Management 405: Managerial Economics
Course Syllabus - Sections 1 and 2

Course Purpose
Managerial Economics is concerned with the application of economic principles and methodologies to key management decisions within organizations. It provides principles to foster the goals of the organization, as well as a better understanding of the external business environment in which an organization operates. A primary purpose of the course is to develop tools useful in other Anderson courses since economics is the foundation for much of what is taught in finance, marketing, business strategy and many other courses in the MBA program. Managerial Economics is fundamentally a unique way of thinking about problems, issues and decisions that managers face in each of the functional areas of the organization as well as the strategic ones faced by general managers.

Contact Information
My office is located in Anderson C-512 in Entrepreneur’s Hall.

My office hours are by appointment, the time is flexible. Please contact me to schedule an appointment.

E-mail address: christian.dippel@anderson.ucla.edu

Grades
Final grades are determined on the following basis:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>35%</td>
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<tr>
<td>Homework</td>
<td>25%</td>
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<tr>
<td>Class Participation</td>
<td>15%</td>
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It is imperative that you come to class prepared—having read the assignment beforehand. Under no circumstances will special assignments substitute for inadequate performance, nor will extra-credit projects be assigned.

The grade distributions will correspond to the School’s guidelines for core courses: no more than 20% A’s and A+’s, and no more than 45% A’s of all types.
**Attendance Policy**

Attendance is required at all sessions. You are entitled to one unexcused absence during the quarter. A second absence requires a written explanation. A third absence will lower your final grade by one letter. It is not possible to complete the course with more than three absences.

**Homework**

There will be six problem sets assigned. These problems are designed to check your progress and to extend and reinforce concepts covered in class. One or two questions similar to the ones on the problem sets will appear on the exams. Since the exams will test individual performances, it is critical that you acquire skills at solving the problems independently. Therefore, while these assignments are to be turned in by groups, you should independently attempt beforehand to answer each question. Group assignments will be graded on a continuous 0-100 scale. Solutions will be distributed for each assignment. Please note that these step-by-step answers solved by your instructor are a good substitute for seeing him do them in person in class. There will not be the time in class to do much of this. It is up to the members of the class to form their study groups. Group size must be in the range of 4 to 6 members. Each group should submit one set of answers. The problem sets are due according to the schedule in the course calendar.

No late assignments will be accepted under any circumstances.

**Use of Unauthorized Materials**

You are prohibited from using any old answer keys to exams and homework sets distributed in my prior courses, unless I have distributed these myself. You are similarly prohibited from using other students’ homework solutions. Any published work that is used in your written solutions must contain the appropriate citation. Violations will be brought to the FEMBA Student Ethics Committee.

**Exams**

There will be a midterm and final exam scheduled as follows:

- Midterm: February 9
- Final: March 16

The exams will test for your ability to utilize economic principles in analyzing problems and making decisions. A sample midterm exam is included in your course packet to serve as a sample of the type of exams given in the past. No makeup exams will be scheduled. If you must miss the midterm, the final will be given added weight (a total weight of 60%), and
your grade will be determined on the basis of your performance there plus your homework scores (25% weight).

Exams are open-book and full use of the computer (except connections to network) is allowed. Cell phones and all PDA’s must be turned off during the exams. All writing is to cease when time is called.

**Review Sessions**

The Teaching Assistant, (Andrea di Micheli), will conduct review sessions. Times TBA. He can be contacted at: andrea.di.miceli.2015@anderson.ucla.edu

**Text**

There is a customized text designed especially for this course. The customized text contains chapters from Pindyck-Rubinfeld: “Microeconomics” (8th edition). The customized book has the ISBN Number “1269057626” and is available at the Luvalle bookstore. It is about significantly cheaper than the full textbook (for about 85% percent of the full book’s material.)

Both textbook and customized text come with an access code that gives you access to www.myeconlab.com, where you can access the book materials as well as quizzes online. The course ids for Section 1 and Section 2 respectively are “dippel68354” and “dippel79762”

In addition, current articles from outlets like the Economist and the Wall Street Journal will be assigned and will be e-mailed to you on a regular basis. These readings will be discussed the following class sessions and everyone will be expected to have read these assigned articles.

**Use of the Computer**

The use of computers during class is not allowed.

**Course Webpage**

All course materials, including electronic copies of all my slides reside on the course home page. For Sections 1 and 2 these are:

https://ccle.ucla.edu/course/view/13W-MGMT405-1
https://ccle.ucla.edu/course/view/13W-MGMT405-2

You can download and review slides at your leisure. They were created in PowerPoint. The overheads are “layered,” allowing you to recreate the sequence of ideas that went into the building of each overhead.

In addition, an Excel workbook used in class is available at the web site.

**Instructor Evaluation**

After the third week, your views about the course will be formally solicited using an electronic survey. There will be a final course evaluation, too. You are free at any time, however, to stop by and discuss the course with me and offer suggestions for improvements. In addition, there is an anonymous
feedback function on the course web site so that anyone at anytime can e-mail me comments, criticism and suggestions without having their identity revealed.

**Miscellaneous**

Name cards are to be displayed each class, including exams. The use of prior years’ course materials is **strictly prohibited**. Please be prompt to class.
# Class Schedule

<table>
<thead>
<tr>
<th>CLASS NUMBER</th>
<th>DATE</th>
<th>TOPIC</th>
<th>PROBLEM SET DUE</th>
<th>READING ASSIGNMENT</th>
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| 1            | January 5  | Module 1: The Economic Way of Thinking     |                 | Textbook: Chapters 1 and 2  
Reader: Chapters 1 and 2                                    |
| 2            | January 12 | Module 2: Demand Analysis 1                |                 | Textbook: Chapters 2 and 3  
Reader: Chapters 2 and 3                                    |
| 3            | January 19 | Module 3: Demand Analysis II & Estimation  | Number 1        | Textbook: Chapter 4, Regression  
Appendix, pp.700–707  
Reader: Chapters 4 and 15                                      |
| 4            | January 26 | Module 4: Production & Costs I             | Number 2        | Textbook: Chapter 6  
Reader: Chapter 5                                            |
| 5            | February 2 | Module 4: Production & Costs: II           | Number 3        | Textbook: Chapter 7  
Reader: Chapter 6                                            |
| 6            | February 9 | Midterm (covers through Module 4)          |                 |                                                         |
| 7            | February 16| Module 5: Profit Maximization & Competitive Markets | Number 4  
(should solve before midterm) | Textbook: Chapters 8 and 9  
Reader: Chapters 7 and 8                                    |
| 8            | February 23| Module 6: Price Searchers, Cartels, Oligopoly | Number 5        | Textbook: Chapters 10, 12.1, 12.6, 12.2, 12.3  
Reader: Chapters 9, 11.1, and 11.6, 11.2, 11.3               |
| 9            | March 2    | Module 7: Advanced Pricing and Auctions    |                 | Textbook: Chapters 11, 12.4-12.5, 13.8  
Reader: Chapters 10, 11.4–11.5, 12.8                        |
| 10           | March 9    | Module 9: Game Theory and Asymmetric Information | Number 6        | Textbook: Chapter 13, 17  
Reader: Chapter 12, 13                                        |
| 11           | March 16   | Final Exam                                 |                 |                                                         |
Course Concepts and Objectives by Module

Module 1: The Economic Way of Thinking

Key Concepts

1. Markets and the Firm
2. Agenda for 405
3. Actors in the market
4. Defining a market
5. Supply and Demand Analysis
6. Supply Basics
7. Demand Basics
8. Concept of Equilibrium
10. Principles Economic Thinking: Relevant cost

Learning Objectives

1. Understand the different sub-markets making up an economy
2. Explain who the main actors in most markets are
3. Explain what considerations go in defining the relevant market
4. What why supply-demand analysis is needed
5. Understand how to think of Supply separately
6. Understand how to think of Demand separately
7. How to bring Supply and Demand together to define a market’s equilibrium
8. Explain Surplus and Shortage in a market
9. Explain what determines the evolution of prices over time in a supply-demand framework
10. Do we observe full supply and demand curves or only points of intersection in the real world?
11. Define and give business examples of opportunity cost.
12. Explain the distinction between an irrelevant cost and a relevant (differential) one.
13. If time: some applications to the economic way of thinking

Module 2: Demand Analysis I

Key Concepts

1. Personal value
   1.1. Total personal value
   1.2. Marginal personal value
   1.3. Willingness to pay
2. Indifference curves
3. The demand schedule
4. Consumer surplus
5. The demand function
6. Change in demand vs. quantity demanded
7. Determinants of demand
   7.1. Variables usually outside the firm’s control
      7.1.1 Income
      7.1.2 Prices of related goods
      7.1.3 Price expectations
      7.1.4. Population size and mix
      7.1.5. Network effects
    7.2. Factors that the firm can usually control
      7.2.1 Product
      7.2.2 Promotion
      7.2.3 Place

8. Elasticity definitions
   8.1. Income elasticity
   8.2. Cross price elasticity
   8.3. Own price elasticity
   8.4 Promotional

9. Price elasticity categories
10. Special cases of price elasticity
11. Elasticity and total revenues
12. Relation among P, MR and Ed
13. Basic price discrimination
   12.1 Rationale
   12.2 Rules

Learning Objectives

1. Define an indifference curve and explain the shape of one between two goods; between a good and a bad.
2. Define marginal personal value and derive a schedule from total personal value.
3. Derive and plot a demand schedule for an individual from knowledge of the person’s marginal personal value.
4. State the law of demand
5. Explain the reasons behind a downward sloping industry demand curve
6. Infer the marginal personal value schedule implicit in a person’s demand schedule.
7. Define consumer surplus and calculate its magnitude in the context of a numerical example.
8. Graphically portray consumer surplus.
9. Distinguish between a change in demand and a change in quantity demanded.
10. List at least five conceptually distinct factors that cause demand to change.
11. Define and give examples of complements, substitutes and normal goods.
12. Define, precisely, price elasticity of demand.
14. Calculate price elasticity of demand from data.
15. Categorize demand as being elastic or inelastic from given data.
16. Explain the unique properties and reasons behind totally elastic and totally inelastic demand.
17. Assess the impact on revenues of a price change under alternative scenarios of elasticity.
18. Argue that a firm should not operate in the inelastic range of demand.
19. Demonstrate verbally and graphically that the profit-maximizing price occurs where demand is elastic if marginal cost is positive.
20. Distinguish the special case of zero marginal cost and the unique pricing solution where demand elasticity is unity.
21. Correctly provide the equation that relates marginal revenue, price and elasticity.
22. Calculate marginal revenue from knowledge of the demand function.
23. Determine the optimal price for a price searcher – given the demand and cost functions.
24. Explain why, for the price searcher, marginal revenue is less than price.

Module 3: Demand Analysis II and Demand Estimation

Key Concepts

1. Determinants of price elasticity
   1.1. Competition from substitutes: Role of market share
   1.2. Relationship Between Market and Firm Elasticity
   1.3. Rivals’ price response
   1.4. Other factors
       1.4.1 Switching costs
       1.4.2 Search costs
       1.4.3 Quality and signaling
       1.4.4 Importance of item in total costs of “solution”
2. Differentiation versus Cost Leadership strategies
3. Supply
   3.1. Supply function
   3.2. Law of supply
   3.3. Change in quantity supplied versus change in supply
   3.4. Supply elasticity
4. Competitive market equilibrium
5. Effects of demand and supply shifts
6. Price ceiling
7. Price floor
8. Firm versus market demand
   9.1. Linear regression
   9.2. Interpreting coefficients
   9.3. Interpreting regression fit
   9.4. Omitted variables
   9.5. Log linear estimation
Learning Objectives

1. Identify the most important factor in determining elasticity – competition.
2. Describe how its market share impacts a firm’s demand elasticity.
3. Explain how the elasticity of supply of substitute products impacts the elasticity of demand for a seller.
4. Define switching costs and relate the concept to elasticity.
5. Discuss how the Internet might affect demand elasticity facing a particular on-line seller.
6. Conjecture whether demand is likely to be elastic or not in the absence of data.
7. Distinguish between a firm and an industry elasticity and explain which is relevant is a particular situation, including price matching of rivals.
8. Link elasticity to the strategies of product differentiation and cost leadership.
9. Display the market clearing price and quantity for a competitive market.
10. Show the impact of a change in demand on the market clearing price and quantity.
11. Show the impact of a change in supply on the market clearing price and quantity.
12. Explain how supply elasticity affects the degree to which price changes when demand changes.
13. Distinguish between the industry demand for a product sold in a competitive market from the demand facing one seller.
14. Explain why the demand facing a price taker is horizontal.
15. Run a regression that estimates a demand function containing multiple independent variables.
16. Interpret in words the meaning of the coefficients of each of the independent variables.
17. Calculate the price, cross price, and income elasticities from the regression output at given values of the independent variables.
18. Forecast demand based on the regression results.
19. Use the regression and knowledge of costs to make pricing decisions.
20. Explain the problem of non-linearity.
22. Correctly interpret the coefficients of a log-linear demand regression as elasticities.
23. Explain and give one example of the identification problem.

Module 4: Production and Costs

Key Concepts

1. Production function
   1.1. Short run function
1.2. Long run function
2. Law of diminishing returns
3. Product curves
   3.1. Total
   3.2. Marginal
   3.3. Average
4. Marginal revenue product
5. Marginal labor cost
6. Optimal employment of labor in the short run
7. Production isoquants
8. Marginal rate of technical substitution
9. Returns to scale
   9.1. Constant
   9.2. Increasing
   9.3. Decreasing
10. Isocost lines
11. Optimal combinations of factors
12. Expansion path
14. Cost types
   14.1. fixed
   14.2. sunk
   14.3. variable
   14.4. differential
15. Application of cost types: technology adoption
16. Cost functions
   16.1. Short run
      16.1.1. total fixed cost
      16.1.2. total cost
      16.1.3. average variable cost
      16.1.4. average fixed cost
      16.1.5. marginal cost
   16.2. Long run
      16.2.1. total cost
      16.2.2. average cost
      16.2.3. marginal cost
17. Application of costs: Make versus Buy
18. Relation between cost and productivity
   18.1. MC and MP of labor
   18.2. Unit labor cost and AP of labor
19. Relation between long & short run cost functions: the envelope curve
20. Economies of scale
21. Economies of scope
22. Learning curve

Learning Objectives
1. Distinguish between short run and long run situations.
2. Give a precise definition and explanation for the principle of diminishing returns.
3. Define MP, AP and TP of labor and be able to show on a graph the relationships among the functions.
4. Employ data on the MP of labor and demand for the product and create the short run demand curve for labor, using the concept of marginal revenue product.
5. State and explain where the optimal employment is for a factor such as labor in the short run.
6. Explain why the marginal labor cost exceeds the wage for a wage searcher.
7. Define a production isoquant and state the relationship between the slope of the isoquant and the ratio of factor marginal products.
8. Explain why the ratio of the MP's is a measure of the substitutability between factors.
9. Explain why the slope of an isoquant becomes flatter as one moves down along it.
10. State the definition of and reasons for both increasing and decreasing returns to scale.
11. Define an isocost line and demonstrate that its slope is a measure of relative factor prices and that its position is a measure of total outlay.
12. Explain verbally, graphically and mathematically why for optimality in the mix of factors, MRTS must equal the ratio of the factor prices.
13. Define an expansion path and explain why it is a long-run equilibrium production concept.
14. Be able to apply correctly the optimal condition for factor employment in other settings besides one dealing with production (capital and labor) when given a set of numbers relating to factor prices and production.
15. Define what is meant by the term "cost-effective".
16. Determine which of two alternative methods of achieving an outcome is preferred - given data on costs and effects of each.
17. Define implicit cost as opposed to explicit cost and give an example of each.
18. Explain the meaning of normal rate of return by relating the concept to opportunity cost.
19. Demonstrate that a normal rate of return is equivalent to zero economic profit.
20. Distinguish between a short run and a long run situation.
21. Distinguish among sunk, fixed, and variable costs in a variety of contexts.
22. Explain the relationship between a marginal and an average cost function.
23. Define and derive per unit cost functions (marginal, average variable, average fixed, average total) from knowledge of total cost functions and vice versa.
24. Explain the underlying reasons behind the shapes of each cost curve - both short run and long run.
25. Derive and explain the implications of the relationship between unit labor cost and the average productivity of labor; ditto for marginal cost and for the marginal productivity of labor.
26. Demonstrate that long run adjustments are cheaper than short run ones because the firm can minimize costs in the long run.
27. Understand that the long run cost functions come from the expansion path of the firm and stem from the cost-minimizing condition.
29. Derive and plot the long run average cost curve as the envelope of the short run curves.
30. Differentiate between the reasons behind a declining long run average cost and a declining short run average cost.
31. Define and recognize the existence of economies of scale - given cost data.
32. State three different reasons why scale economies may occur.
33. Decide which scale of plant is most advantageous for a firm to build.
34. Differentiate between lower costs that stem from cumulated volume versus rate effects.
35. Relate the Improvement Factor to the exponent in the equation for the learning effect.
36. Explain how the learning effect can lead to competitive advantage.

**Module 5: Profit Maximization and Competitive Markets**

**Key Concepts**

1. Market structures
   1.1. Price taker
   1.2. Price searcher
2. Demand facing a price taker
3. Price taker: profit-maximizing output
   3.1. Short run
   3.2. Long run
4. Economic vs. accounting profit
5. Shut-down condition
6. Supply curve of a price taker
7. Industry supply curve
8. Relationship between MC and supply
9. Contribution analysis
10. Market entry
11. Long run competitive equilibrium
12. Industry supply in long run
   12.1. Constant cost industry
   12.2. Increasing cost industry
   12.3. Decreasing cost industry
13. Effect of a tax in competitive markets
14. Effects of price controls
15. Allocation mechanisms
16. Benefits from international trade
17. Effects of trade restrictions

**Learning Objectives**

1. Distinguish between a price taker and a price searcher, giving two examples of each.
2. Distinguish the features of monopoly, oligopoly and monopolistic competition, giving two examples of each.
3. Describe and graph the revenue conditions (demand, MR, and TR) facing a price taker.
4. State the profit maximizing condition for the price taker in the short run.
5. Explain the “shut down” rule.
6. Portray profit maximizing price and output for a price taker firm that is losing money in the short run but finds it advantageous to operate.
7. Portray profit maximizing price and output for a price taker firm that is making profit in the short run.
8. Explain how the firm’s short run supply curve is determined.
9. Depict the effect of a change in costs on the position of the firm’s supply curve.
10. Derive the industry supply as the lateral summation of all the firms’ supply curves.
11. Predict which firms will stay in the market at the lowest prices.
12. Define “contribution” and explain why it is the criterion for decisions in the short run.
13. Explain why entry of new firms occurs when price is above average cost for the existing firms.
14. Define, state the conditions, and graphically portray long-run competitive equilibrium for the firm.
15. Explain what is meant by constant, decreasing and increasing cost industries.
16. Distinguish between economies of scale and a decreasing cost industry.
17. Define the long run industry supply price.
18. Predict how the elasticity of supply of inputs will impact the shape of the long run industry supply curve.
19. Distinguish between incidence and burden of a tax and graphically demonstrate the role of supply and demand elasticities in determining the burden.
20. Portray the impacts of price controls, including shortages, surpluses and non-price competition.
21. Illustrate the impacts of licensing restrictions in an otherwise competitive market, including prices and quantities, the losses and gains to effected parties. Also, explain how elasticity of supply and demand shapes these results.
22. Explain and graphically portray the benefits of free trade

Module 6: Price Searchers' Markets

Key Concepts

1. Types and characteristics of price searchers
   1.1. Oligopoly
   1.2. Monopolistic Competition
   1.3. Monopoly
2. Price searcher model
3. Monopolistic competition: model
   3.1. Short run equilibrium
3.2. Long run equilibrium
3.3 Versioning
4. Barriers to entry
  4.1. Strategic versus structural barriers
  4.2. Switching costs
  4.3. Network effects
  4.4. Economies of scale
  4.5. Capital requirements
  4.6. Learning curve
  4.7. Control of resources
  4.8. Legal barriers - patents, copyrights, trademarks, licenses
5. Cartels
6. Oligopoly – Cournot and Bertrand

Learning Objectives

1. Define the characteristics of price searchers, emphasizing the revenue conditions faced
2. Graphically, mathematically and verbally show the profit maximizing price, quantity and level of profit in a price searchers’ context.
3. Distinguish between the profit-maximizing solution for a monopolist and that for a monopolistically competitive firm.
4. State the conditions for long run monopolistically competitive equilibrium.
5. Give a definition of barrier to entry
6. Enumerate and explain at least six categories of barriers to entry.
7. Define competitive advantage and explain its relationship to long run competitive equilibrium.
8. Define what is meant by the benchmark competitor’s value proposition and explain why a firm must at least match this
9. Graphically display the choice of market position between quality and price for a price searcher.
10. Demonstrate that a fixed fee makes no difference in the pricing decision.
11. Graphically portray the region (in the quality/price space) that a firm can operate in and simultaneously satisfy consumers and shareholders.
12. Explain why cartels exist, what problems they face in being effective, and graphically portray the cartel model.
13. Argue the economic basis for antitrust policy using graphs.
14. Explain the assumptions and results of the Bertrand and Cournot models.

Module 7: Advanced Pricing

Key Concepts

1. Extensions of oligopolistic pricing:
   1.1 Limit Entry Pricing
1.2 Price Rigidity and Kinked Demand
1.3 Price Leadership

2. Objectives of pricing – complex pricing

3. Price Discrimination
   4.1 Standard
   4.2

5. Volume pricing
   5.1 Fixed fee
   5.2 Sliding scale
   5.3 All or none
   5.4 Implications of positive marginal cost

6. Auctions (2nd half of class)

Learning Objectives

1. Portray the "kinked demand model" and identify its assumptions, applicability, implications and flaws.
2. Recite the assumptions that are used to build the model of price leadership
3. Identify at least one characteristic of an industry that is helpful for price leadership to be effective
4. Identify the motivation for limit entry pricing and the overall manner in which it is achieved.
5. Graph the limit entry pricing model
6. Recognize the incentive for oligopolists to combine or collude.
7. Describe the objectives and dilemmas of pricing
8. Explain how metered pricing and tie-ins can overcome some of the impediments to price discrimination.
9. Explain how volume pricing can enhance the seller’s profits compared to simple pricing.
10. Explain why volume pricing makes sense only in the case of continuous choice.
11. Graphically portray what volume pricing can do to consumer surplus.
12. Describe the manner in which a two-part pricing structure (fixed fee plus variable fee) operates.
13. Understand that if marginal cost is zero, the optimal variable fee is zero if buyers have identical demands.
14. Describe the manner in which an all-or-none pricing structure operates.
15. Understand why different types of auctions are equivalent in theory
   15.1 And why they may not be in practice
16. Understand Winner’s curse

Module 8: Game Theory & Imperfect Information

Key Concepts

1. Game Theory
1.1. Optimization
1.2. Payoff tables
1.3. Equilibrium strategy
1.4. Dominant strategy
1.5. Game theory and price wars
1.6. Nash equilibrium

2. Asymmetric information
3. Adverse selection
4. Signaling
5. Moral hazard
6. Principal-agent relationship

Learning Objectives

1. Infer the dominant strategy of each player when a payoff matrix is provided.
2. Verbally explain why price wars occur using game theory.
3. Understand how to find a Nash equilibrium.
4. Explain what a zero sum game is.
5. Understand conditions under which a prisoner’s dilemma occurs.
6. Understand how repeated interactions can help solve the prisoner’s dilemma.
7. Describe how adverse selection can lead to inefficient market outcomes.
8. Understand how signaling can alleviate adverse selection problems.
9. Explain how signaling can work on labor markets to improve the allocation of workers to firms.
10. Define moral hazard and provide 3 examples of situations involving moral hazard.
11. Describe mechanisms to alleviate the problem of moral hazard.
12. Explain how moral hazard can undermine insurance markets.
13. Name 3 examples of principal-agent relationships.
14. Can the principal-agent model explain why some organizations may not pursue profit-maximization as a goal?
15. Describe ways in which agency problems between shareholders and managers can be alleviated.
16. Understand how certain compensation structures can help alleviate agency problems in employer-employee relationships when worker effort is not perfectly observable by employers.