

STUDY GUIDE TO ACCOMPANY

MANAGERIAL ECONOMICS

Second Edition

by

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The Dryden Press

Harcourt Brace College Publishers

Fort Worth Philadelphia San Diego New York Orlando Austin San Antonio
Toronto Montreal London Sydney Tokyo

Cover Image: Yves Courbet

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Address for Editorial Correspondence

The Dryden Press, 301 Commerce Street, Suite 3700, Fort Worth, TX 76102

Address for Orders

The Dryden Press, 6277 Sea Harbor Drive, Orlando, FL 32887
1-800-782-4479, or 1-800-433-0001 (in Florida)

ISBN: 0-03-007563-7

Printed in the United States of America

7 8 9 0 1 2 3 4 095 9 8 7 6 5 4 3

The Dryden Press
Harcourt Brace College Publishers

STUDY GUIDE

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CHAPTER 1

INTRODUCTION TO ECONOMIC DECISION MAKING

Each question contains a code showing the section of the chapter text from which it was taken. The codes for this chapter are:

Code	Section
1	Introduction
2	Seven Examples of Managerial Decisions
3	Six Steps to Decision Making
4	Private and Public Decisions: An Economic View
5	Things to Come

Multiple Choice

1-1 Section 1

The common element in almost all business problems is

- a. short-term profit maximization.
- b. competitive strategy.
- c. market analysis.
- d. complete and reliable information.
- e. decision making.

1-2 Section 1

Managerial economics can best be defined as

- a. the analysis of major management decisions using economic tools.
- b. the economic analysis of internal management functions.
- c. the comparison of different management styles using tools of economics.
- d. the formulation of management theories of capitalistic economies.
- e. the study of conventional economics to illuminate economic theory.

1-3 Section 2

Can managerial economics help a firm analyze decisions to enter a new market and/or develop a new technology?

- a. Yes, although only in a general (that is, not precise) manner.
- b. Yes, although such problems involve considerable analysis.
- c. No, such problems are outside the domain of managerial economics.
- d. No, managerial economics can only describe problems, and does not pertain to actual decisions.

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1-4 Section 2

When Time, Inc., considered launching a new magazine, did management have any basis for deciding *not* to launch *Picture Week*?

- a. No, it was a decision made without any reason.
- b. No, the fear of the unknown clouded their judgment.
- c. Yes, uncertainty about the economy led them to hold back.
- d. Yes, market research convinced them it would fail.

1-5 Section 2

The crux of the pharmaceutical company's decision involved

- a. mutually exclusive R&D programs.
- b. choosing one or both of two risky R&D programs.
- c. predicting the regulatory response of the Federal Drug Administration.
- d. beating a close competitor to market.
- e. all of the above.

1-6 Section 2

The decision to build a new airport illustrates

- a. a purely private profit-maximizing decision.
- b. a setting in which benefit-cost analysis is appropriate.
- c. a public-sector decision involving little or no uncertainty.
- d. a public-sector decision involving multiple benefits and costs.
- e. that both b and d are correct.

1-7 Section 2

The decision of utilities to convert from oil to coal

- a. was nearly impossible due to so many conflicting objectives.
- b. was expensive but involved relatively few side effects.
- c. involved hard tradeoffs between energy conservation and environmental concerns.
- d. was properly left to the utilities themselves.
- e. showed that the costs of government regulation can often be greater than the benefits.

1-8 Section 2

Can managerial economics be used in complex governmental decisions concerning public policy?

- a. No, because these sorts of problems involve far too much complexity.
- b. No, because managerial economics is only useful for problems that have clear monetary values attached.
- c. No, because these decisions involve conflicting objectives and cannot be analyzed rationally.
- d. Yes, the methods of analysis apply in these situations.
- e. Yes, but only if the decision involves nonmonetary values.

1-9 Section 3

When using tools of managerial economics, what is the first step in making a decision?

- a. Delegating the decision
- b. Defining the problem
- c. Determining the objective or goal
- d. Exploring the alternatives or options
- e. Consulting management about corporate values

1-10 Section 3

In a public-sector setting, will the use of benefit-cost analysis result in positive operating profit for the governmental agency?

- a. Yes, because the technique is intended to maximize profit.
- b. Yes, although profit is not the main concern.
- c. No, because nothing in life is certain.
- d. No, because the technique considers benefits and costs to other parties besides the agency.

1-11 Section 3

A sound approach for dealing with risk and uncertainty is to

- a. use a deterministic model.
- b. always choose the less risky course of action.
- c. envision the possible outcomes and assess their likelihoods.
- d. simplify the problem by ignoring low-probability events.
- e. postpone decisions until the risks are resolved.

1-12 Section 3

Problem solving by enumeration

- a. is a useful tool of total quality management.
- b. works best when there are a large number of alternatives.
- c. involves computing the level of performance for each possible option and choosing the best.
- d. leads to satisficing decisions but not optimal ones.
- e. is generally recommended instead of marginal analysis.

1-13 Section 3

Most models used in managerial economics are based on

- a. intuition and past experience.
- b. expert opinion and outside consulting.
- c. computer programs.
- d. the judgment of top management.
- e. economic relationships.

1-14 Section 3

Sensitivity analysis can best be defined as

- a. being sensitive to the wishes of decision makers.
- b. being sensitive to the impact of decisions on others.
- c. measuring results against objectives.
- d. examining the reliability of key data used to make a decision.
- e. examining how a decision would change if key facts were altered.

1-15 Section 4

According to the theory of the firm, what is management's ultimate objective?

- a. Short-term profit, even if this sacrifices long-term profit
- b. Maximizing the value of the firm
- c. Maximizing revenues in the long run
- d. Overall sales and production efficiency
- e. Maximizing the firm's growth potential

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1-16 Section 4

Which of the following is a possible alternative model of managerial behavior?

- a. Minimizing cognitive dissidence
- b. Maximizing total output
- c. Maximizing management compensation
- d. Satisficing behavior
- e. Minimizing the cost of sales

1-17 Section 4

Many managers follow rules of thumb in making decisions. Is this an approach that leads to optimal decisions?

- a. Yes, because rules of thumb embody a great deal of wisdom.
- b. Yes, but rules of thumb must be taken with a grain of salt.
- c. No, rules of thumb have no place in modern business.
- d. No, instead a reliance on decision-making tools will normally lead to better decisions.
- e. Uncertain, because complexity makes rational analysis difficult or impossible.

1-18 Section 5

Marginal analysis

- a. is a specialized technique for making location decisions.
- b. is another name for solution by enumeration.
- c. adopts a small change in a decision if this improves the firm's objective.
- d. examines each of the firm's functions and shuts down marginal (that is, loss-making) activities.
- e. is especially suited to decision making under uncertainty.

Short Problems and Questions

1-1 Section 1

Carefully define managerial economics, and explain how it is useful in decision making.

1-2 Section 4

What are the main types of models used in managerial economics? How do they differ? How does management use them in decision making?

1-3 Section 4

If management wishes to apply value maximization to decision making, what are the three variables that it must consider?

1-4 Section 3

Carefully define sensitivity analysis, and explain why it is important in decision making.

1-5 Section 5

Carefully define marginal analysis, and explain how management can use it in decision making.

1-6 Section 4

Compare and contrast the objectives of decision makers in the private sector and the public sector.

1-7 Section 4

Current environmental legislation relating to endangered species is phrased so as to emphasize preserving a species regardless of economic impact. Is this approach likely to result in optimal policy decisions? Explain.

- 1–8 Section 3
List the six basic steps in decision making in the proper order.
- 1–9 Section 3
What are the two difficulties that may make profit maximization an ambiguous guide to decision making? Explain why they complicate the analysis.
- 1–10 Section 3
The authors of the text state: “Most managerial decisions involve more than a once-for-all choice from among a set of options.” What do they mean by this, and how does it affect managerial decision making?

Longer Problems and Essay Questions

- 1–1 Section 3
Although rules of thumb and maxims do not constitute systematic guides to decision making, they can provide some wisdom and advice. Explain how each of the following might contribute to making a decision.
- If you don’t know where you’re going, chances are you won’t get there.
 - Look before you leap.
 - Don’t count your chickens before they hatch.
 - Always get a second opinion.
 - Don’t put all your eggs in one basket.
 - If it ain’t broke, don’t fix it.
- 1–2 Section 4
A public project should be undertaken if and only if its total benefits (to all affected parties) exceed its total costs. What are some possible sources of data for a public agency to use to develop measures of benefits and costs?
- 1–3 Section 3
As the proud owner of Dogs and More, you have had several successful years selling gourmet hot dogs and sandwiches in a fashionable location. You are considering opening another shop in a promising location several miles away. Your projections of likely revenue and costs for the first year of operations are as follows:

Year	Revenues	Costs
1	\$ 75,000	\$100,000
2	\$110,000	\$125,000
3	\$140,000	\$130,000
4	\$175,000	\$135,000
5	\$200,000	\$140,000

You have limited your planning horizon to five years, after which time you would have to reassess the new operation (if you go ahead with it in the first place). You have some money set aside (currently earning 8% interest) that you would use to make the investment in the new shop.

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- a. Compute the value of the new shop. Should you go ahead?
- b. You are concerned that the new shop will attract customers from your current location (causing these sales to fall). How would such an effect influence your decision to open the new shop?
- c. Suppose that you lack your own funds so that it is necessary to borrow from a commercial lender to open the new shop. The lender will charge a rate of about 15%. How does this affect your decision? Explain.

1-4 Section 4

A company is considering an “expansion” decision—such as expanding an existing plant, increasing advertising expenditures, or launching a new product line. What variables would it consider in making such a decision? What might be useful sources of information for determining the net value of the expansion plan?

1-5 Section 4

You are the chairperson of an agency responsible for deciding whether to build a new airport for your city. Though conveniently located, the existing airport is too small to accommodate larger jets. The city could use its power of eminent domain to acquire land for airport expansion but this would be very expensive. In the last decade, there has been strong growth in suburban areas, and this seems likely to continue. Business interests have indicated a desire to see a new airport to “showcase” the city. Land is cheapest a few miles outside of town in a rural agricultural area.

What airport options should your agency consider? Outline the major advantages and disadvantages of each.

1-6 Section 4

A state economic development agency is concerned that a major employer within the state may close down. The company, a meatpacker, has had several years in which profits have been low and now faces some stiff environmental regulations. Cleaning up production to meet the regulations is expensive. In addition, the local city has increased taxes to fund improved schools.

The plant buys animals for slaughter from a wide radius, including adjacent states. Some employees live in outlying communities in adjacent counties and states. The city in which the plant is located has experienced rapid economic growth in the service sector, and manufacturing job growth has been steady but slow.

Outline the major options facing the state, including a list of the affected parties. How would each party be affected by a possible choice? List some major data sources that could be used to weigh benefits and costs to the affected parties.

SOLUTIONS TO CHAPTER 1**Multiple Choice**

- 1-1 e See the first sentences of the text.
- 1-2 a See the second paragraph of the text.
- 1-3 b See, for example, Canon's decision to enter the copier market.
- 1-4 c
- 1-5 b
- 1-6 e
- 1-7 c
- 1-8 d Conflicting goals make decisions difficult, but not impossible.
- 1-9 b
- 1-10 d
- 1-11 c
- 1-12 c
- 1-13 e
- 1-14 e
- 1-15 b Managerial economics emphasizes that this is what managers *should* do. However, managers often pursue other objectives when making plans or decisions.
- 1-16 d Another suggested goal was maximizing sales revenue.
- 1-17 d Though frequently used in actual business practice, rules of thumb cannot take the place of careful analysis.
- 1-18 c

Short Problems and Questions

- 1-1 Managerial economics is the analysis of major management decisions using the tools of economics. It applies familiar concepts such as demand, cost, monopoly, resource allocation, and so on. By emphasizing the theory of the firm, managerial economics seeks to identify decisions that maximize the firm's value. This approach uses a variety of models to quantify important economic relationships.
- 1-2 Models are used to simplify analysis and to focus on a small number of most important variables. (Models do not purport to describe all aspects of a decision, but are aids in helping managers focus on the most important issues.) There are two main types of models: deterministic and probabilistic. In a deterministic model, the outcome of a decision is certain (or close enough that it doesn't matter). For instance, a production manager might be able

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to estimate with near certainty the total cost of producing different quantities of output. By contrast, probabilistic models list a range of possible outcomes with a probability attached to each. Although computationally more difficult, probabilistic models are also more realistic and useful.

- 1-3 The variables that a firm must consider are expected revenues and expected costs in future time periods, as well as the future interest rate (or discount rate). Specifically, the value of the firm is

$$V = [R_0 - C_0] + \left[\frac{R_1 - C_1}{(1 + i)} \right] + \dots + \left[\frac{R_n - C_n}{(1 + i)^n} \right]$$

Management's goal is to identify decisions that maximize this value.

- 1-4 Sensitivity analysis considers how an optimal decision would change if key economic facts or conditions were altered. Sensitivity analysis is important because any decision is based on a set of assumptions about uncertain future conditions. Different conditions will, obviously, affect the outcome of a decision. Sensitivity analysis can help management anticipate different outcomes and identify appropriate courses of action.
- 1-5 Marginal analysis is the process of considering a small change in a decision and determining whether the given change will improve the ultimate objective. Management uses marginal analysis to identify an optimal decision, that is, a decision that maximizes a given objective (usually the value of the firm). The text example used marginal analysis to find the best location for a shopping mall. As another private sector example, a firm might try charging a slightly different price and monitoring the effect on unit sales, revenues, costs, and profits. Alternatively, it might change its mix of inputs (capital, labor, and so on) in seeking to lower the cost of producing a given level of output.
- 1-6 In the private sector, management seeks maximum value for the firm. (Recall, however, this is not always an accurate description of actual decision making.) With an eye to profit, managers will not generally take account of effects on other parties.

In making a public-sector decision, the responsible manager considers the resulting benefits and costs to all affected parties. Thus, the manager is concerned with all benefits and costs—not just its own revenues and expenses. Benefit-cost analysis is the main tool for guiding public sector decisions.

- 1-7 Preserving endangered species *regardless* of economic costs is unlikely to lead to sound public decisions. An analysis of actions to preserve endangered species should weigh the benefits against the costs (ignoring neither one). Such a policy should preserve particular species where the benefits are great and the costs (to industry) are small. It would also look for least-cost ways of preserving species.
- 1-8 The six steps (listed in Figure 1-1 in the text), in order, are: Defining the Problem; Determining the Objective; Exploring the Alternatives; Predicting the Consequences; Making a Choice; and Performing Sensitivity Analysis.
- 1-9 The two difficulties are the timing of benefits and costs, and uncertainty. Generally speaking, a decision maker must pay a cost “up front” in order to obtain a benefit or profit in the future. This requires the decision maker to develop comparable measures of present and future monetary values. Uncertainty introduces the fact that some outcomes are not known with complete confidence. Costs may be far larger than expected, benefits far smaller, and delays in completion may erode profits.

- 1–10 Different alternatives are generally the choice about a “path” of decisions, offering the option to review outcomes, and determine whether to proceed. Examples used in the text include Time, Inc.’s decision whether to proceed with *Picture Week* for market testing, and the decisions by both Texaco and Pennzoil in their negotiations.

Longer Problems and Essay Questions

- 1–1
- This advice emphasizes the importance of clearly defining objectives and goals before charting a course of action.
 - This adage emphasizes the importance of predicting and anticipating outcomes before committing to a risky all-or-nothing decision.
 - This is another adage, emphasizing the uncertainty of outcomes, and the fact that plans may not turn out as hoped.
 - In any decision under uncertainty, the manager should seek to acquire additional information about the relevant risks before committing to a course of action. Getting a second opinion (or a third or fourth) is a valuable source of information.
 - Diversification—in the form of a financial portfolio, use of multiple input suppliers, or in ensuring that “back up” options are available—is a prudent response to risk and uncertainty.
 - This maxim suggests the importance of knowing when *not* to take an unnecessary action.
- 1–2 A public agency might use many different sources of data on benefits and costs. These include: market data (for instance, to measure business profits or property values), survey data (to measure public interest and willingness to pay), demographic data (to measure population growth), scientific and engineering data (to measure safety and environmental risks and costs), and so on.
- 1–3
- Using the valuation formula, we obtain the following results
 Year 1, net revenue of $-\$25,000$, discounted by (1.08) is $-\$23,148$.
 Year 2, net revenue of $-\$15,000$, discounted by $(1.08)^2$ is $-\$12,860$.
 Year 3, net revenue of $\$10,000$, discounted by $(1.08)^3$ is $\$7,938$.
 Year 4, net revenue of $\$40,000$, discounted by $(1.08)^4$ is $\$29,401$.
 Year 5, net revenue of $\$60,000$, discounted by $(1.08)^5$ is $\$40,835$.

 The sum of present values of these years is $\$42,166$. Therefore, opening the new shop will increase the total value of the firm.
 - If opening another shop means reduced sales and profits at the present location, this will reduce the *net* value of the second shop. If the lost profit is estimated to exceed the value computed in a, then the best policy is not to open the shop.
 - A higher interest rate would lower the discounted present value of the second shop and make opening it less attractive. In this example, an interest rate near 15% will lower the value to about $\$25,000$. However, at a still higher interest rate, say 20%, the value of the second shop falls to zero, making opening the new shop unprofitable.
- 1–4 The most important variables are increased sales revenues, increased costs, and the interest rate applicable for determining the present value of the net receipts. Information on sales revenue would include current price and quantity data and the past growth rate of sales. Information on costs would include the current cost of production, the cost of new facilities

and equipment, and predicted cost decreases due to new technology. Finally, the firm would have to assess current and future interest rates.

1–5 There are at least three main options to consider:

1. Expand the existing airport. This would allow use of existing facilities. The airport would also be near the city's current population and business centers. However, expansion would probably be the most expensive in terms of land acquisition and would be of limited appeal to business leaders who want a new airport.
2. Build a new airport in a suburban area. This would be near the population and business centers (though not as near as the existing airport) and land would be cheaper. However, a significant "cost" of this option would be the noise experienced by local residents.
3. Build a new airport in a rural area. Here, the land cost is lowest, and there is the least problem with noise. However, this location increases the cost (in terms of time, money, and convenience) of travel to the airport, and may be viewed as inconvenient for the business community and residents.

1–6 This public sector decision illustrates the complexity of decisions when there are competing goals.

The major options include allowing the plant to close; offering assistance in the form of tax relief; assistance in direct subsidies for environmental cleanup; subsidies for job creation; and assistance in finding a buyer to operate the plant.

The major affected parties include the state, and adjacent states; local city and/or county; neighboring cities; employees of the plant; stockholders of the corporation; and animal breeders in the area. Allowing the plant to close adversely affects every party, although it does limit the out-of-pocket expenses of governments. Tax relief may strain local budgets, so that the city may be reluctant to make the concession. Similarly, the state may be unable to reduce taxes in a time of tight budgets. Subsidies for environmental cleanup may allow the plant to continue in operation, although the firm may not choose a cost-efficient form of cleanup. Subsidies for job creation may generate some jobs, but the jobs may be menial. Note that most of the burden of tax relief will fall on the city and/or state in which the plant is located, with major benefits to other parties that do not pay to keep the plant operating. Finally, the firm may take various offers from local government, and then close down unless there are guarantees that the plant will remain in operation.

Question 1–2 (above) offers sources for data in making the decision.

PART ONE

DECISIONS WITHIN FIRMS

CHAPTER 2

OPTIMAL DECISIONS USING MARGINAL ANALYSIS

Each question contains a code showing the section of the chapter text from which it was taken. The codes for this chapter are:

Code	Section
1	A Simple Model of the Firm
2	Marginal Analysis
3	Marginal Revenue and Marginal Cost
4	Sensitivity Analysis
5	Appendix

Multiple Choice

- 2-1 Section 1
According to the simple model of the firm, management's ultimate objective is to
- maximize revenue.
 - minimize cost.
 - maximize profit.
 - maximize receipts.
 - maximize profit per unit of output.
- 2-2 Section 1
According to the *simple* model of the firm, can management predict with certainty the outcomes of its decisions on price and quantity?
- No, we assume complete uncertainty.
 - No, we assume nothing about outcomes.
 - Partially, we assume some uncertainty.
 - Yes, we assume risk is present.
 - Yes, we assume that revenues and costs are certain.
- 2-3 Section 1
According to the law of demand, what happens if a firm raises the price it charges for a good?
- Consumers will demand more units.
 - Consumers will demand the same number of units.
 - Consumers will demand fewer units.
 - Uncertain, depends upon current consumption of the good.
 - Uncertain, depends upon consumer preferences.