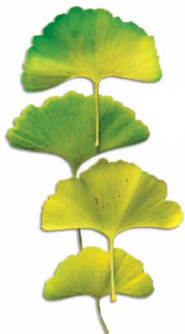


Chapter 6

The Economics of Information and Choice Under Uncertainty

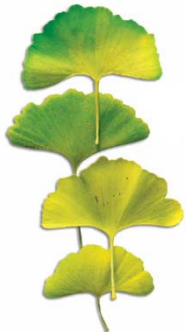
Chapter Outline

- The Economics of Information
- The Costly-to-Fake Principle
- The Full-Disclosure Principle
- Choice Under Uncertainty
- Insuring Against Bad Outcomes
- Statistical Discrimination
- Appendix: Search Theory and the Winners Curse



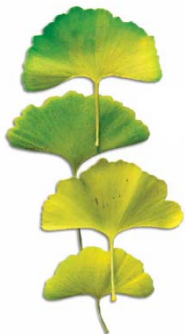
Signaling

- ***Signaling***: communication that conveys information.
- Two properties of **signaling**: between potential
- adversaries:
 1. Signals must be costly to fake
 2. If some individuals use signals that convey favorable information about themselves, others will be forced to reveal information even when it is considerably less favorable.



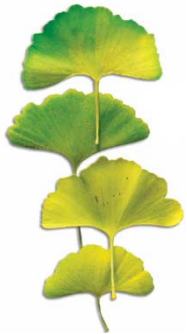
Costly-to-Fake Principle

- ***Costly-to-fake principle:*** for a signal to an adversary to be credible, it must be costly to fake.
- Economic applications:
 - Product Quality Assurance
 - Choosing a Trustworthy Employee
 - Choosing a Hard-Working, Smart Employee
 - Choosing a Relationship
 - Conspicuous Consumption as Ability Signaling



The Full-disclosure Principle

- ***Full-disclosure principle:*** individuals must disclose even unfavorable qualities about themselves, lest their silence be taken to mean that they have something even worse to hide.



Applications of Full Disclosure Principle

- **Product Warranties**
 - Producers know much more than consumers about how good their products are.
- **Regulating the Employment Interviewer**
 - Lack of evidence that something resides in a favored category will often suggest that it belongs to a less favored one.
- **The Lemons Principle**
 - Cars offered for sale, taken as a group, are simply of lower average quality than cars not offered for sale.
- **The Stigma of the Newcomer**

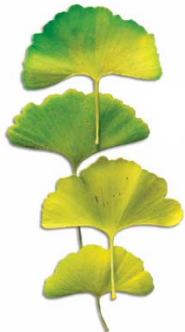
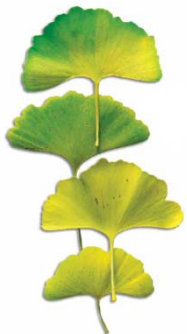
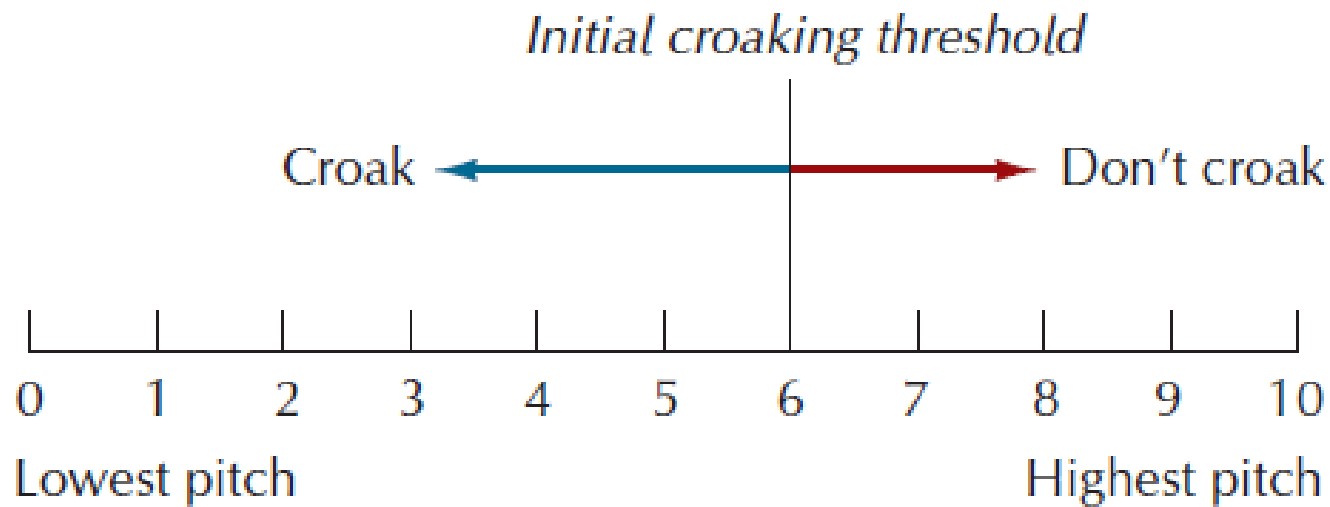
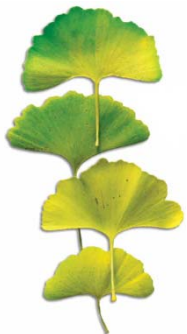


Figure 6.1: The Information Implicit in Silence



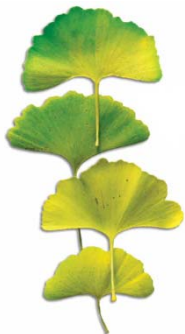
Probability And Expected Value

- ***Expected value:*** the sum of all possible outcomes, weighted by its respective probability of occurrence.
 - In addition to the expected value of a gamble, most people also consider how they feel about each of its possible outcomes.



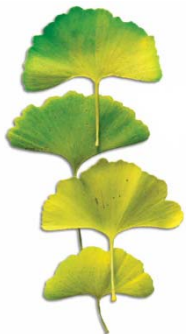
Probability And Expected Value

- People choose the alternative that has the highest ***expected utility***.
 - ***Expected utility***: the expected utility of a gamble is the expected value of utility over all possible outcomes.
- The expected values of the outcomes of a set of alternatives need not have the same ranking as the expected utilities of the alternatives.



Probability And Expected Value

- ***Diminishing marginal utility:*** for a utility function defined on wealth, one in which the marginal utility declines as wealth rises.
- ***Fair gamble:*** a gamble whose expected value is zero.



Type of Risk Preferences

- ***Risk averse***: preferences described by a utility function with diminishing marginal utility of wealth.
- ***Risk seeking***: preferences described by a utility function with increasing marginal utility of wealth.
- ***Risk neutral***: preferences described by a utility function with constant marginal utility of wealth.

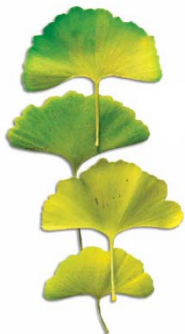


Figure 6.2: A Concave Utility Function

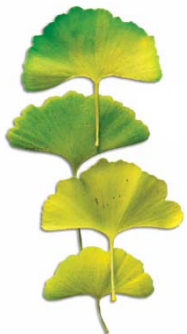
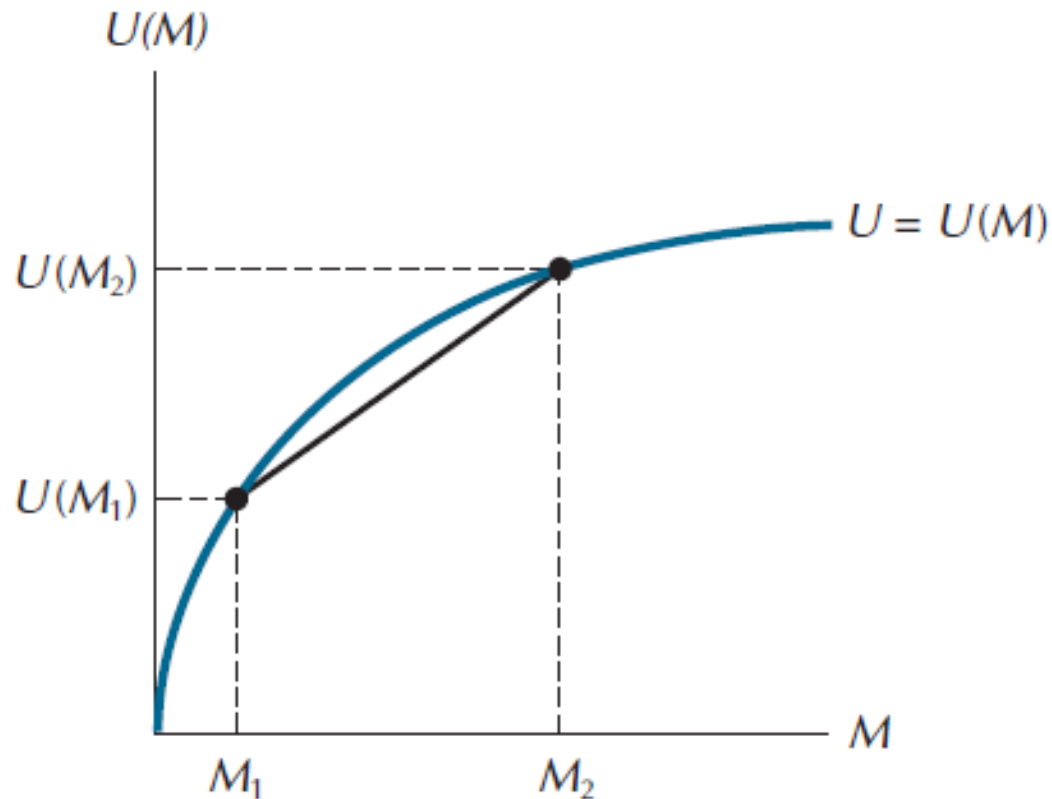


Figure 6.3: A Risk-Averse Person Will Always Refuse a Fair Gamble

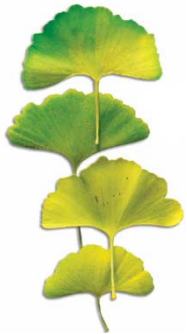
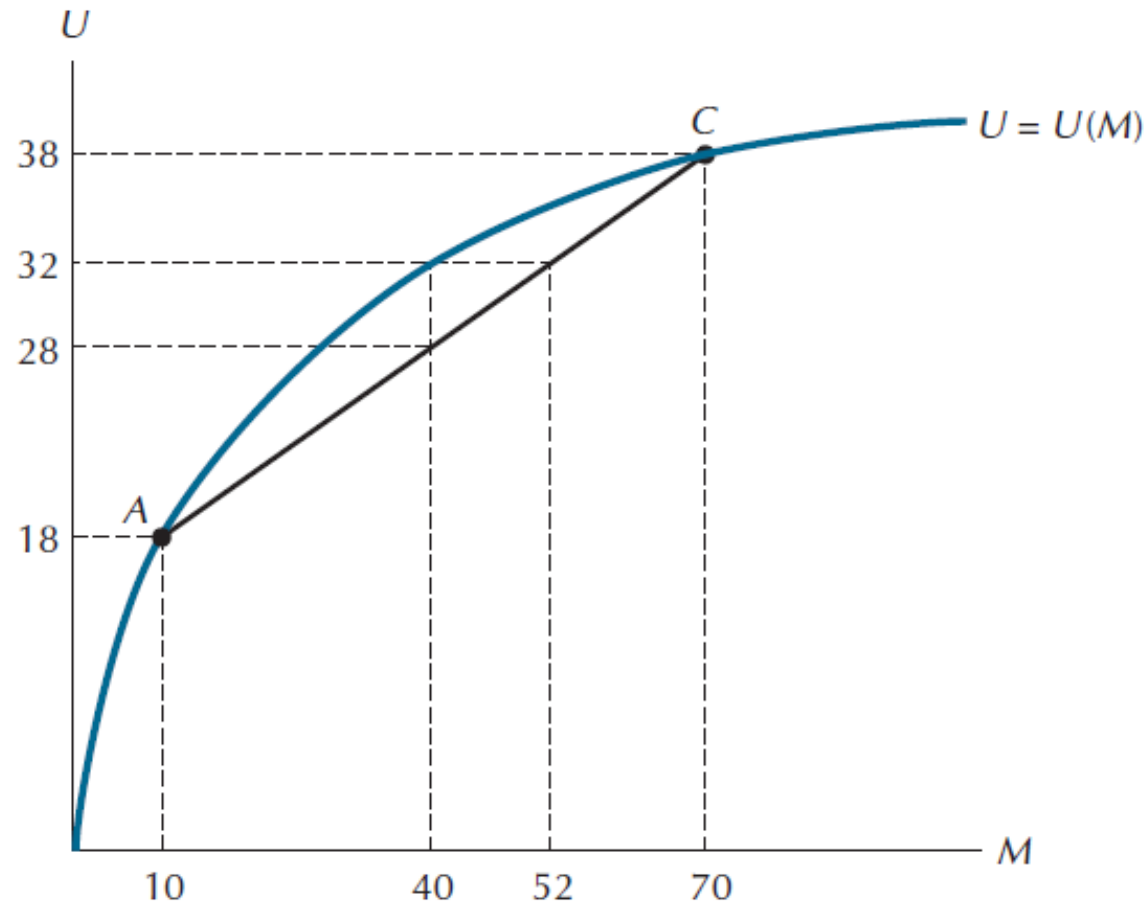


Figure 6.4: The Utility Function of a Risk-Seeking Person is Convex in Total Wealth

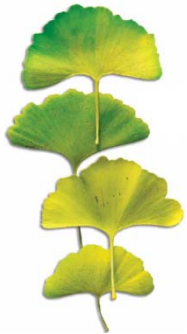
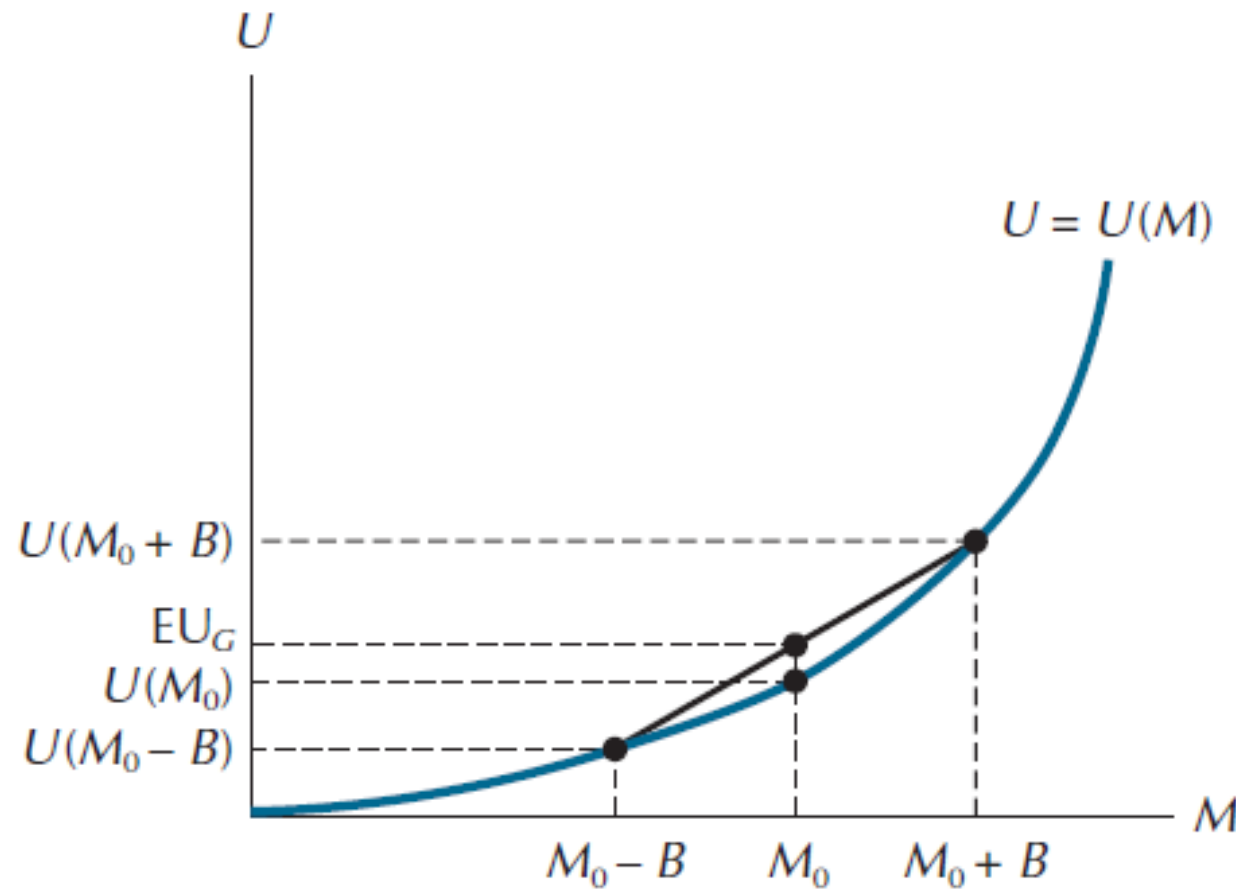


Figure 6.5: Risk Neutrality

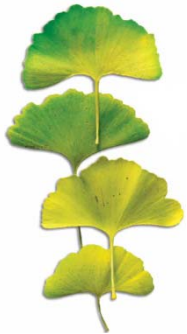
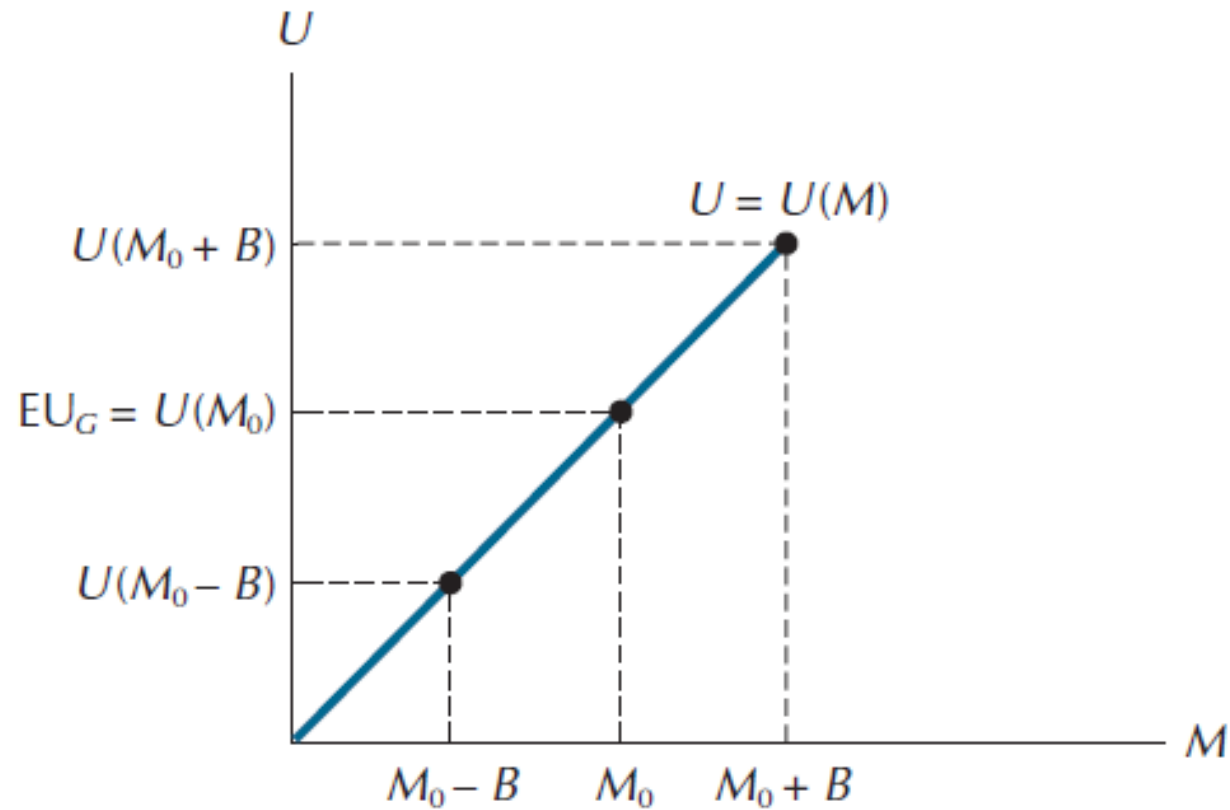
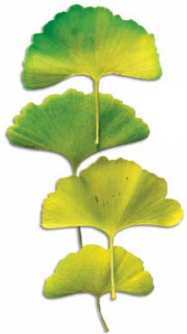
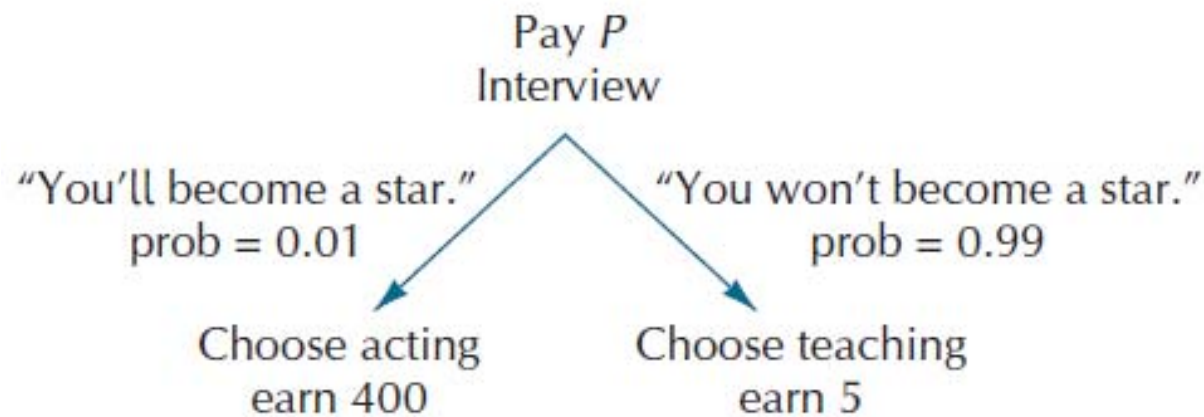
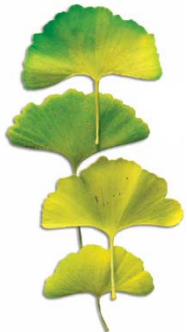


Figure 6.6: The Value of Reducing Uncertainty



Certainty Equivalent Value

- ***Certainty equivalent value***: the certainty equivalent value of a gamble is the sum of money for which an individual would be indifferent between receiving that sum and taking the gamble.



Risk Pooling

- ***Law of large numbers:*** a statistical law that says that if an event happens independently with probability p in each of N instances, the proportion of cases in which the event occurs approaches p as N grows larger.
 - Makes it possible for people to reduce their risk exposure through pooling arrangements.

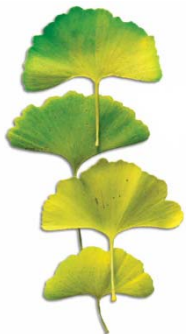
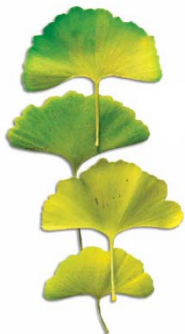
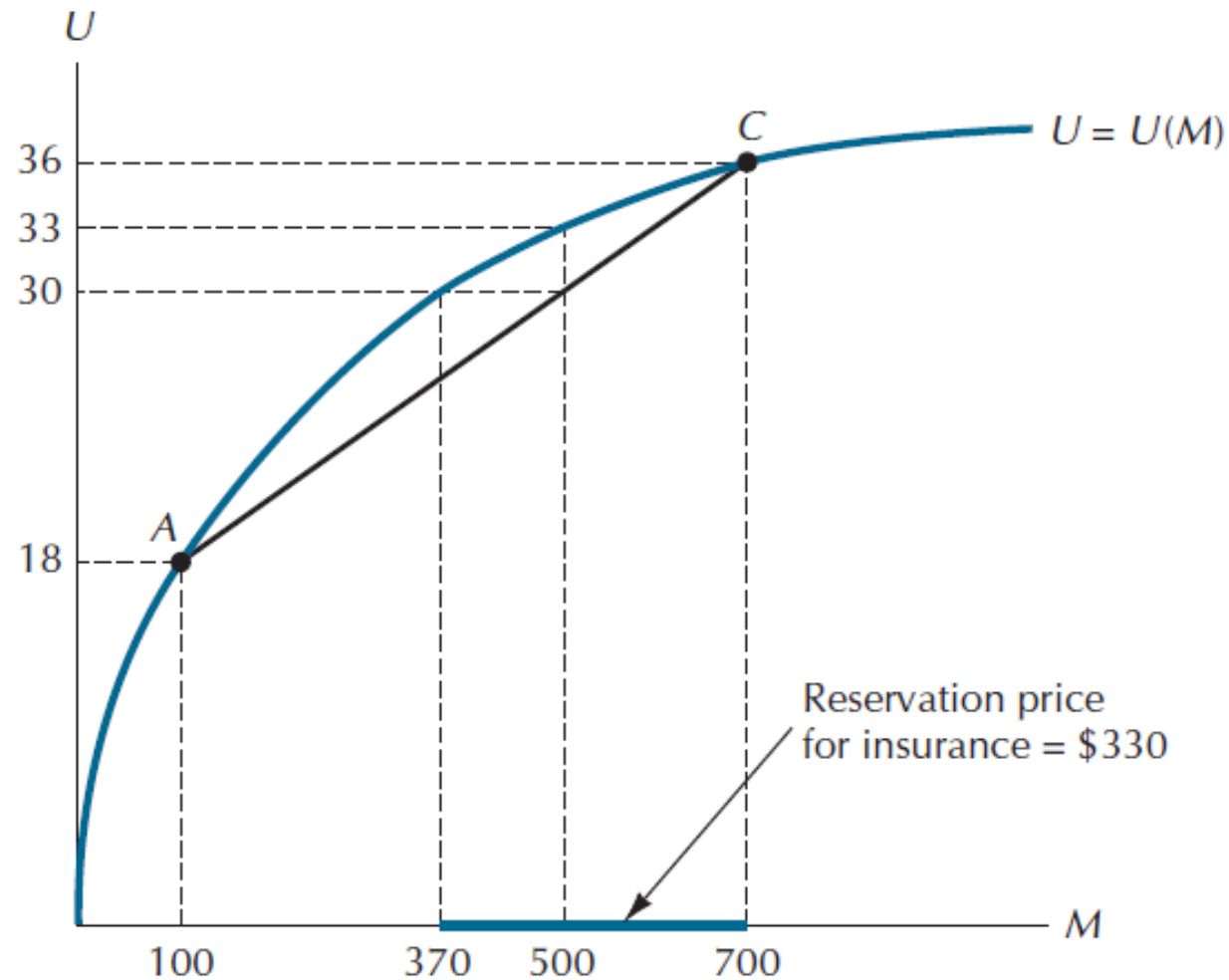
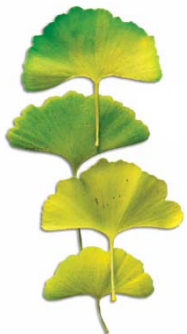


Figure 6.7: The Reservation Price for Insurance



Adverse Selection and Moral Hazard

- ***Adverse selection:*** process by which the less desirable potential trading partners volunteer to exchange.
- ***Moral hazard:*** incentives that lead people to file fraudulent claims or to be negligent in their care of goods insured against theft or damage.



Statistical Discrimination

- Because insurance companies must cover their costs, their average premium must exceed their average claim payment. So for the average and above average customer, buying insurance is a gamble with negative expected value. To avoid this statistical discrimination, those people should self-insure for any expected losses they can absorb.

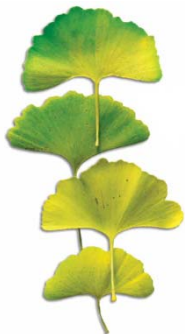


Figure A6.1: A Hypothetical Uniform Wage Distribution

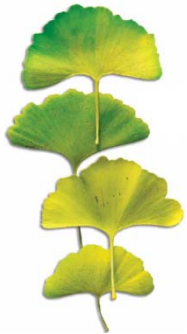


Figure A6.2: The Expected Value of an Offer that is Greater than \$150

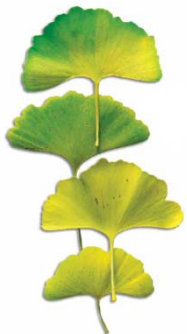
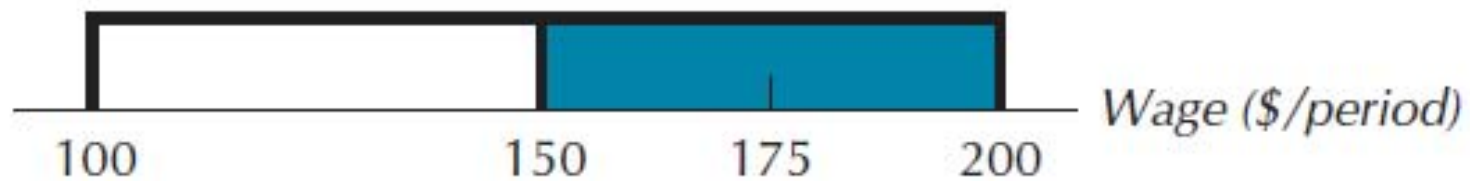


Figure A6.3: The Acceptance Wage

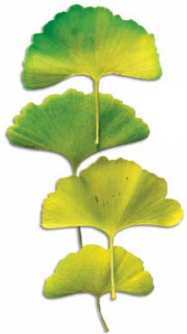
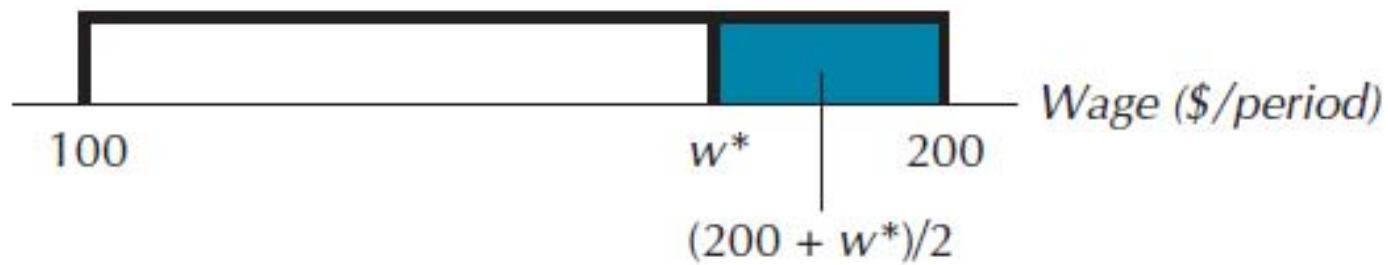


Figure A6.4: A Hypothetical Price Distribution

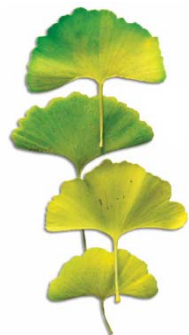
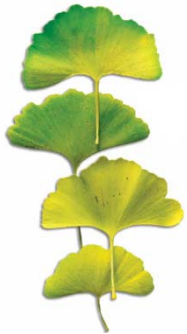
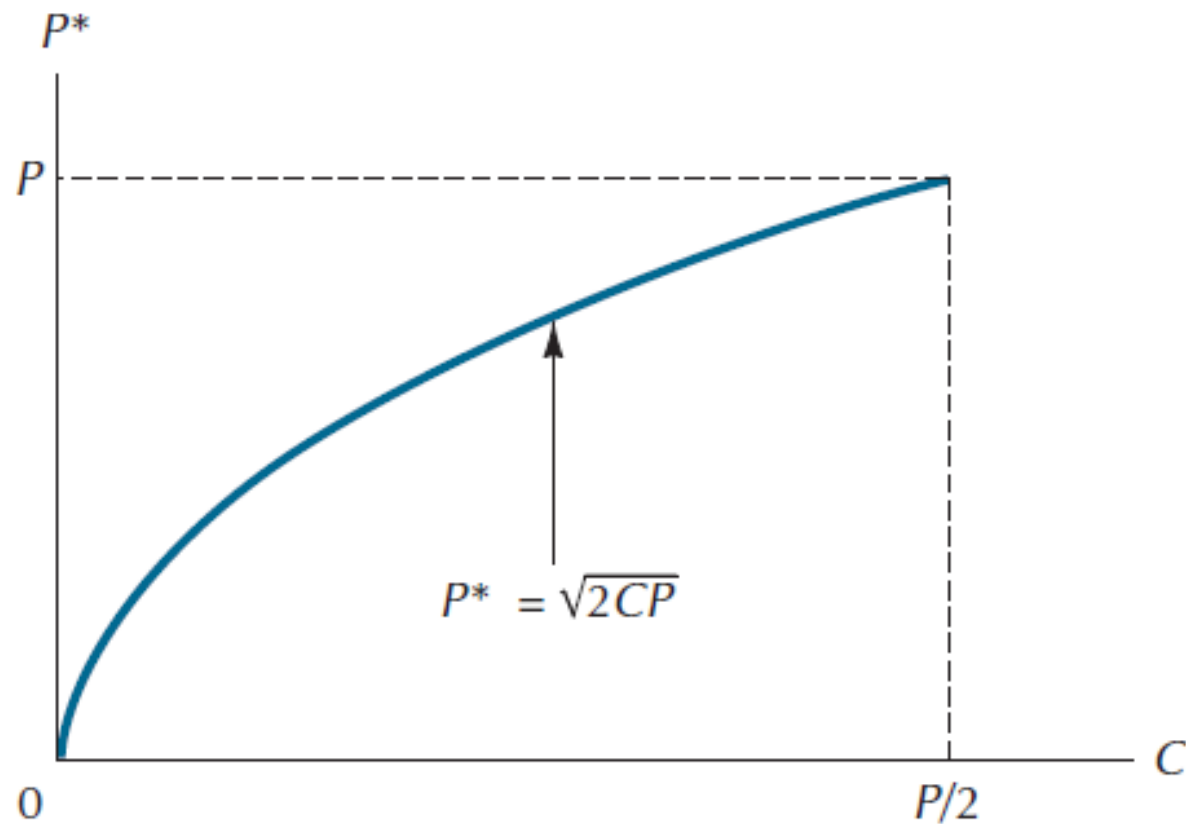


Figure A6.5: The Acceptance Price as a Function of the Cost of Search



The Winner's Curse

- ***Winner's curse***: the general principle that the winning bid for an item often exceeds its true value.
 - An estimate is *unbiased* if, on average, it is equal to the true value.

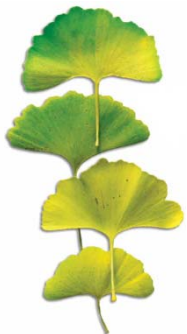


Figure A6.6: An Unbiased Estimate with a Uniform Distribution

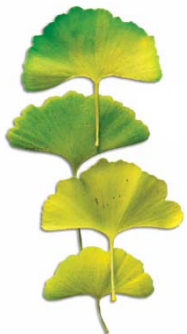


Figure A6.7: The Expected Value of The Highest Estimate $N = 1, 2, 3$ & 4

