

CHAPTER 21: Decision Analysis

Learning Objectives

After reading this chapter and doing the exercises, you should be able to:

1. Learn how to describe a problem situation in terms of decisions to be made, chance events and consequences.
2. Understand how the decision alternatives and chance outcomes are combined to generate the consequence.
3. Be able to analyze a simple decision analysis problem from both a payoff table and decision tree point of view.
4. Be able to determine the potential value of additional information.
5. Learn how new information and revised probability values can be used in the decision analysis approach to problem solving.
6. Understand what a decision strategy is.
7. Learn how to evaluate the contribution and efficiency of additional decision making information.
8. Be able to use a Bayesian approach to computing revised probabilities.
9. Understand the following terms:

decision alternatives	expected value of perfect information (EVPI)
consequence chance event	decision strategy
states of nature	expected value of sample information (EVSI)
payoff table	Bayesian revision

decision tree
expected value
approach

prior probabilities
posterior probabilities