The answer:

Marginal cost pricing

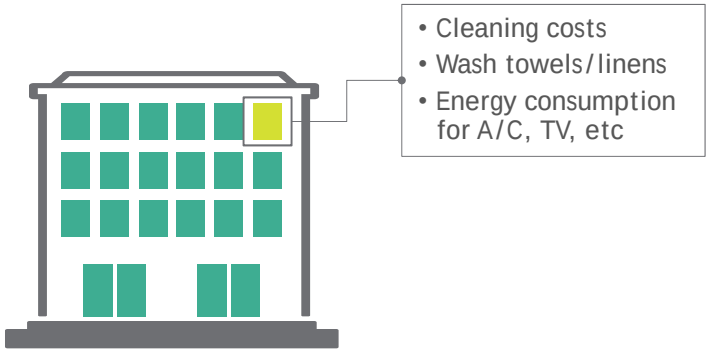
What is marginal cost?

$$\text{Marginal cost} = \frac{\text{Change in cost}}{\text{Change in quantity}}$$

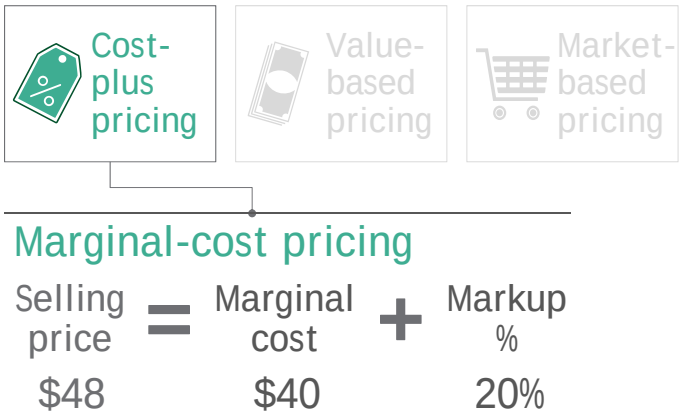
In industries with high fixed cost, marginal cost is quite small compared to full cost (… if there is free capacity)

Marginal cost: Example

Hotel room for one night



What is marginal cost pricing?



When is marginal cost pricing used?

- To fill unused capacity
- To add to revenue and profits … especially when business is slow
- To get a "*foot in the door*": entering a market or creating opportunities for cross-selling

Marginal Cost Pricing: Airline Industry

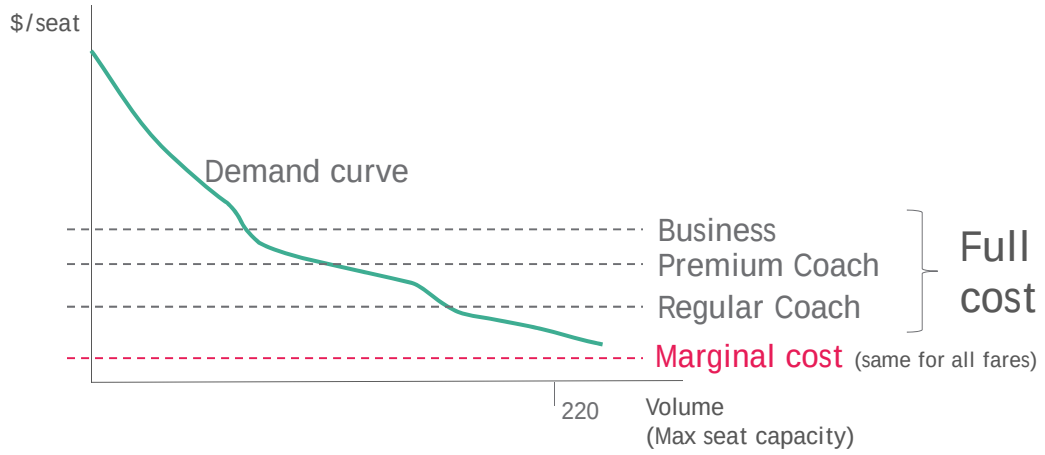
Marginal cost pricing example: airline industry

Marginal cost for an incremental passenger

- Airport service fees: facility, security, baggage handling
- Transaction cost: reservation, check-in, boarding

- Higher fuel consumption due to additional weight
- Meals and drinks

Marginal cost pricing example: Flight JFK (New York) → CDG (Paris)



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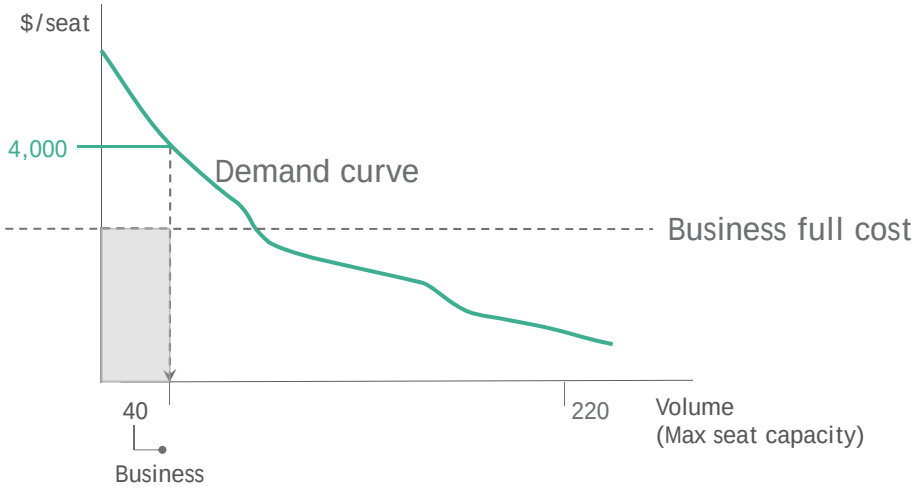

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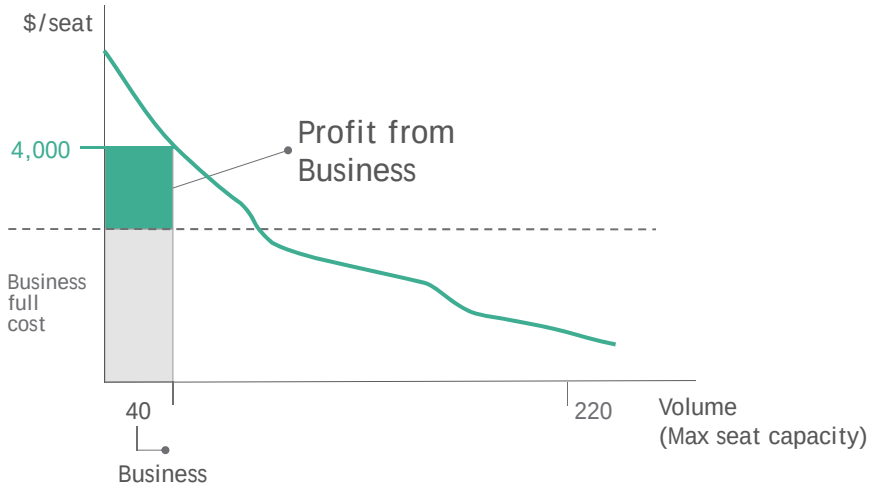

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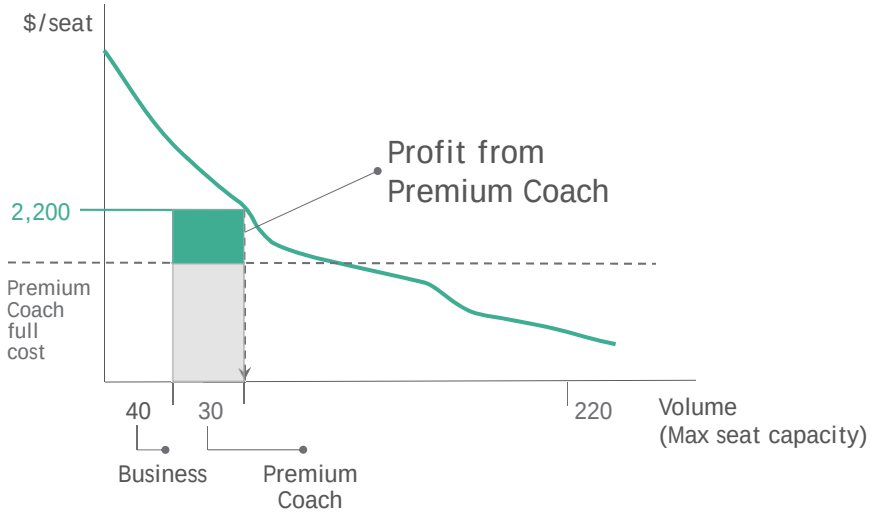

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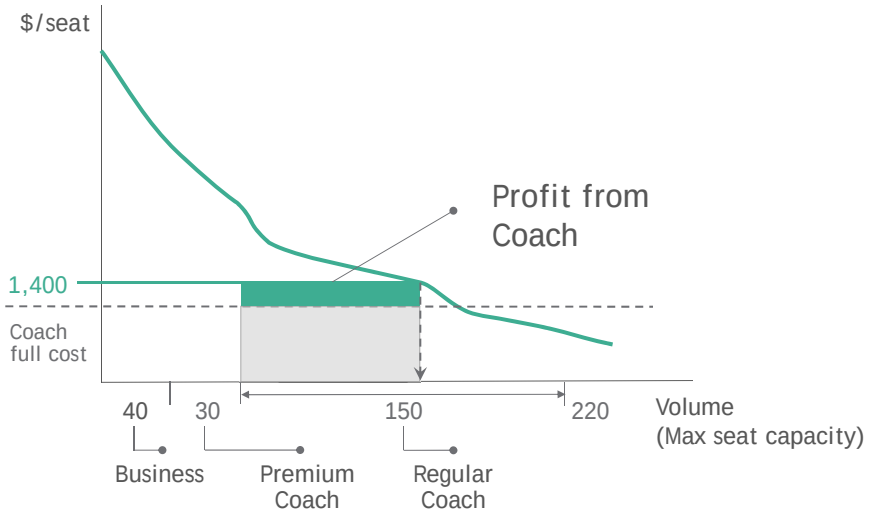

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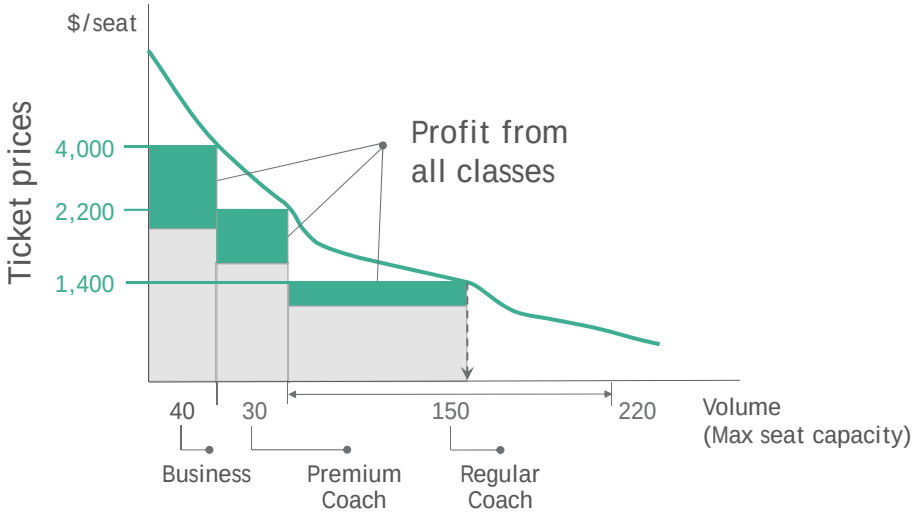

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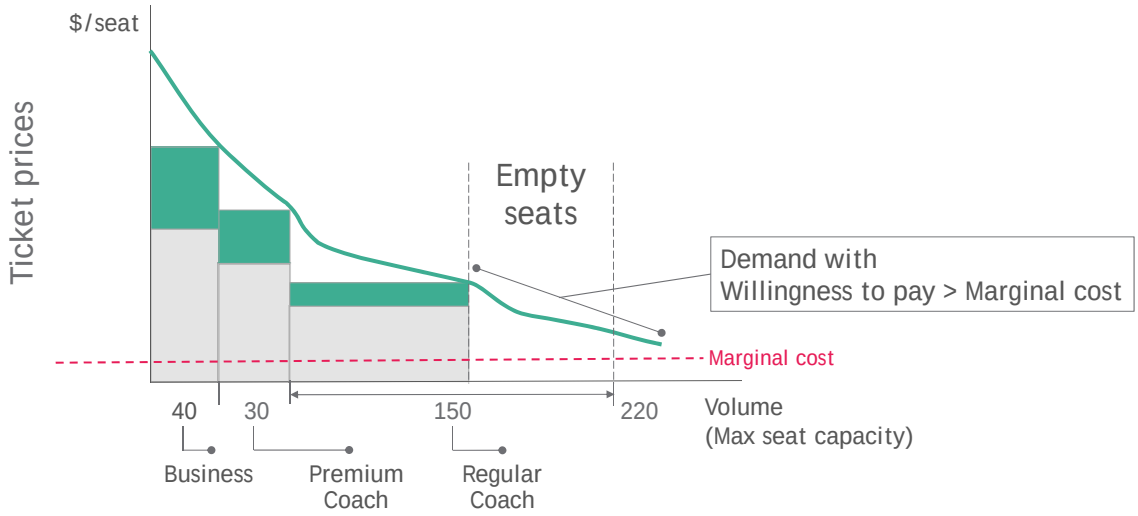

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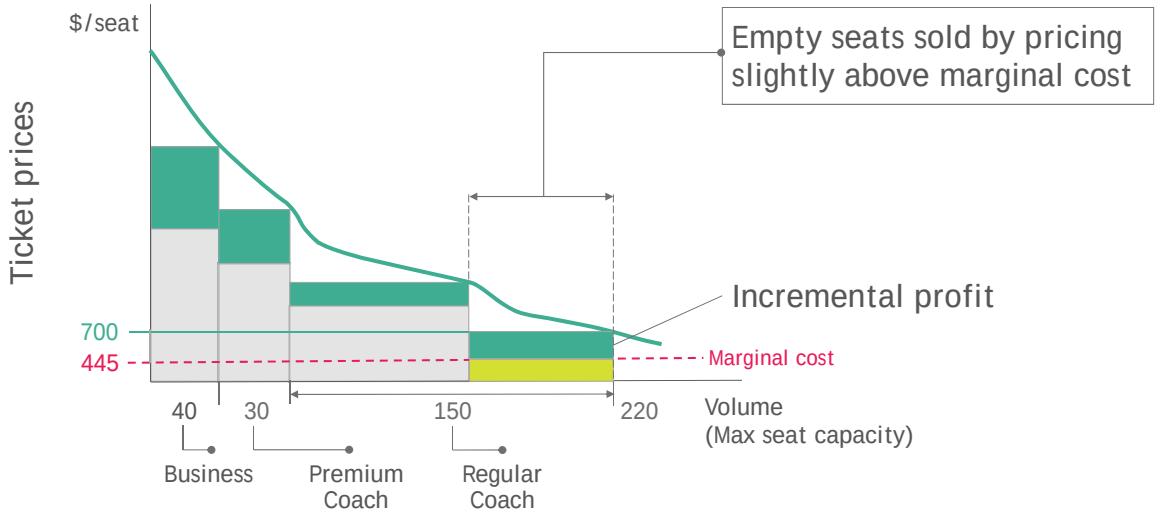


Discussion of marginal cost pricing

Advantages / disadvantages

- Same as for cost-plus pricing at full cost

Risk

- Impacts willingness to pay and buying behaviors of regular paying customers

Mitigation strategy

- Differentiate offering at marginal cost to reflect lower price

Closing questions for you

Does your business use marginal cost pricing?

Do you fully understand your marginal cost?

Is the incremental profit worth the risk of longer-term price erosion?

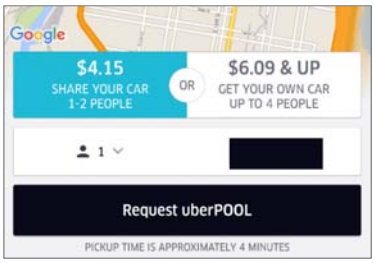
How do you differentiate your offers to avoid price erosion?

Peak Load Pricing

What does Uber have to do with peak load pricing?

What does Uber have to do with peak load pricing?

Surge pricing = Peak load pricing



What's the point of peak load pricing?

Bring market back into equilibrium by balancing supply and demand

Demand (Riders) | Supply (Drivers)

What's the point of peak load pricing?

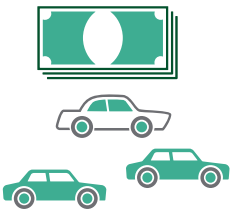
Bring market back into equilibrium by balancing supply and demand

UBER

Demand (Riders)

Supply (Drivers)

Effect of peak load pricing



When does it make sense to use?

- ✓ Goods and services that can't be stored
- ✓ Capacity is constrained
- ✓ Demand is volatile
- ✓ Congestion leads to unwanted consequences

What about …?

Electric power

- ✓ Hard to store
- ✓ Capacity is constrained
- ✓ Demand is volatile
- ✓ Congestion leads to unwanted consequences

What about …?

Mail delivery

- ✓ Can not be stored
- ✓ Capacity is constrained
- ✓ Demand is volatile
- ? Congestion leads to unwanted consequences

What about …?

… your business?

Are your products and services suitable for peak load pricing?

Index-Based Pricing

Index-based pricing…

… method to adjusts prices during the contract period

… in line with changes to cost

Don't confuse with Price Index!

A bit of a niche topic, but very important for some industries

Key features of contracts with index-based pricing

- Selecting the right index
- Frequency of price adjustments
- Price caps

Example for index-based pricing

Adjustable Rate Mortgage (ARM)

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

Rate is fixed for first five years

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

After five years, rate is adjusted every one year

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

Index
London InterBank Offered Rate (1 year)

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

Other indices commonly used:

- Prime rate
- T-Bill
- COFE

Example for index-based pricing

How lenders quote ARMs

5 / 1 LIBOR 5/2/5 2.25%

Adjustment caps
5%-pts. for initial adjustment
2%-pts for subsequent adjustments
5%-pts. lifetime cap

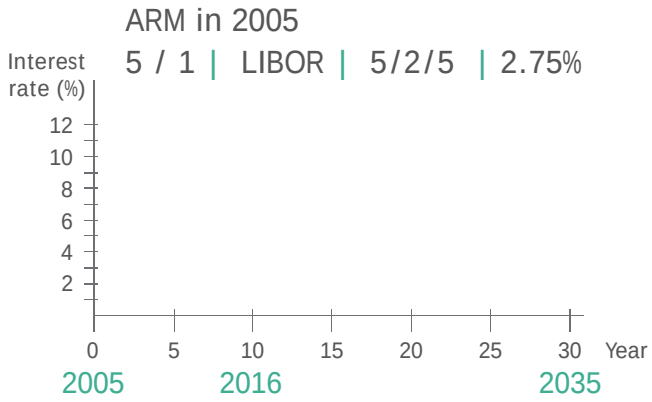
Example for index-based pricing

How lenders quote ARMs

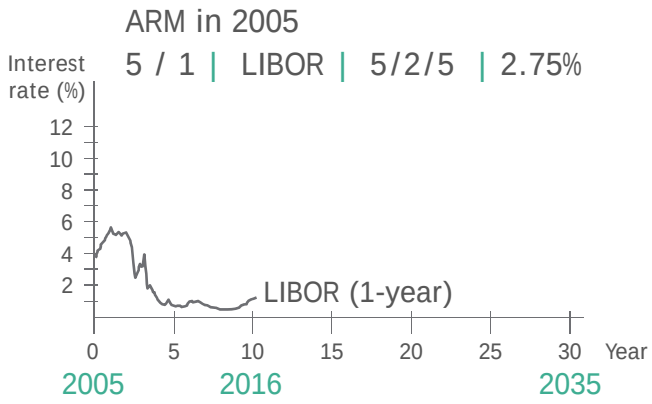
5 / 1 LIBOR 5/2/5 2.25%

Margin
2.25%-pts.
i.e. Fully Indexed Rate = LIBOR + 2.25%

Example: Adjustable Rate Mortgage



Example: Adjustable Rate Mortgage



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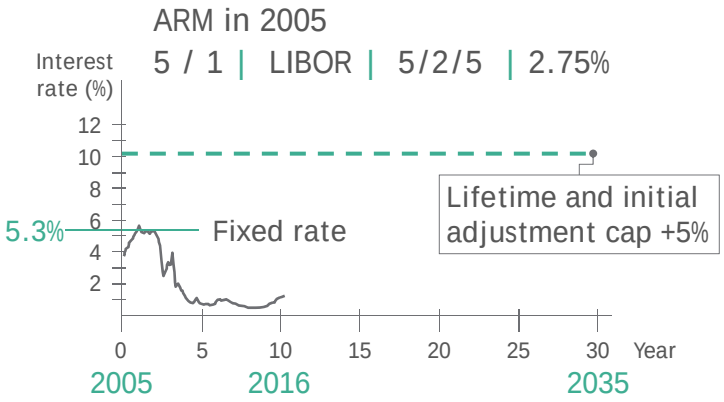
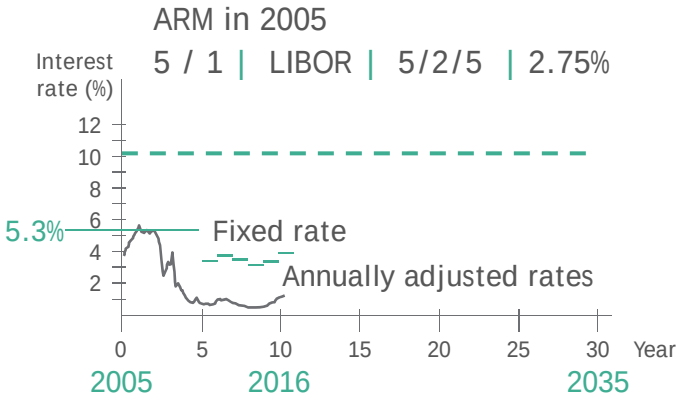


Example: Adjustable Rate Mortgage



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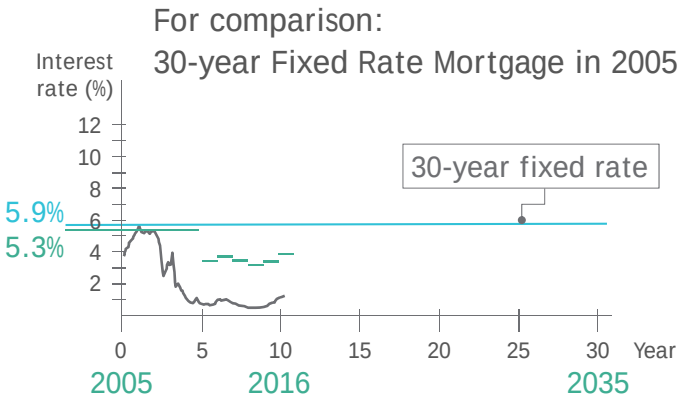

When does it make sense to use?

- ✓ Long term contracts
- ✓ Low margin business
- ✓ Cost structure dominated by few big cost items
- ✓ Cost is volatile

Module Takeaways

Channel and Direct-to-Consumer Pricing Key Points

- The basics of double marginalization
- Time value of money
- Customer lifetime value
- Pricing methods
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  - Peak-load pricing
  - Index-based pricing
- Case application: Retail Relay