Pricing Under Uncertainty

Lectures in Microeconomics-Charles W. Upton

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- Economists have often wondered about the pricing strategy of many department stores.
- Clothes, particularly women's fashions, are offered for sale at (say) $300, with the full knowledge and expectation that 4-6 weeks later, they will be reduced to (say) $200.

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- The general theme is that the demand for the product is uncertain. You produce the product before you know demand.

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- Women's clothing tends to sell at a higher price at the beginning of the season than at the end.

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- Women's clothing tends to sell at a higher price at the beginning of the season than at the end.
- In 1988, women's clothing sold in October for about 6 percent above the average price for the season, and about 4 percent below in January, a 10 percent swing.

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- At the same time, men's clothing sold for about 2 percent above in October and about 1 percent below in January, or only a 3 percent swing.

Pricing Under Uncertainty

- Markdowns have increased over time: the average percent markdown on clothing has risen dramatically since the late 1960's

A Numerical Example

An Example with Six Dresses

Price	Number of Colors Sold at this Price	Probability that a Color Picked at Random Won't Sell at this Price
300	0	1.00
270	1	0.83
240	2	0.67
210	3	0.50
180	4	0.33
150	5	0.17
120	6	0.00

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180	4	0.33
150	5	0.17
120	6	0.00

Single Pricing Strategy

An Example with Six Dresses

Price	Number of Colors Sold at this Price	Revenue
300	0	0
270	1	270
240	2	480
210	3	630
180	4	720
150	5	750
120	6	720

Dual Pricing Strategy

- Offer the dresses at a high price. See which hot colors sell.

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- Offer the dresses at a high price. See which hot colors sell.
- Offer the remaining dresses at a lower price to the fashion unconscious.

Dual Pricing Strategy

An Example with Six Dresses

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300	0	1.00
270	1	0.83
240	2	0.67
210	3	0.50
180	4	0.33
150	5	0.17
120	6	0.00

Dual Pricing Strategy

Initial Price	300	270	240	210	180	150	120
Dresses Sold	0	1	2	3	4	5	6
Revenue	0	270	480	630	720	750	720
Other Dresses							
270	1						
240	2	1					
210	3	2	1				
180	4	3	2	1			
150	5	4	3	2	1		
120	6	5	4	3	2	1	

Dual Pricing Strategy

Initial Price	300	270	240	210	180	150	120
Dresses Sold	0	1	2	3	4	5	6
Revenue	0	270	480	630	720	750	720
Other Dresses							
270	1						
240	2	1					
210	3	2	1				
180	4	3	2	1			
150	5	4	3	2	1		
120	6	5	4	3	2	1	

Dual Pricing Strategy

Initial Price	300	270	240	210	180	150	120
Dresses Sold at this Price	0	1	2	3	4	5	6
Revenue	0	270	480	630	720	750	720
Other Dresses							
270	270	0	0	0	0	0	0
240	480	240	0	0	0	0	0
210	630	420	210	0	0	0	0
180	720	540	360	180	0	0	0
150	750	600	450	300	150	0	0
120	720	600	480	360	240	120	0
Revenue	750	870	960	990	960	870	720

Dual Pricing Strategy

Initial Price	300	270	240	210	180	150	120
Dresses Sold at this Price	0	1	2	3	4	5	6
Revenue	0	270	480	630	720	750	720
Other Dresses							
270	270	0	0	0	0	0	0
240	480	240	0	0	0	0	0
210	630	420	210	0	0	0	0
180	720	540	360	180	0	0	0
150	750	600	450	300	150	0	0
120	720	600	480	360	240	120	0
Revenue	750	870	960	**990**	960	870	720

A Summary

- Color is just a proxy for general demand uncertainty.

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- Lets see if we can get some basic principles

Equilibrium Conditions

- The average markup cannot be different, or else there will be profits (or lack thereof) in one segment of the industry.

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- The average markup cannot be different, or else there will be profits (or lack thereof) in one segment of the industry.
- The uncertainty about demand (or fickleness, if you will) is what motivates the markup. If managers could predict this year's hot colors, then all dresses would sell at the same markup.

A Little History

- The growth in Markup and Markdowns for the Department Stores follows their changing nature. Clothing has become more fashion-driven.

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- The Growth in Markup and Markdowns for the Department Stores follows their changing nature. Clothing has become more fashion-driven.
- The relative markups for different types of clothing have changed over time.

End