

Personnel Economics

PETER KUHN
University of California, Santa Barbara

New York Oxford
OXFORD UNIVERSITY PRESS

Contents

PREFACE	xii
ACKNOWLEDGMENTS	xviii

PART 1 PRINCIPAL–AGENT MODELS 1

1	Structure of the Principal–Agent Problem 3	
	1.1 What Is a Principal–Agent Problem?	4
	1.2 Timeline of the Principal–Agent Problem	5
	1.3 Profits	6
	1.4 Utility	6
	1.5 The Contract	9
	1.6 The Production Function	9
	1.7 Backwards Induction	10
2	Solving the Agent’s Problem 13	
	2.1 A Mathematical Solution	13
	2.2 Comparative Statics	15
	2.3 The Solution with Indifference Curves	17
3	Solving the Principal’s Problem 19	
	3.1 Warm-Up Exercise: The Principal’s Problem when $a = 0$	19
	3.2 The Full Solution to the Principal–Agent Problem	23
	3.3 Is It Crazy to Sell the Job to the Worker?	27

4 Best for Whom? Efficiency and Distribution 33

- | | | |
|-----|------------------------------------|----|
| 4.1 | Economically Efficient Contracts | 33 |
| 4.2 | Dividing the Pie: What's Feasible? | 35 |

5 Extensions: Uncertainty, Risk Aversion, and Multiple Tasks 38

- | | | |
|-----|-------------------------------------------------------------------------------|----|
| 5.1 | Which Assumptions Matter? Which Ones Don't? | 38 |
| 5.2 | Uncertainty and Risk Aversion: State-Contingent Contracts | 42 |
| 5.3 | Optimal Non-Contingent Contracts | 44 |
| 5.4 | Evidence on the Insurance-Incentives Trade-off:
Sharecropping in the South | 46 |
| 5.5 | Multitask Principal-Agent Problems | 47 |
| 5.6 | Nonlinear Incentives and the Timing Gaming Problem | 56 |

6 Noisy Performance Measures and Optimal Monitoring 67

- | | | |
|-----|------------------------------------------------------|----|
| 6.1 | A Simple Model of Shirking with Monitoring and Fines | 68 |
| 6.2 | Solving the Agent's Problem | 69 |
| 6.3 | Efficiency: The Pie-Maximizing Solution | 69 |

PART 2 EVIDENCE ON EMPLOYEE MOTIVATION 75

7 Empirical Methods in Personnel Economics 77

- | | | |
|-----|-------------------------------------------------------------------------------|----|
| 7.1 | Inferring Causality: The Advantages of Randomized
Controlled Trials (RCTs) | 77 |
| 7.2 | Inferring Causality in Non-Experimental Settings:
Regression Analysis | 81 |

8 Performance Pay at Safelite Glass: Higher Productivity, Pay, and Profits 88

- | | | |
|-----|-----------------------------------------------------------------|----|
| 8.1 | Safelite's Performance Pay Plan (PPP) and Its Predicted Effects | 89 |
| 8.2 | How Did the PPP Affect Employee Performance at Safelite? | 92 |

8.3	Did the PPP Raise Safelite's Profits?	96
8.4	Lessons from Safelite	97
8.5	Safelite 20 Years Later: An Epilogue	99

9 Some Non-Classical Motivators 103

9.1	Pay Enough or Don't Pay at All	103
9.2	Non-Monetary Incentives: Intrinsic, Symbolic, and Image Motivation	106
9.3	Large Stakes and Big Mistakes	113
9.4	Are High Stakes Really a Problem? The Role of Self-Selection	117
9.5	Reference Points: Theory and Laboratory Evidence	119
9.6	Reference Points: Evidence from the Workplace	124
9.7	Present Bias and Procrastination	128

10 Reciprocity at Work: Gift Exchange, Implicit Contracts, and Trust 146

10.1	The Gift-Exchange Game (GEG)	146
10.2	Incomplete Contracts	147
10.3	Laboratory Evidence on Gift-Exchange Games	149
10.4	Intentions, Reference Points, and Positive versus Negative Reciprocity	154
10.5	Positive and Negative Reciprocity in the Field	160
10.6	Trust Can Pay: The Hidden Cost of Control	162
10.7	Fairness Among Workers	167

11 Pigeons and Pecks: Incentives and Income Effects 180

11.1	The Backward-Bending Labor Supply Curve (BBLS)	180
11.2	Explaining the BBLS: The Role of Income Effects	182
11.3	When Are Income Effects Likely to Be Important?	185
11.4	The Shape of the Utility Function and the Mathematics of Income Effects	188

PART 3 EMPLOYEE SELECTION AND TRAINING 193**12 Choosing Qualifications 197**

- 12.1 Optimal Worker Mix When Workers Work Independently 197
- 12.2 Optimal Worker Mix When Workers Interact in the Production Process 204

13 Risky versus Safe Workers 212

- 13.1 A Base Case Example: Risky Workers and the Principle of Option Value 212
- 13.2 Changing Assumptions: When Are Risky Workers the Better Bet? 217

14 Recruitment: Formal versus Informal? Broad versus Narrow? 226

- 14.1 Formal versus Informal Channels 226
- 14.2 How Wide a Net to Cast? Searching Narrowly versus Broadly 234

15 Choosing from the Pool: Testing, Discretion, and Self-Selection 246

- 15.1 When to Test 246
- 15.2 Effectiveness of Employee Testing Procedures 248
- 15.3 Alternatives to Testing 250
- 15.4 Self-Selection 252

16 Avoiding Bias 260

- 16.1 Detecting Discrimination in Hiring 261
- 16.2 Why Does Discrimination Occur? 262
- 16.3 Consequences of Discrimination 266
- 16.4 Reducing Bias in Employee Evaluation 269

17 Setting Pay Levels: Monopsony Models 281

- | | | |
|------|---------------------------------------------------------------------|-----|
| 17.1 | Optimal Exploitation: Pay Levels and the Elasticity of Labor Supply | 282 |
| 17.2 | Does It Really Matter What You Pay? Finding a Pay Level Niche | 289 |

18 Setting Pay Levels: Efficiency Wage Models 296

- | | | |
|------|--------------------------------------------------------------------|-----|
| 18.1 | Shirking and Dismissals: High Pay as a Worker Discipline Device | 296 |
| 18.2 | Effects of Pay Levels on Worker Selection and Motivation: Evidence | 299 |
| 18.3 | Deferred Compensation as an Incentive and Retention Tool | 303 |

19 Training 318

- | | | |
|------|-----------------------------------------------|-----|
| 19.1 | When to Train? An Education Example | 318 |
| 19.2 | Training in Firms: When Is It Efficient? | 322 |
| 19.3 | Training in Firms: Who Should Pay? | 324 |
| 19.4 | Firm-Specific Training and the Holdup Problem | 330 |
| 19.5 | Costs and Benefits of Multiskilling | 335 |

PART 4 COMPETITION IN THE WORKPLACE: THE ECONOMICS OF RELATIVE REWARDS 341

20 A Simple Model of Tournaments 343

- | | | |
|------|-------------------------------------------------------------------------|-----|
| 20.1 | The Basic Elements of a Two-Player Tournament | 343 |
| 20.2 | Effort and the Probability of Winning the Promotion | 345 |
| 20.3 | The Agents' Problem: Optimal Individual Effort, Given the Contest Rules | 348 |
| 20.4 | Efficiency: Which Effort Levels Maximize the Size of the Pie? | 349 |
| 20.5 | Achieving Efficiency with the Optimal Tournament | 351 |
| 20.6 | A Theorem: The Equivalence of Tournaments and Piece Rates | 352 |
| 20.7 | Some Extensions: Many Players, Prizes, and Stages | 354 |
| 20.8 | Tournaments with Risk-Averse Agents | 361 |
| 20.9 | Relative Pay Schemes in Action: The Market for Broilers | 364 |

21 Some Caveats: Sabotage, Collusion, and Risk-Taking in Tournaments 369

- | | | |
|------|-------------------------------------|-----|
| 21.1 | Helping and Sabotage in Tournaments | 369 |
| 21.2 | Collusion in Tournaments | 378 |
| 21.3 | Tournaments and Risk-Taking | 383 |

22 Unfair and Uneven Tournaments 390

- | | | |
|------|-------------------------------------------------------------------------------------------|-----|
| 22.1 | Effort and the Probability of Winning the Tournament | 390 |
| 22.2 | Evidence on Asymmetric Tournaments: The Tiger Woods Effect | 393 |
| 22.3 | Addressing Ability Differences in Tournaments: Leagues, Handicaps, and Affirmative Action | 396 |
| 22.4 | Ability Differences in Multistage Contests and Promotion Ladders | 400 |

23 Who Wants to Compete? Selection into Tournaments 415

- | | | |
|------|----------------------------------------------|-----|
| 23.1 | Ability, Risk Aversion, and Tournament Entry | 415 |
| 23.2 | Gender, Confidence, and Competitiveness | 418 |

PART 5 THE ECONOMICS OF TEAMS 427

24 Incentives in Teams and the Free-Rider Problem 431

- | | | |
|------|---------------------------------------------------------------|-----|
| 24.1 | Structure of the Team Production Problem | 431 |
| 24.2 | Efficiency: Which Effort Levels Maximize the Size of the Pie? | 435 |
| 24.3 | Sharing Rules and the Free-Rider (1/N) Problem | 436 |
| 24.4 | Group Piece Rates, Group Bonuses, and Free-Riding in Teams | 441 |

25 Team Production in Practice 453

- | | |
|--------------------------------------------------------------------------------------|-----|
| 25.1 Altruistic Punishment and Team Performance | 454 |
| 25.2 Can Team-Based Pay Outperform Individual Pay?
Peer Pressure on Campus | 460 |
| 25.3 Team Incentives in a Garment Factory: Why So Successful? | 466 |

26 Complementarity, Substitutability, and Ability Differences in Teams 479

- | | |
|----------------------------------------------------------------------------|-----|
| 26.1 Complementarity and Substitutability: Definitions and Evidence | 479 |
| 26.2 Team Effort Choices under Extreme Complementarity | 486 |
| 26.3 Team Effort Choices under Moderate Complementarity | 493 |
| 26.4 Team Effort Choices under Substitutability | 503 |
| 26.5 Effort, Ability Differences, and Optimal Team Size | 511 |

27 Choosing Teams: Self-Selection and Team Assignment 525

- | | |
|-----------------------------------------------------------------------------|-----|
| 27.1 Who Wants to Join Teams? Ability Differences and Self-Selection | 526 |
| 27.2 Skill Diversity, Information Sharing, and Team Performance | 534 |

INDEX	551
-------	-----