SOLUTIONS MANUAL

12th edition

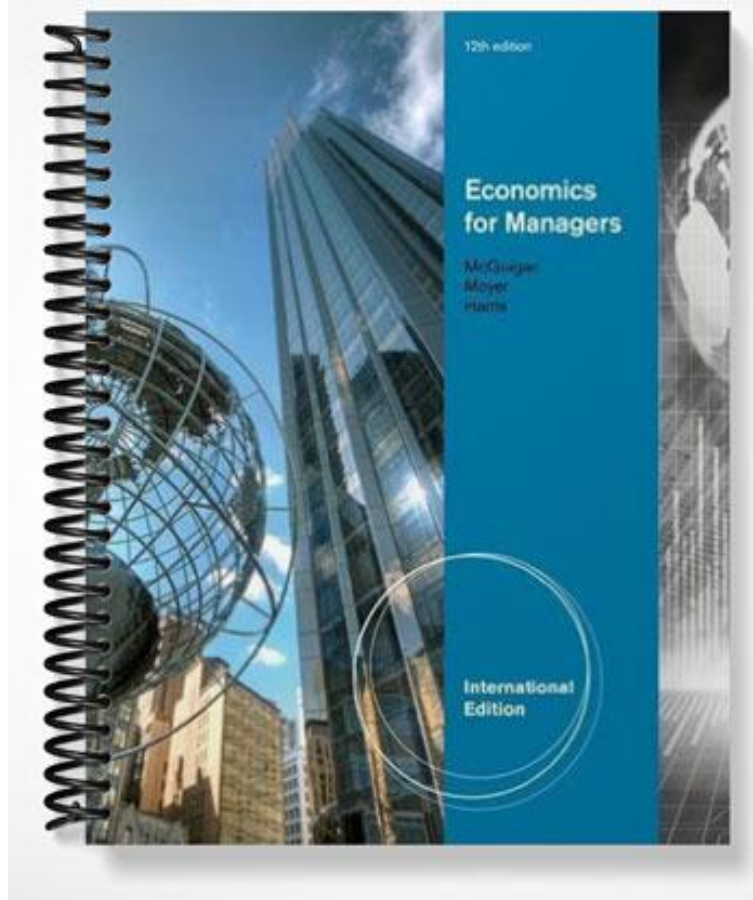Economics
for Managers

McGuigan
Moyer
Harris

International
Edition

Chapter 2

Fundamental Economic Concepts

Solutions to Exercises

1. The number of checked bags should fall, as individuals internalize the external cost of added weight. However, the average weight should rise, as those checking bags would in all likelihood pack as much as possible to make up for the cost.

2. The wage in the market for oil spill cleanup efforts should rise, thanks to an increase in demand for labor. The wage in the market for similarly-skilled labor should also fall, as the relevant labor supply falls in response to the previous increase in wage. We would expect an increase in migration, as long as the wage of the home market was less than the wage that could be received in the Gulf region.

3. Projects A, C, G and B require a total of $875 million in investment. Project B, the lowest return project of this group is expected to generate an 18 percent rate of return. Ajax can raise up to $1,050 million, with the highest cost being 18 percent for the last $200 million. If Ajax were to choose any project beyond A, C, G, and B—such as project D (the next best project after B)—that project would generate a marginal rate of return (16 percent), which is less than the marginal cost of funds needed to finance it, in this case 18 percent for the last $200 million up to a total of $1,050. Thus, the optimal capital budget is to invest in projects A, C, G, B, for a total of $875 million.

4. This question examines expected values, standard deviations, and risk measures for MICHTEC's products with probabilities of .2, .5, and .3 for boom, recession, and normal growth.

   a. Expected annual revenues = $90(.2) + $75(.5) + $85(.3) = $77.175, or as this is expressed in millions of dollars, the expected annual revenues are $77,175,000.

   b. Standard deviation of annual revenues = $[(90 - 77.175)^2(.2) + (75 - 77.175)^2(.5) + (85 - 77.175)^2(.3)] = 96.492063$, but as this is in millions, that is $96,492,063.

   c. Coefficient of variation = $v = 96.492063 / 77.175 = 0.250$

8

5. Comparing two projects, Project B appears riskier because it has a larger standard deviation ($125,000) than Project A, but that does not consider relative risk. Actually, Project A is riskier because it has a larger coefficient of variation than Project B does.

$$CV_A = v_A = \$40,000/\$50,000 = 0.80$$
$$CV_B = v_B = \$125,000/\$250,000 = 0.50$$

Because the two projects are significantly different in size, the coefficient of variation (a <u>relative</u> measure of risk) is more appropriate.

6. General Aeronautics question involving distributions.

   a. Because the price distribution is normal, the expected price is halfway between the most optimistic price and the most pessimistic price, or $1.5 million.

   b. From Table 1, the z value corresponding to leaving 10 percent in the lower tail of a normal distribution is approximately -1.28. Therefore, -1.28 standard deviations correspond to a distance of $500,000 below the mean ($1 million minus $1.5 million). Hence one standard deviation is equal to:
   $-1.28\sigma = -\$500,000$, or $\sigma = \$390,625$.

   c. $z = (\$1.2 \text{ million} - \$1.5 \text{ million}) / \$390,625 = -0.77$, so from Table 1, we can find the $p(z < -0.77) = 22.06\%$

Solution to Case Exercise: Revenue Management at American Airlines

1. American Airlines must learn from the past on the probability of filling seats days in advance of the flight, for different times of the day, different days of the week, for both business class and coach seats, and for different destinations. If too few seats in a certain class have been sold, then the airlines many need to "sell" them to discounters like Priceline at lower prices to fill seats. This creates price differentiation among customers at the same class of seats. As most customers are aware that this occurs, there is little that American Airlines need be "no shows."

2. Trucking, health care, and hotel stays are all services. Because so much of health care is paid for by third parties (HMOs, BlueCross, or Medicare), pricing is often obscure to the patients so that giving a discount for a hernia surgery on Tuesdays makes little sense. Trucking, on the other hand, is primarily Business to Business and faces a great deal of competitive buying power (after deregulation of the trucking industry in July 1980 with the Motor Carrier Regulatory Reform and Modernization Act

9

reduced the power of the Interstate Commerce Commission to set trucking rates). A firm that does significant shipping will search extensively to find the lowest price. In this environment, competitive rates would tend to occur. But in hotel stays, we have small buyers of services such a traveler to show the wide range of prices found in hotels that we also find in airlines.

3. There is an art to finding out what a customer is willing to pay. The object of the seller is to charge the most that the customer is willing to pay. If reservation clerks or travel agents find that customers are willing to pay more for certain upgrades, they will allocate fewer "cheap seats" and have more "preferred seating," or so other designation.