Exercise 25.7

SOLUTION

Bill Barriers, CEO of MightySoft software, is contemplating a new marketing strategy: bundling their best-selling wordprocessor and their spreadsheet together and selling the pair of software products for one price.

From the viewpoint of the company, bundling software and selling it at a discounted price has two effects on sales: (1) revenues go up due to to additional sales of the bundle; and (2) revenues go down since there is less of a demand for the individual components of the bundle.

The profitability of bundling depends on which of these two effects dominates. Suppose that MightySoft sells the wordprocessor for \$200 and the spreadsheet for \$250. A marketing survey of 100 people who purchased either of these packages in the last year turned up the following facts:

1) 20 people bought both.
2) 40 people bought only the wordprocessor. They would be willing to spend up to \$120 more for the spreadsheet.
3) 40 people bought only the spreadsheet. They would be willing to spend up to \$100 more for the wordprocessor.[1]

In answering the following questions you may assume the following:

1) New purchasers of MightySoft products will have the same characteristics as this group.
2) There is a zero marginal cost to producing extra copies of either software package.
3) There is a zero marginal cost to creating a bundle.

(a) Let us assume that MightySoft also offers the products separately as well as bundled. In order to determine how to price the bundle, Bill Barriers asks himself the following questions. In order to sell the bundle to the wordprocessor purchasers, the price would have to be less than

$$200 + 120 = 320.$$

(b) In order to sell the bundle to the spreadsheet users, the price would have to be less than

$$250 + 100 = 350.$$

(c) What would MightySoft's profits be on a group of 100 users if it priced the bundle at \$320?

With this price everyone would choose to buy the bundle. Therefore, profits would be $100 \cdot 320 = 32\,000$.

(d) What would MightySoft's profits be on a group of 100 users if it priced the bundle at \$350?

In this case, the 20 people who bought both software in the survey, would still buy both (as a bundle). Also those 40 people who in the survey bought the spreadsheet would buy the bundle. The remaining 40 people would buy the wordprocessor only. Therefore, profits would be $20 \cdot 350 + 40 \cdot 350 + 40 \cdot 200 = 29\,000$.

(e) If MightySoft offers the bundle, what price should it set?

According to the numbers above, it is more profitable to charge a price of \$320.

[1] The numbers above are to be considered as the consumers' willingness to pay.

(f) What would profits be without offering the bundle?

Without the bundle, 20 people would buy both products, 40 the spreadsheet only, and 40 the word-processor only. Therefore, profits would be $20 \cdot (200 + 250) + 40 \cdot 200 + 40 \cdot 250 = 27\,000$.

(g) What would be the profits with the bundle?

$$100 \cdot 320 = 32\,000$$

(h) Is it more profitable to bundle or not bundle?

It is more profitable to bundle.

(i) Suppose that MightySoft worries about the reliability of their market survey and decides that they believe that without bundling t of the 100 people will buy both products, and $(100 - t)/2$ will buy the wordprocessor only and $(100-t)/2$ will buy the spreadsheet only. Calculate profits as a function of t if there is no bundling.

$$t \cdot (200 + 250) + \frac{100 - t}{2} \cdot 200 + \frac{100 - t}{2} \cdot 250 = 225t + 22\,500$$

(j) What are profits with the bundle?

$$100 \cdot 320 = 32\,000$$

(k) At what values of t would it be unprofitable to offer the bundle?

$$32\,000 < 225t + 22\,500$$
$$t > 42.22$$

(l) This analysis so far has been concerned only with customers who would purchase at least one of the programs at the original set of prices. Is there any additional source of demand for the bundle? What does this say about the calculations we have made about the profitability of bundling?

There might exist consumers who are not willing to pay \$200 for the wordprocessor or \$250 for the spreadsheet, but are willing to pay \$320 for the bundle. In that case, bundling would turn out to be more profitable than what the numbers above suggest.