

Making Everything Easier!™

Managerial Economics

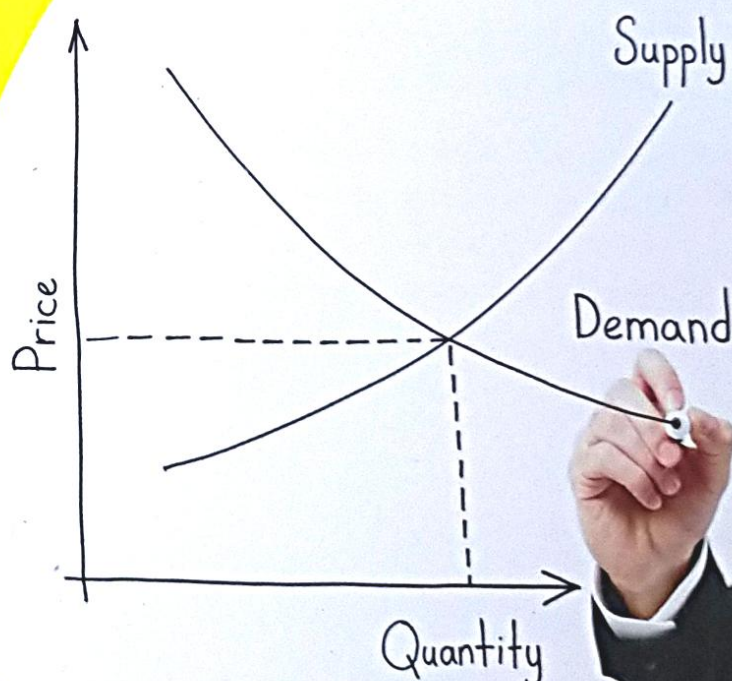
FOR
DUMMIES®

Learn to:

- Make sense of complicated business concepts
- Improve your critical thinking skills
- Apply managerial economics to make sound managerial decisions

Robert Graham, PhD

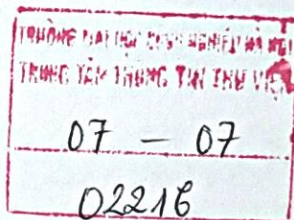
Professor of Economics, Hanover College



Managerial Economics

FOR
DUMMIES®

by Robert Graham



WILEY

John Wiley & Sons, Inc.



GIFT OF THE ASIA FOUNDATION
NOT FOR RE-SALE

QUÀ TẶNG CỦA QUỸ CHÂU Á
KHÔNG ĐƯỢC BÁN LẠI

Managerial Economics For Dummies®

Published by
John Wiley & Sons, Inc.
111 River St.
Hoboken, NJ 07030-5774
www.wiley.com

Copyright © 2013 by John Wiley & Sons, Inc., Hoboken, New Jersey

Published by John Wiley & Sons, Inc., Hoboken, New Jersey

Published simultaneously in Canada

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without the prior written permission of the Publisher. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 111 River Street, Hoboken, NJ 07030, (201) 748-6011, fax (201) 748-6008, or online at <http://www.wiley.com/go/permissions>.

Trademarks: Wiley, the Wiley logo, For Dummies, the Dummies Man logo, A Reference for the Rest of Us!, The Dummies Way, Dummies Daily, The Fun and Easy Way, Dummies.com, Making Everything Easier, and related trade dress are trademarks or registered trademarks of John Wiley & Sons, Inc., and/or its affiliates in the United States and other countries, and may not be used without written permission. All other trademarks are the property of their respective owners. John Wiley & Sons, Inc., is not associated with any product or vendor mentioned in this book.

LIMIT OF LIABILITY/DISCLAIMER OF WARRANTY: THE PUBLISHER AND THE AUTHOR MAKE NO REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS OF THE CONTENTS OF THIS WORK AND SPECIFICALLY DISCLAIM ALL WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. NO WARRANTY MAY BE CREATED OR EXTENDED BY SALES OR PROMOTIONAL MATERIALS. THE ADVICE AND STRATEGIES CONTAINED HEREIN MAY NOT BE SUITABLE FOR EVERY SITUATION. THIS WORK IS SOLD WITH THE UNDERSTANDING THAT THE PUBLISHER IS NOT ENGAGED IN RENDERING LEGAL, ACCOUNTING, OR OTHER PROFESSIONAL SERVICES. IF PROFESSIONAL ASSISTANCE IS REQUIRED, THE SERVICES OF A COMPETENT PROFESSIONAL PERSON SHOULD BE SOUGHT. NEITHER THE PUBLISHER NOR THE AUTHOR SHALL BE LIABLE FOR DAMAGES ARISING HEREFROM. THE FACT THAT AN ORGANIZATION OR WEBSITE IS REFERRED TO IN THIS WORK AS A CITATION AND/OR A POTENTIAL SOURCE OF FURTHER INFORMATION DOES NOT MEAN THAT THE AUTHOR OR THE PUBLISHER ENDORSES THE INFORMATION THE ORGANIZATION OR WEBSITE MAY PROVIDE OR RECOMMENDATIONS IT MAY MAKE. FURTHER, READERS SHOULD BE AWARE THAT INTERNET WEBSITES LISTED IN THIS WORK MAY HAVE CHANGED OR DISAPPEARED BETWEEN WHEN THIS WORK WAS WRITTEN AND WHEN IT IS READ.

For general information on our other products and services, please contact our Customer Care Department within the U.S. at 877-762-2974, outside the U.S. at 317-572-3993, or fax 317-572-4002.

For technical support, please visit www.wiley.com/techsupport.

Wiley publishes in a variety of print and electronic formats and by print-on-demand. Some material included with standard print versions of this book may not be included in e-books or in print-on-demand. If this book refers to media such as a CD or DVD that is not included in the version you purchased, you may download this material at <http://booksupport.wiley.com>. For more information about Wiley products, visit www.wiley.com.

Library of Congress Control Number: 2012955836

ISBN 978-1-118-41204-6 (pbk); ISBN 978-1-118-41205-3 (eMobi); ISBN 978-1-118-41206-0 (ePub); ISBN 978-1-118-41207-7 (PDF)

Manufactured in the United States of America

10 9 8 7 6 5 4 3 2 1



Contents at a Glance

.....

Introduction	1
Part I: The Nature of Managerial Economics	9
Chapter 1: Managerial Economics: Taking Care of Business	11
Chapter 2: Supply and Demand: You Have What Consumers Want.....	23
Chapter 3: Calculus, Optimization, and You	39
Part II: Considering What Side You're On in the Decision-Making Process	55
Chapter 4: Using the Elasticity Shortcut	57
Chapter 5: Consumer Behavior: A Market for Anything?	73
Chapter 6: Production Magic: Pulling a Rabbit Out of the Hat	91
Chapter 7: Innovation and Technological Change: The Future Is Now.....	109
Chapter 8: Production Costs: Where Less Is More.....	121
Part III: Recognizing Rivals: Market Structures and the Decision-Making Environment.....	137
Chapter 9: Limited Decision-Making in Perfect Competition.....	139
Chapter 10: Monopoly: Decision-Making Without Rivals	161
Chapter 11: Oligopoly: I Need You.....	181
Chapter 12: Game Theory: Fun Only if You Win.....	203
Chapter 13: Monopolistic Competition: Competitors, Competitors Everywhere	223
Chapter 14: Increasing Revenue with Advanced Pricing Strategies.....	235
Part IV: Anticipating Surprises: Risk and Uncertainty	261
Chapter 15: Risk Analysis: Walking Through the Fog	263
Chapter 16: Using Capital Budgeting to Prepare for the Future	285
Chapter 17: Principal-Agent Issues and Adverse Selection: Can Everyone Agree?	299
Chapter 18: Rules, Rules Everywhere: Government and Managerial Decision-Making.....	315

<i>Part V: The Part of Tens</i>	333
Chapter 19: Ten Critical Concepts.....	335
Chapter 20: Ten Managerial Mistakes and How to Avoid Them.....	343
<i>Index</i>	351

Table of Contents

Introduction 1

About This Book	1
Conventions Used in This Book	2
What You're Not to Read	3
Foolish Assumptions	4
How This Book Is Organized	5
Part I: The Nature of Managerial Economics	5
Part II: Considering Which Side You're On in the Decision-Making Process	5
Part III: Recognizing Rivals: Market Structures and the Decision-Making Environment	6
Part IV: Anticipating Surprises: Risk and Uncertainty	6
Part V: The Part of Tens	6
Icons Used in This Book	7
Where to Go from Here	8

Part 1: The Nature of Managerial Economics 9

Chapter 1: Managerial Economics: Taking Care of Business 11

Managing Economics	12
Considering business's role	13
Identifying the manager's role	13
Nothing Is Free: Opportunity Cost	14
Defining Goals	15
Keeping your job: First things first	15
Maximizing profit by recognizing all costs	16
Taking it to the limit with constraints	16
Taking Sides: Demand and Supply in the Decision-Making Process	17
Looking at Market Structures and the Decision-Making Environment ...	17
Taking Chances: Recognizing Risk and Uncertainty	19
Knowing the Time Value of Money: Present Value	19

Chapter 2: Supply and Demand: You Have What Consumers Want ... 23

How Much Is That Doggie in the Window? Setting Prices through Markets	24
Demanding Lower Prices	24
Distinguishing between quantity demanded and demand	25
Graphing demand	25

Supplying Higher Prices.....	28
Understanding quantity supplied and supply.....	28
Graphing supply.....	28
Determining Equilibrium: Minding Your P's and Q's	31
Determining the price mathematically	31
Producing too much: Stuff lying everywhere.....	32
Producing not enough: The cupboard is bare	33
Changing equilibrium: Shift happens	34
Chapter 3: Calculus, Optimization, and You	39
Describing How Things Are Related with Functions.....	40
Optimizing Is the Best Decision	41
You Want Me to Remember Calculus?.....	41
Deriving derivatives.....	41
Rules, rules everywhere.....	42
Holding most, but not all, things constant by using partial derivatives.....	47
Joining Derivatives and Optimization: An Ideal Partnership.....	49
Putting It All Together: Optimization, Constraints, and the Lagrangian Function.....	50
Identifying your objective (function)	50
Constraining functions: What you can't do	51
Constructing the Lagrangian function	51
Discovering the secret code: The Lagrangian Multiplier.....	52
Part II: Considering What Side You're On in the Decision-Making Process	55
Chapter 4: Using the Elasticity Shortcut	57
Using Elasticity Is The Key to Flexibility	57
Knowing the Price Elasticity of Demand: The Fundamental Trade-Off	58
Determining the price elasticity of demand: Formulas are your friend	59
Recognizing degrees of flexibility with inelastic or elastic.....	60
Influencing the price elasticity of demand	61
Identifying the bottom line, almost: The price elasticity of demand and revenue.....	62
Measuring the Income Elasticity of Demand.....	64
Determining the income elasticity of demand: Yet another formula friend	64
Identifying necessities and luxuries	66
Looking at the Cross-Price Elasticity of Demand	67
Determining the cross-price elasticity of demand: Never enough friends or formulas	67
Identifying substitutes and complements	68
Finishing Up with the Advertising Elasticity of Demand	69
Calculating Elasticity with Calculus (If You Must).....	70

Chapter 5: Consumer Behavior: A Market for Anything?73

Satisfying the Consumer	73
Comparing apples and oranges: Utility as a common denominator	73
Adding happiness — at a price	74
Getting less from more: The law of diminishing marginal utility	75
Doing the Best You Can Given Consumer Constraints	76
Maximizing Pleasure through Consumer Choice and Constrained Optimization	77
Identifying indifference	77
Consuming within limits	80
Deciding what makes you happiest	81
Choosing to Use Calculus with Consumer Choice	82
Measuring indifference	82
Constraining factors	82
Lagrangians can make you happy	82
Influencing Consumer Choice	85
Buying one to get one free	85
Selling gift cards	87
Issuing coupons	88

Chapter 6: Production Magic: Pulling a Rabbit Out of the Hat.91

Producing Hats: Identifying the Types of Inputs and Timely Production	92
Being limited in the short run	93
Looking forward to the long run and life without limits	93
Defining the Production Function: What Goes in Must Come Out	93
Starting with Basics by Using Single Input Production Functions	94
Distinguishing between average product and marginal product	95
Diminishing returns	97
Making Production More Realistic with Multiple Input Production Functions	97
Examining production isoquants: All input combinations are equal	98
Defining isocost curves: All input combinations cost the same	100
Making the most with the least: Cost minimization	102
Minimizing Cost with Calculus (If You Want)	104
Recognizing That More Isn't Always Better with Long-Run Returns to Scale	106
Determining Output Elasticity	107

**Chapter 7: Innovation and Technological Change:
The Future Is Now109**

Changing Everything: What Happened to the Good Old Days?	110
Defining Technological Change	110
Working hard: Measuring labor productivity	111
Working harder: Calculating total factor productivity	112



Spending on Research and Development.....	113
Developing parallel efforts: Where two is less than one	114
Time is money	116
Evaluating projects	118
Spreading Diffusion	118
Getting better with the learning-by-doing concept	118
Watching developments by modeling diffusion	119
Chapter 8: Production Costs: Where Less Is More.	121
Determining the Cost of Everything: Opportunity Costs	122
Purchasing Inputs.....	122
Recognizing Different Short-Run Production Costs	123
Total cost	123
Fixed costs	124
Variable costs.....	124
Marginal cost.....	125
It Is What It Is: Ignoring Sunk Costs.....	126
Determining Average Costs.....	126
Average total cost.....	126
Average fixed cost.....	127
Average variable cost.....	127
Deriving Cost Concepts with Calculus (Ignore if You Want)	128
Linking short-run cost functions to production isoquants	128
Hoping for less by minimizing per-unit costs.....	130
Identifying Long-Run Production Costs.....	132
Putting costs in the envelope curve.....	132
Going as far as you can with economies of scale	133
Avoiding diseconomies of scale: An output level too far	134
Identifying the minimum efficient scale.....	134
Recognizing that Two Can Be Less Than One with Economies of Scope.....	135

Part III: Recognizing Rivals: Market Structures and the Decision-Making Environment 137

Chapter 9: Limited Decision-Making in Perfect Competition 139

Identifying the Characteristics of Perfect Competition.....	140
Making an Offer the Firm Can't Refuse: Market Price.....	141
Competing with Advertising.....	141
Sprinting to Maximum Short-Run Profit	142
Determining price is out of your control.....	142
Maximizing profit with total revenue and total cost	143
Maximizing total profit with calculus.....	144
Maximizing profit as a marginal decision	145
Using calculus to find marginal revenue equals marginal cost ...	147

Calculating economic profit	149
Making the best of a bad situation by minimizing losses	150
Giving up and shutting down	153
Disappearing Profit in the Long Run	155
Motivating entry and exit: Where did all your profit go?	156
Determining the long-run equilibrium	156
Chapter 10: Monopoly: Decision-Making Without Rivals	161
Standing Alone: Identifying the Sources of Monopoly Power	162
Unable to Charge as Much as You Want: Relating Demand, Price, and Revenue	163
Engaging in Advertising and Non-Price Competition	165
Maximizing Short-Run Profit	165
Maximizing profit with total revenue and total cost	166
Deriving maximum profit with derivatives	167
Maximizing profit with a marginally better method	169
Maximizing profit with calculus	171
Calculating economic profit and the profit-per-unit fallacy	172
Minimizing losses to make the best of a bad situation	174
Shutting down	175
Anticipating the Long Run	175
Keeping others out with barriers to entry	175
Enjoying the long run	176
Producing with Multiple Facilities	177
Getting each facility's best	177
Calculating the best allocation with calculus	178
Chapter 11: Oligopoly: I Need You.	181
Managing with a Few Rivals in Oligopoly	182
Identifying oligopolies	182
Living with mutual interdependence	182
Engaging in advertising and non-price competition	183
Modeling Oligopoly Behavior	183
Sticking with sticky prices	183
Reacting to rivals in the Cournot model	186
Leading your rivals with the Stackelberg model	189
Competing for customers through the Bertrand model	192
Leading the pack: Another view of price leadership	194
Working together by using cartels and collusion	198
Profiting from the Long Run	202
Chapter 12: Game Theory: Fun Only if You Win	203
Winning Is Everything	204
Structuring the Game	204
Making rules for the game	204
Actions	205
Determining the payoff	205
Identifying whose turn it is in decision-making	205

Making Decisions	206
Simultaneous-move, one-shot games	206
Sequential-move, one-shot games	212
Infinitely repeated games	214
Playing Well	217
Preempting rivals	217
Working together through collusion	219
Testing commitment	220

Chapter 13: Monopolistic Competition: Competitors, Competitors Everywhere. 223

Competing with Rivals All Around You in Monopolistic Competition	224
Characterizing Monopolistic Competition	224
Setting Price with Many Rivals	225
Recognizing the importance of product differentiation	225
Making use of advertising and product differentiation	226
Maximizing short-run profit	226
Relying on calculus in monopolistic competition	228
Adjusting to the Long-Run Tendency of Profit Elimination	230
Determining the Ideal Amount of Advertising	231

Chapter 14: Increasing Revenue with Advanced Pricing Strategies 235

Simplifying Price Determination by Using the Price Elasticity of Demand	236
Pricing Based upon Cost: Cost-Plus Pricing and Breakeven Analysis	237
Cost-plus pricing	237
Breakeven analysis	239
Discriminating among Customers	240
Recognizing the conditions necessary for price discrimination	241
Assessing price discrimination's impact	241
Identifying Who Wants to Pay More: Types of Price Discrimination	241
Wishing for first-degree price discrimination	242
Using second-degree price discrimination	243
Applying third-degree price discrimination	245
Determining third-degree price discrimination with calculus (if you're interested)	246
Pricing coupons	249
Making a Bundle through Bundling	251
Using pure bundling	251
Allowing mixed bundling	255
So You Want War: Pricing for Business Battles	257
Penetration pricing: Here I come	257
Limit pricing: Keep out	258
Predatory pricing: Get out	259

***Part IV: Anticipating Surprises: Risk and Uncertainty* 261**

Chapter 15: Risk Analysis: Walking Through the Fog 263

Differentiating between Risk and Uncertainty	264
Determining the Odds with Probability	264
Considering Factors In and Out of Your Control	265
Simplifying Decision-Making Criteria	266
Determining the biggest guaranteed win with the maxi-min rule	266
Making the best worst-case by using the mini-max regret rule	267
Calculating the expected value	269
Changing the Odds by Using New Information to Revise Probabilities	271
Starting with prior probabilities	271
Incorporating likelihoods	272
Determining marginal probabilities	272
Revising probabilities	272
Recalculating expected values	273
Taking Chances with Risk Preferences	278
Constructing a utility function	278
Risking attitude	279
Using the expected utility criterion	280
Using Auctions	282
Bidding last wins: The English auction	282
Bidding first wins: The Dutch auction	283
Sealing the deal: The sealed-bid auction	284

Chapter 16: Using Capital Budgeting to Prepare for the Future. . . . 285

Investing in Capital	285
Selecting among Alternative Investments	286
Estimating Cash Flows in an Uncertain Environment	288
Budgeting for Capital	289
Determining the Cost of Capital	289
Using internal funds: I'll pay for it myself	289
Relying on external funds: Help!	291
Calculating the composite cost of capital	291
Avoiding pitfalls in capital budgeting	293
Evaluating Investment Proposals	293
Determining today's net present value	293
Indexing profitability	295
Calculating the internal rate of return	296

Chapter 17: Principal-Agent Issues and Adverse Selection: Can Everyone Agree?	299
Principal-Agent Problem #1: When Managers and Owners Disagree	300
Behaving badly with a flat salary	301
Behaving better with profit sharing	303
Behaving better with stock options	304
Keeping managers in line	305
Principal-Agent Problem #2: When Managers and Workers Disagree	306
Determining worker compensation	306
Keeping workers in line	307
Recognizing Asymmetric Information and The Market for Lemons	307
Increasing Insurance Costs with Adverse Selection	309
Dealing with Adverse Selection	310
Appraising asymmetric information	311
Signaling with warranties	311
Controlling through screening	312
Working with Moral Hazard	312
 Chapter 18: Rules, Rules Everywhere: Government and Managerial Decision-Making	 315
Examining the Nature of Regulation	316
Working through Market Failures	317
Identifying Externalities	317
Producing too much with negative externalities: Pollution	318
Producing too little with positive externalities: Honey	319
Providing Public Goods: Free Riders	321
Regulating Monopoly	321
Losing through deadweight loss	322
Regulating for efficiency	323
Regulating for a fair return	324
Restricting Interaction with Antitrust	324
Prohibiting collusion	325
Preventing mergers	326
Regulating Information Asymmetry: I Know Something You Don't Know	327
Determining Who's in Business by Licensing Providers	328
Understanding Government's Role in International Trade	328
Charging tariffs	328
Restricting through quotas	330
Getting Ahead through Rent Seeking	332

Part V: The Part of Tens 333**Chapter 19: Ten Critical Concepts. 335**

Opportunity Cost	335
Supply and Demand	336
The Price Elasticity of Demand	337
Utility Maximization	338
Marginal Revenue Equals Marginal Cost	338
Mutual Interdependence	339
Risk	339
Externalities and Rent-Seeking	340
Present Value	341
Calculus	341

Chapter 20: Ten Managerial Mistakes and How to Avoid Them. . . 343

Minimizing Cost per Unit	343
Maximizing Profit per Unit	344
Using Cost-Plus Pricing	345
Pricing to Break Even	346
Underestimating Rivals	346
Falling into a Prisoner's Dilemma	347
Ignoring the Future	347
Being Insensitive to Risk	348
Forgetting Regulations	348
Disregarding Principal-Agent Issues	349
Ignoring This Book	350

Index 351