Managerial Economics Foundations of Business Analysis and Strategy 13th edition Thomas Solutions Manual

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Chapter 1:
MANAGERS, PROFITS, AND MARKETS

Answers to Applied Problems

1. To say that a decision rule or process does not work in theory is to say that the answer produced by the rule is not going to be the "correct" answer. In business decision making, managers get the "correct" answer when their solutions are ones that lead to the greatest level of profit.

   For example, it is rather easy to calculate the profit margin for a good or service and to make a pricing decision that will maximize the profit margin on the good or service. While that may be a very practical method of determining price, pricing to maximize profit margin does not in theory lead to the price that maximizes the profit or value of the firm—except by accident in extremely rare circumstances. The same can be said for making decisions that lead to the lowest possible unit or average cost of production. Unit cost is easy to measure, and so it is useful in practice, yet unit cost is not theoretically the correct measure of cost—i.e., managers cannot, except by accident, find the profit-maximizing price or output level by using average cost data. You will learn that the theoretically correct cost measure is marginal cost for making profit-maximizing decisions.

   Your training in managerial economics is designed to teach you the best and correct ways to make business decisions, so that you do not settle for the numerous incorrect methods that are still used in many businesses today. In other words, your goal should be to devise ways to make the theoretically correct decision methods work for your company.

2. a. Total explicit cost = \$793,000 (= 555,000 + 45,000 + 28,000 + 165,000)
      Total implicit cost = \$190,000 (= 175,000 + 0.15 × 100,000)
      Total economic cost = \$983,000 (= 793,000 + 190,000)
   b. Accounting profit = \$177,000 (= 970,000 – 793,000)
   c. Economic profit = –\$13,000 (= 970,000 – 983,000)
   d. The owner's accounting profit is \$13,000 less than what he could have earned in salary and return on investment of his \$100,000, i.e., his economic profit is –\$13,000. Thus, he would have made \$13,000 more if he had kept his job and invested his \$100,000 in stocks of other businesses.

3. The \$8,000 of lost income, even though not tax-deductible, is indeed part of the economic cost the doctor incurs by going to Mexico to treat patients, and the doctor should consider this \$8,000 cost in making her decision to travel to Mexico.

4. a. Burton's explicit costs are \$18,000 per month. His implicit costs are \$20,000 per month (\$15,000 + \$5,000).
   b. Opportunity cost = explicit + implicit costs = \$18,000 + 20,000 = \$38,000 per month
   c. Burton Cummings' costs of production (= \$38,000/month) exceed his revenues by \$13,000 (= 38,000 – 25,000). Rather than lose \$13,000 per month, Burton could rent his rig (and receive \$15,000 per month) and drive trucks for another firm (and earn \$5,000 per month). With this use of his resources he would earn \$20,000 per month. Or, Burton could try his luck as a singer in a rock band.

5. One cost of opening a tennis shop would be the forgone salary of the previous job. Given that Nadal's or Venus' foregone income would be much larger than that of a university coach, their opportunity cost would be higher.

6. a. Linking the board of directors' compensation to return on equity creates an incentive for management to pursue profit-maximization as a goal, thereby reducing the agency problem between managers and shareholders.

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b. Directors have better, easier, and cheaper access to information about the firm's revenues and costs. Shareholders are numerous and each one has only a relatively small stake in the profitability of the firm. It is generally easier for a shareholder simply to sell its shares and reinvest in another company.
c. Accounting profit treats the cost of using shareholder equity capital as zero, and thus CEOs and directors will have little incentive to use equity capital efficiently. With a perceived cost of zero, equity capital will be overused and misallocated, which will drive down the economic profit and the value of the firm. Shareholders own the firm and they will suffer.

7. a. Some Marriott franchises are shirking their responsibility to maintain high quality hotels, and this shirking damages the reputation of all Marriott franchises.
b. Poorly run franchises damage the Marriott reputation and reduce the profitability of hotels owned by Marriott.
c. Where there is little repeat business, there is less incentive for a hotel to provide quality service. Where there is a lot of repeat business, franchises will have an incentive to maintain quality to attract repeat business.

8. Even though the financial arrangement with Delta and United limited the growth in SkyWest's economic profits in future years, the agreement decreased the risk associated with SkyWest's profits. In the Fortune article, one financial analyst states, "They (SkyWest) shield themselves from the factors that lead to volatility in earnings—fuel prices, ticket prices, and load factors—and bring investors the certainty they are looking for." The lower level of risk reduces the risk-adjusted discount rate, and, for a given stream of profits, the value of the SkyWest rises.

Answers to Mathematical Exercises

1. a. $PV = NCF/(1 + r)^t = \$1{,}000/(1.065) = \$938.97$
b. $PV = \$1{,}000/(1.065)^2 = \$881.66$
c. $PV = \$1{,}000/(1.065)^3 = \$827.85$

2. The present value is calculated as follows:

$$PV = \sum_{t=0}^{5} \frac{NCF_t}{(1+r)^t} = \frac{\$10{,}000}{(1.12)^1} + \frac{\$20{,}000}{(1.12)^2} + \frac{\$50{,}000}{(1.12)^3} + \frac{\$75{,}000}{(1.12)^4} + \frac{\$50{,}000}{(1.12)^5}$$
$$= \$8{,}929 + 15{,}944 + 35{,}589 + 47{,}664 + 28{,}371$$
$$= \$136{,}497$$

3. Option *A*: Ashton pays Demi $1,000,000 each year for 10 years (Ashton wishes to make each payment at year-end.)
Option *B*: Ashton pays Demi $5,000,000 in cash now.
If the appropriate interest rate is 8 percent:
$PV_{\text{Option } A} = \$1{,}000{,}000/(1.08)^1 + \cdots + \$1{,}000{,}000/(1.08)^{10} = \$6{,}710{,}081$
$PV_{\text{Option } B} = \$5{,}000{,}000$
Clearly, Demi should take option *A* and Ashton should want to pay her $5,000,000 now.

If the appropriate interest rate is 20 percent:
$PV_{\text{Option A}} = \$1{,}000{,}000/(1.20)^1 + \cdots + \$1{,}000{,}000/(1.20)^{10} = \$4{,}192{,}472$
$PV_{\text{Option B}} = \$5{,}000{,}000$
In this case, Demi should demand $5,000,000 cash now, and Ashton should try to talk her into taking $10,000,000 spread over ten years.

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4. Since the lease payment is a constant amount for each of the 100 years –and 100 years is a long time, we can get a very good approximation of the present value by using the formula for a perpetual stream of profit payments:

$PV = \$\pi \times \left(\frac{1}{r}\right) = \frac{\$\pi}{r}$. The approximate present value is \$500,000 = \$20,000/.04.

Answers to Homework Exercises in Student Workbook

1. a. \$47,177,000
   b. \$5,880,000
   c. \$53,057,000
   d. \$6,573,000
   e. \$693,000
   f. –\$907,000

2. a. \$12,635,513
   b. \$11,336,861

3. a. monopolistic competition
   b. oligopoly
   c. perfect competition
   d. monopoly

4. SunKist is just one of many citrus producers. Consumers are generally not brand conscious with respect to fresh fruits and vegetables.

5. Lexus has market power because product differentiation, even within the market for luxury cars, gives Lexus some ability to raise price without losing all sales. In addition, a dealership in one city seldom loses sales to Lexus dealers in other towns or cities, unless they are only a short distance away.

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ANSWERS TO TECHNICAL PROBLEMS

Chapter 1: Managers, Profits, and Markets

1. *a.* Explicit cost of $6,000 per year. The firm forgoes $6,000 per year to obtain the use of the computer server.
   b. Implicit cost of $5,000 per year. The owner forgoes earning $5,000 (= 0.10 × $50,000) annually by letting the firm use the money rather than investing it and earning a return.
   c. Implicit cost of $3 million per year. The owner could sell the building and invest the proceeds to earn 10 percent annually. The owner sacrifices $3 million (= 0.10 × $30 million) annually.
   d. Explicit cost of $5 million this year. The owner must pay the computer programmers $50 per hour for 100,000 hours. So the owner gives up $5 million (= $50 × 100,000) to hire the programmers.
   e. No cost. The incinerator has zero market value since no other firm pays anything to have it. So there is nothing given up by the owner to keep the incinerator and opportunity cost is zero—even the Smithsonian wouldn't give a nickel for it.
2. *a.* $80,000; $70,000; $150,000
   b. $25,000
   c. $95,000
   d. −$5,000
3. *a.* $299,925; $299,925
   b. $310,522; $310,522
4. *a.* profit; independent of decisions in other time periods
   b. smaller
   c. larger

Chapter 2: Demand, Supply, and Market Equilibrium

1. *a.* 600 units of good A can be sold each month if P, M, P_B, $\mathcal{T}$, P_E, and N are all simultaneously equal to zero.
   b. −4. The slope parameter for a good's own price must be negative because the law of demand stipulates that quantity demanded and price of a good are inversely related.
   c. The slope parameter on M (−0.03) indicates that a $1 increase in average household income, all else constant, will *decrease* sales of good A by 0.03 unit per month. (Or a $1,000 increase in M will decrease Q_d by 30 units per month.) Good A is an inferior good because the slope coefficient on M is negative.
   d. Complements. The slope parameter on P_B is negative. A $1 increase in the price of good B, all other factors constant, will cause the quantity demanded of good A to decrease by 12 units per month.
   e. These three slope parameters should all be positive, since each of the variables varies directly (rather than inversely) with quantity demanded. For tastes, note that the slope parameter e (= 15) is *not* restricted to the range 1 to 10 as is the value of the taste index $\mathcal{T}$.
   f. $Q_d = 600 - 4(5) - 0.03(25{,}000) - 12(40) + 15(6.5) + 6(5.25) + 1.5(2{,}000)$
   $= 2{,}479.0$ units of good A per month
2. *a.* $Q_d = 8{,}000 - 16P + 0.75(30{,}000) + 30(50) = 8{,}000 - 16P + 22{,}500 + 1{,}500 = 32{,}000 - 16P$
   b. Intercept parameter: If price were 0, consumers would take 32,000 units of the good for free. Slope parameter: A $1 increase in price, all else constant, will cause consumers to buy 16 fewer units per period.
   c. The following sketch plots price on the vertical axis and quantity demanded on the horizontal axis. Demand is a straight line that intersects the price axis at $2,000 and the quantity demanded axis at 32,000 units.

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