Management Economics: ***An Accelerated Approach***

William G. Forgang, Ph.D.
Professor of Business and Economics
Mount Saint Mary's University

Karl W. Einolf, Ph.D.
Associate Professor of Business and Economics
Mount Saint Mary's University

Instructor's Manual

Written by:

William G. Forgang, Ph.D.
Professor of Business and Economics
Mount St. Mary's University

Karl W. Einolf, Ph.D.
Associate Professor of Business and Economics
Mount St. Mary's University

Donald Burr, MBA, CPA
Assistant Professor of Accounting
Mount St. Mary's University

Chapter 1

Exercises

1.1 a. Students should provide an example of a decision involving the allocation of a scarce resource.
b. The opportunity cost is the sacrifice of units of one outcome for more units of another.
c. The constrained maximum refers to that allocation of resources and mix of outcomes that maximizes well-being.
d. Failure to achieve the constrained maximum results in a well-being loss, and students should specifically identify the losses associated with a misallocation of resources.
e. Expect students to identify a resource allocation issue within their organization and to explain the source of disagreements over the appropriate allocation. Do individuals have self-interest differences, different tolerances for risk, or different assessments of immediate versus future returns?

1.2 a. Personal freedom grows as the size of the public sector diminishes. However, taxation and the provision of goods for collective consumption, environmental and safety regulations, and zoning restrictions are examples of restrictions on personal freedoms in exchange for the common good.
b. Economic efficiency and work effort are maximized when individuals keep the fruits of their efforts. Greater economic equality can be achieved through transfers from the wealthiest to the neediest at the cost of diminished work incentives and economic efficiency.

1.3 a. Students should apply the concepts of expected value and the time value of money to a resource allocation problem.
b. Students consider the possibility of differences in risk tolerance as a source of debate in resource allocation.
c. Students apply the idea of time preference to explain possible differences in a resource allocation problem.

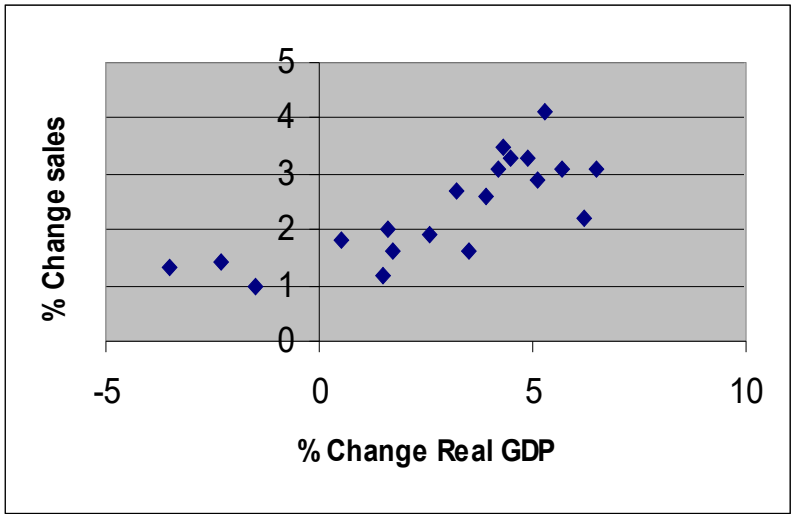
1.4 a. The present value of the stream of interest payments plus principal repayment at 7% is $1,123.02. The present value of the $1,000 in five years is $713. This sum is added $410, which is the present value of the five years of $100 payments. The price of the bond exceeds the face value because the interest payments are greater than the 7% market rate of interest. This bond is sold at a premium.
b. This bond sells for $1,000. The lower price of the bond corresponds with the higher interest rates. Investors willingly pay less for a bond of higher risk. This bond sells “at par” because the interest payments correspond with the interest rate.

1.5 a. In Country A, one television has an opportunity cost of .5 apples. In country B, one television has an opportunity cost of three apples.

b. Country B should specialize in apples and Country A should specialize in televisions.
c. Before trade, world output was 225 apples and 275 televisions. After specialization world output is 450 apples and 300 televisions.
d. Both countries will accept a trade rate of one apple for two televisions.

1.6 a. Students should explain a contemporary political debate in terms of the five fundamental questions: What? How? For whom? How to accommodate change? How much to produce?
b. Allow students to express their own sense of differences between political candidates or parties.
c. Students should review the management style within their firm. Some firms are inherently entrepreneurial and resemble a market economy; some firms persist and operate according to historical practices and are traditional-like. Some operate with a highly centralized control mechanisms.

1.7 a. The data plot is as follows:

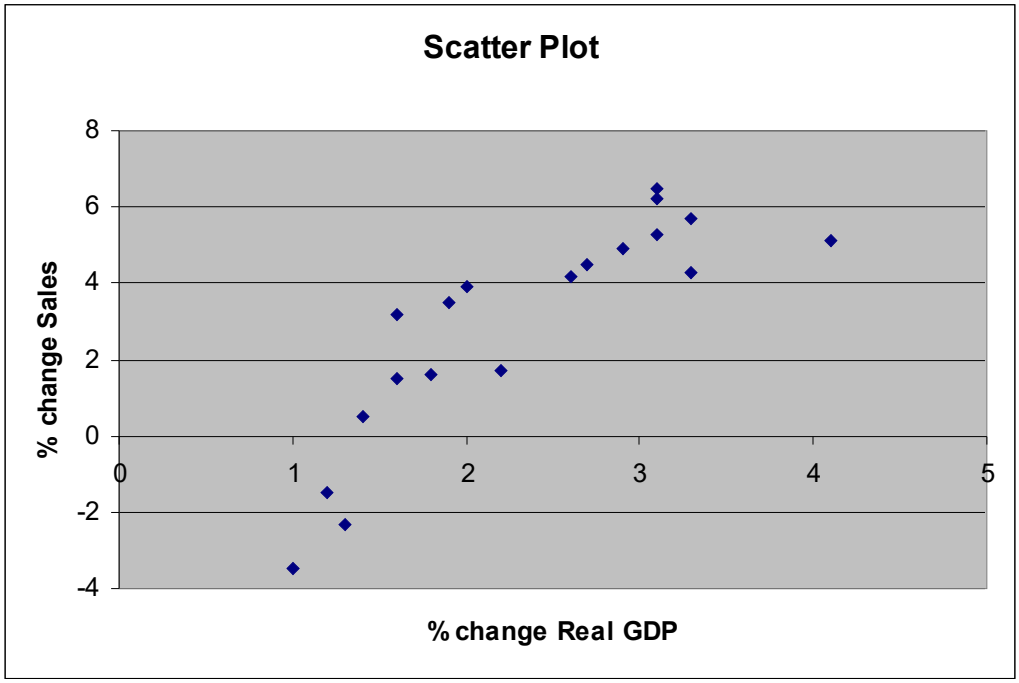


b. The periods of economic contraction refer to the episodes of negative growth in real GDP. The relatively flat slope in the pattern of data points suggests that this firm's sales are somewhat insensitive to swings in the macroeconomy.

c. The sales forecast for the next four quarters are:
i. 1.91 = 1.67 + .24(10)
ii. 2.75 = 1.67 + .2(4.5)
iii. 2.39 = 1.67 + .24(3)
iv. 1.38 = 1.67 + (–1.2)

1.8 a. Sales for a firm may lag, for example, advertising or promotional outlays or interest rates.
b. In Excel, the lagged relationship is created by eliminating the first data pertaining to the change in sales and by eliminating the last data point for the change in gross domestic product. The sales forecasts for the following periods are:

i. 1.83 = 1.57 + .26 (1.0)
ii. 2.74 = 1.57 + .26 (4.5)
iii. 2.35 = 1.57 + .26 (3)
iv. 1.26 = 1.57 + .26 (–1.2)



Discussion Questions

1. This question introduces your students to economagic.com as a data source. The question requests data plots for the Dow Jones Transportation Index and the Dow Jones Utilities Index. The observant student recognizes that the Transportation Index is more volatile, thereby indicating greater business cycle sensitivity.
2. Enrolling in a graduate degree program involves both costs and benefits. Students should recognize that expected value analysis risk-adjusts the benefits and that present value analysis is the method for expressing both the costs and the expected benefits in a common time period.
    a. Costs
        i. Tuition, books, and fees

   ii. Lost time with family and friends
   iii. Personal stress
b. Benefits
   i. Increased self-esteem
   ii. Promotion and higher pay
c. Risk
   i. Uncertain graduation
   ii. Uncertain promotion and pay increase
d. Time
   i. Graduation may take two or more years
   ii. Promotion and pay raises are realized in sequence over the successful student's career.

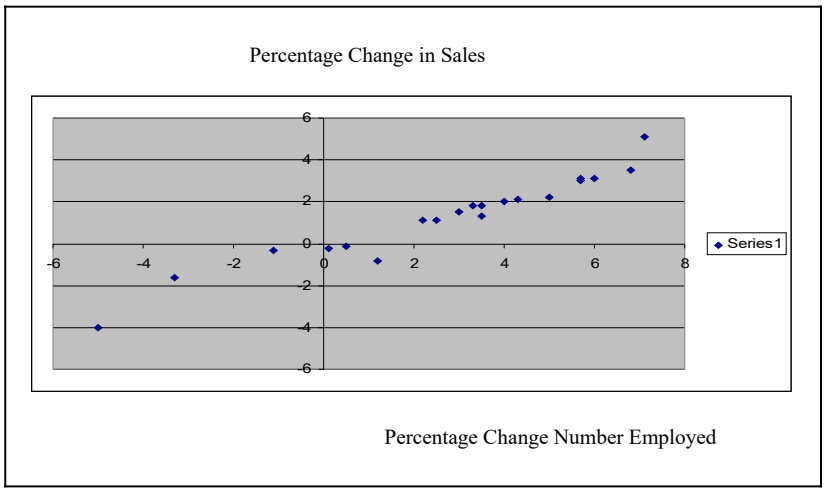
3. Marginal analysis is a requisite method to solve maximization problems. Students should see:
   a. Opportunity Costs
      i. Incrementally more of one good necessitates incrementally less of another. Assessing the marginal benefits and marginal costs is the method to determine the optimum allocation of resources.
   b. Average and Marginal Costs
      i. Comparing the price of a product to the average cost of production is often misleading. Under conditions of diminishing returns, marginal cost exceeds average cost. Comparing revenue from the sale of an additional product to the average cost of production yields misleading information and results in the failure to maximize profits.
      ii. The profitability of a business unit does not justify a capital expansion. Any proposed capital project must assess (in present value terms) the incremental costs of the project relative to the revenues that could not have otherwise been earned. *This concept becomes important in the student's preparation of the Barry's Woods case study to chapter 4.*

4. This open-ended question calls the student to review for a firm of their choice each of the five forces of competition and the market conditions.
   a. Make sure each of the five forces is reviewed.
   b. Make sure predominant characteristics of the firm's market are identified.
   c. Make sure that recommendations are appropriate given competitive and market conditions.

5. This question provides students with creative opportunities. Extending the vertical reach involves a firm assuming more tasks in the production cost chain through forward or backward vertical integration. Extending the horizontal reach entails diversification into, by degree, related lines of business. Students should be

expected to explain the competitive advantages associated with both horizontal and vertical diversification.

6. Each student's scatter plot should look as follows



7. Entry barriers deflect potential new competitors. Students should identify the following barriers: (a) capital requirements, (b) intellectual and licensing obligations, (c) challenges to gain name recognition and shelf space, and (d) brand allegiances, and (e) first mover advantages.

8. The economic problem is scarcity and the consequence of unlimited wants and finite resources. The scarcity problem forces society to determine the most desired mix of goods to produce. Firms, department managers, households, and individuals are challenged to allocate scarce resources among alternative uses. In all cases, the goal is to achieve maximum material well-bring within the constraint of finite resources.

9. The student should enroll. The expected value of enrolling is $30,000, which is greater than $20,000 cost.

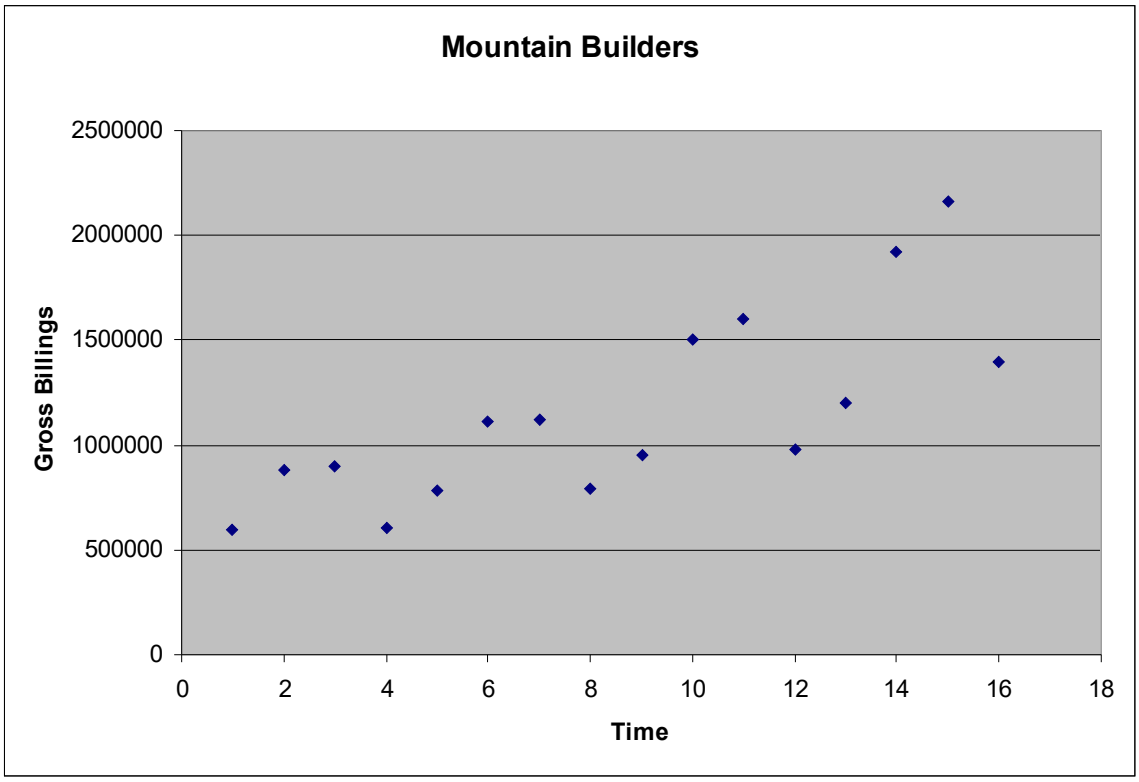
10. (a) $1.904
    (b) $1.804
    (c) The present value of a fixed sum declines the longer the time period.
    (d) $1.75
    (e) The present value of a fixed is inversely related with the interest rate.
    (f) The price of a long term bond is more volatile with respect to changes in interest rates. Long term bind investors seek higher rates on long term binds in compensation for the risk.

11. (a) World output = 300 units of food and 150 units of sunscreen

(b) In Leisureland, each additional unit of sunscreen has an opportunity cost of .5 units of food. In Heartland, an additional unit of sunscreen has an opportunity cost of two units of food. Sunscreen is cheaper in Leisureland and food is cheaper in Heartland.
(c) Leisureland produces sunscreen and Heartland produces food.
(d) World output = 300 units of food and 300 units of sunscreen. The gain is 150 units of sunscreen.
(e) Leisureland willingly trades one unit of sunscreen for one unit of food. Heartland willingly surrenders one unit of food for one unit of sunscreen. In trade, Heartland offers 100 units of food for 100 units of sunscreen and gains 50 units of sunscreen. Leisureland gives up 100 units of sunscreen for 100 units of food. Leisureland gains 100 units of sunscreen. The gains from trade are equalized in both countries by revising the trade rate.

Case 1:

(a) The data plot is shown below. The pattern shows an upward trend in gross billings, and the average annual growth rate is approximately 25%.



(b) The multiple regression output is shown in the table below. The following points are emphasized:

i. The T- statistic indicates that gross billings are associated with the County's population (T = 4.149)

ii. The T- statistic indicates that gross billings are not statistically associated with the interest rate, and the interest rate variable should be removed from the equation.

Multiple Regression Output

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.764021
R Square	0.583728
Adjusted R Square	0.519686
Standard Error	314510.2
Observations	16

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	1.8E+12	9.02E+11	9.114781	0.003357
Residual	13	1.29E+12	9.89E+10		
Total	15	3.09E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	**-587829**	2381602	-0.24682	0.808902	-5732968	4557309	-5732968	4557309
X Variable 1	**7.33561**	1.767711	**4.149779**	0.001142	3.516702	11.15452	3.516702	11.15452
X Variable 2	**9937.619**	417198.7	**0.02382**	0.981358	-891365	911240.6	-891365	911240.6

3. The regression output for Gross Billings = f (Population) is shown below.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.766205
R Square	0.587069
Adjusted R Square	0.557574
Standard Error	301850.7
Observations	16

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.81E+12	1.81E+12	19.90401	0.000538
Residual	14	1.28E+12	9.11E+10		
Total	15	3.09E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Up 95*
Intercept	-549147	389716.8	-1.40909	0.180631	-1385006	286712.2	-1385006	286
X Variable 1	7.400114	1.658701	4.461391	0.000538	3.842554	10.95767	3.842554	10.9

Points to note:

i. The regression is significant as evidenced by the T- statistic (4.46).
ii. The projected quarterly forecasts of gross billings are:
Q1 = $1,670,853
Q2 = $1,715,253
Q3 = $1,744,853
Q4 = $1,781,853

12. The five forces of competition are:
    a. Direct Rivals: Mary refers to the number of competitors and the competition between contractor referrals from the large building supply stores. Mary is concerned that shifts in buyer attitudes are detrimental for Mountain Builders. Mary notes that the frequency of the resale of houses reduces the importance of the quality and durability of their work.
    b. Substitutes: This is not an issue in the case.
    c. Entry: The ease of entry of new contractors in a growing market is cause for alarm.
    d. Seller Power: Suppliers of building materials and shortages of skilled craft persons is identified as a threat to the financial strength of Mountain Builders.
    e. Buyer Power: This is not an issue in the case.

In addition, zoning restrictions and the threat of regulatory constraints that threaten to slow the County's population growth are threats to Mountain Builders.

Chapter 2

Exercises

2.1 Students should express their political views regarding taxation and regulation in regard to the entrepreneurial function in a market economy. Students should be encouraged to make policy recommendations.

2.2 Students should use economagic.com (using most requested series) and plot the data.

2.3 The multiplier is 10.

National Income					
	Period 1	Period 2	Period 3	Period 4	New Equilibrium
Income	200	200	210	219	300
Tax	0	0	0	0	0
Disposable Income	200	200	210	219	300
Consumption	170	170	177	183.3	240
Savings	30	30	33	35.7	60
Imports	0	0	0	0	0
Exports	0	0	0	0	0
Government	0	0	0	0	0
Investment	30	40	42	43.8	60
Aggregate Demand	200	210	219	227.1	300
Change in Inventory	0	-10	-9	-8.1	0

2.4

Indicator	Period 3	Period 4	New Equilibrium	Lead or Concurrent
Consumer Confidence	Up	Up	Steady	Lead
Industrial Production	Up	Up	Steady	Concurrent
Orders for Durable Goods	Up	Up	Steady	Lead
Retail Sales	Up	Up	Steady	Concurrent
New Home Sales	Up	Up	Steady	Concurrent
Building Permits	Up	Up	Steady	Lead
Car Sales	Up	Up	Steady	Concurrent
Help Wanted Ads	Up	Up	Steady	Lead

2.5 a. Students are expected to use the Internet and research the deregulation of the airline industry, interstate trucking, or the telephone industry and relate their findings to supply-side economics.