## 1. INTRODUCTION: WHAT THIS BOOK IS ABOUT

Problem Solving

Ethics and Economics

Economics in Job Interviews

### Main Points

* Problem solving requires two steps: First, figure out why mistakes are being made; and then figure out how to make them stop.
* The **rational-actor paradigm** assumes that people act rationally, optimally, and self-interestedly. To change behavior, you have to change incentives.
* Good incentives are created by rewarding good performance.
* A well-designed organization is one in which employee incentives are aligned with organizational goals. By this we mean that employees have enough information to make good decisions, and the incentive to do so.
* It follows that you can analyze problems by asking three questions: (1) Who is making the bad decision?; (2) Does the decision maker have enough information to make a good decision?; and (3) the incentive to do so?
* Answers to these questions will suggest solutions centered on (1) letting someone else make the decision, someone with better information or incentives; (2) giving the decision maker more information; or (3) changing the decision maker’s incentives.

### Teaching Note

It is useful to open with a business problem, like the over-bidding in the introduction, the Kidder-Peabody anecdote, or any of the anecdotes in the concluding chapter “you be the consultant.” Then ask the students to assume that they are a consultant brought in to the company to figure out what is wrong. Play 20 questions, and make them ask questions that have “yes” or “no” answers until they figure out what is wrong. Students will invariably use the rational actor paradigm to do this. Point this out to them. Tell them that this class is trying to show them how to use this paradigm more formally.

At the beginning of each of my lectures, students’ problem solving skills can be reinforced by asking them to solve a specific problem. The trick is to dribble out the information, bit by bit, to engage the students and keep them guessing what the problem is.

Note that some students will typically define the problem as the lack of a particular solution. When this happens, use the opportunity to point out how this approach locks you into a particular solution. Show them how not to do this.

Only then formally introduce them to the rational actor paradigm and show how it can be used to both identify why problems occur and what can be done to change behavior. I tell them that the key step in solving problems is to bring it down to an individual decision level.  First, find out who made a bad decision. Under the rational actor paradigm there are only two reasons for making mistakes: not enough information or bad incentives. Find out which it is. Bottom line is that problems can be identified by asking three questions:

1. Who made the bad decision?

2. Did they have enough information to make a good decision?

3. Did they have the incentive to make a good decision?

Point out that incentives have two pieces: a performance evaluation metric and a way to reward good performance, or punish bad performance. The Brickley, Smith, and Zimmerman article is a good reference for this.  Various solutions to the problem will likewise center on:

1. Changing decision rights (letting someone else make the decision);

2. Changing information flows; or

3. Changing incentives

i. Performance evaluation

ii. Compensation linking performance to rewards.

Tell them the “goal” is to align the incentives of employees with the goals of the organization. After giving students this paradigm, ask them to fix the problem. Solicit suggestions, and ask other students what they like or don’t like about the various proposed solutions. The message is that there are only tradeoffs and no universal solutions, i.e., the answer to every question is “it depends.” The point of the class is to teach your students to recognize and evaluate the tradeoffs.

If you want to focus on information rather than incentives, use the Sears automotive example in the “additional anecdote” below ([**What do tonsillectomies have in common with auto repair?**](http://managerialecon.blogspot.com/2009/08/what-do-tonsillectomies-have-in-common.html)). This is a particularly good example for teaching the lesson, “there are no solutions, only tradeoffs.” None of the three solutions is very good: (1) If you leave the decision making with the mechanics, you have to make sure they don’t recommend needless repairs; (2) if you change their incentives to flat salary, you can expect shirking; and (3) giving the decision making to someone else results in costly duplication. Be sure to draw the analogy to the current health care debate. It will shake your students up when they realize the dreary choices in front of them.

### In-class Problem

If you do not assign it, the following question (Individual HW Chapter 2) is a good one to motivate problem solving. Tell them to put themselves in the role of the newly hired manager. Ask them what the problem is; and then how to solve it.

*Goal Alignment at a Small Manufacturing Concern*

The owners of a small manufacturing concern have hired a manager to run the company with the expectation that he will buy the company after five years. Compensation of the new vice president is a flat salary plus 75% of first $150,000 of profit, and then 10% of profit over $150,000. Purchase price for the company is set as 4½ times earnings (profit), computed as average annual profitability over the next five years. Does this contract align the incentives of the new vice president with the goals of the owners?

*Answer*:

No. Both the purchase price and the profit sharing create perverse incentives. The VP keeps $0.75 of each dollar earned up to $150,000, but only $0.10 of each dollar earned after $150K. Since earning more requires more effort (increasing marginal effort), the VP has little incentive to earn more than $150,000. And every dollar the VP earns raises the price that he will eventually pay for the company by $4.50, effectively penalizing him for increasing company profitability.

### Supplementary Material

Blog Entries

[ManagerialEcon.com (Chapter 1)](http://managerialecon.blogspot.com/search/label/01.%20Introduction%3A%20What%20this%20book%20is%20about)

Auxiliary Slides

John Stossel’s Video “GREED,” by ABC News

Readings

James Brickley, Clifford Smith, Jerold Zimmerman, “The Economics of Organizations,” *Journal of Financial Economics*,Vol. 8:2 (Summer, 1995) pp. 19-31.

This article provides the basis for our study of behavior within organizations. The authors present a methodology for diagnosing and repairing problems within an organization. Their take on the rational actor paradigm is slightly different than mine: They would diagnose problems by asking three questions:

i. Who is making the bad decision?;

ii. How are they evaluated?; and

1. How are they compensated?

Answers to these questions will suggest solutions to the problem centered on:

1. Re-assigning decision rights;
2. Changing evaluation schemes; and/or
3. Changing compensation schemes.

This is very similar to my approach. But I group evaluation and compensation schemes into “incentives” and ask explicitly about information.

**Good very short story illustrating how markets turn self interest (greed) into group interest**:

Doti, [Capitalism & Greed](http://www.ccsindia.org/ccsindia/lacs/17capitalism_and_greed.pdf), This is a great very short story of two stores during a Chicago snow storm: one kept prices low and ran out of goods while the other doubled prices and was able to keep operating, even inducing kids to bring produce from the farmers markets on their sleds. Makes students think.

### Additional Anecdotes: Sears Automotive and Kidder-Peabody

SEARS AUTOMOTIVE: [What do tonsillectomies have in common with auto repair?](http://managerialecon.blogspot.com/2009/08/what-do-tonsillectomies-have-in-common.html)

In 1992 charges were brought against Sears whose mechanics were recommending [unnecessary auto repairs](http://www.archive.org/stream/autorepairfraudh00unit/autorepairfraudh00unit_djvu.txt).  The problem was traced to the incentive system used by Sears (and others in the industry):

“[the] use of quotas, commissions, or similar compensation may provide incentives for sales personnel to sell unnecessary auto repair services in order to meet quotas or receive larger commissions.”

Sears tried to fix the problem by re-organizing into two divisions, one responsible for recommending repairs; and the other responsible for doing them.  Rather than solving the problem, however, the two divisions got together and began colluding.  In exchange for recommending unnecessary repairs, the service division paid the recommending division for recommending them.  Sears finally adopted flat pay for the mechanics, which led to shirking.

This example is used in [Vanderbilt's MMHC](http://owen.vanderbilt.edu/vanderbilt/Programs/mmhc/index.cfm) class ([syllabus](http://www2.owen.vanderbilt.edu/lukefroeb/textbook/Second%20Edition/Syllabi/2009.MMHCSyllabus.doc)) to illustrate the difficulties of aligning the incentives of providers with the goals of payers.  President Obama tried to make the same point when he accused [physicians of performing unnecessary tonsillectomies](http://online.wsj.com/article/SB10001424052970204886304574308472181248330.html).  However, as the Sears example suggests, there are no "fixes" to the problem, only tradeoffs:

Incentives matter, yet maybe the truth is that medicine is a highly complex science in which the evidence changes rapidly and constantly. That’s one reason tonsillectomies are so much rarer now than they were in the 1970s and 1980s—but still better for some patients over others. As the American Academy of Otolaryngology put it in a press release responding to Mr. Obama’s commentary, clinical guidelines suggest that “In many cases, tonsillectomy may be a more effective treatment, and less costly, than prolonged or repeated treatments for an infected throat.”  
  
Mr. Obama seems to think that such judgments are easy. “If there’s a blue pill and a red pill and the blue pill is half the price of the red pill and works just as well,” he asked, “why not pay half price for the thing that’s going to make you well?” But usually the red and blue treatments are available—as well as the green, yellow, etc.—because of the variability of disease, human biology and patient preference. And the really hard cases, especially when government is paying for health care, are those for which there’s only a red pill and it happens to be very expensive.

KIDDER-PEABODY:

In 1992 Joseph Jett became a star bond trader for Kidder-Peabody, earning a two-million-dollar bonus. As his monthly profits grew, he was allowed to risk more and more capital in his trading portfolio, and was eventually promoted to head of the Government Trading Desk. By the end of 1993, Jett had been promoted to managing director. He also received the “Chairman’s Award” for outstanding performance, in addition to a $9 million year-end bonus.

Joseph Jett traded “strips,” which involved separating the interest payments from the principal on a government bond. He specialized in putting interest payments back together with the stripped bonds, thus reconstructing original bond. This activity earns profits by taking advantage of yield differences between zero-coupon bonds (no interest payments) and interest-bearing bonds.

However, at Kidder-Peabody, this activity seemed to earn profits—even in the absence of any yield differences. The antiquated information system at Kidder-Peabody tracked zero-coupon bonds by price instead of yield, which overstated their value once they entered the system. The information system rewarded Jett contemporaneously for sales of five-day forward contracts on reconstructed bonds. This allowed Jett to realize contemporaneous profits that would disappear in five days, when the computer recorded the future reconstruction. However, by rolling the contracts forward, Jett was able to keep these profits on the books. In order to make this work, Jett had to continuously increase the size of his portfolio.

Early in 1994, the information system at Kidder began having trouble keeping up with Jett’s trading activity. From 1992-1994, Jett had traded about $1.7 trillion in government securities, about half of all outstanding government debt. When the source of the profits was uncovered, Kidder liquidated Jett’s positions, and the company was sold to Paine-Webber for under-performing the market.

Joseph Jett was fired for refusing to cooperate with the resulting internal investigation but was cleared of criminal fraud charges in 1996. Kidder’s civil suit to collect $9 million from Jett was rejected by the NASD (National Association of Securities Dealers). He was fined by an SEC administrative judge but was allowed to keep $3.7 million in compensation earned while at Kidder.

Jett’s boss, Edward Cerullo, was forced to resign in 1994. The Securities and Exchange Commission charged him with failing to supervise Jett’s trading activities. He was suspended from working in the industry for one year, but walked away with $9 million in severance pay and deferred compensation.