

Setting Rents: The Researcher's Perspective

Multi-Part Pricing Systems and Revenue Management

Presented by

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Presentation Outline

- Introduction
- Consumer Behavior and Pricing: Literature, Theory and Strategy
- Significant Variables
- Methodologies
- Software Applications
- Benefits
- Constraints and Limitations
- How are Rents Really Determined
- Role of Real Estate Economist/Analyst
- Conclusions



Introduction

**“ Pricing cannot be viewed in isolation,
but rather must be viewed in the
context of a much larger framework.”**

Multi-Part Pricing Systems and Revenue Management Mechanisms

Introduction

Interdisciplinary/Cross-Sectional Approach to Real Estate Market Analysis:

- **Biological and Physiological Systems**
- **Psychological and Sociological Systems**
- **Philosophical, Legal and Political Systems**
- **Economic Systems and Financial Systems**



Consumer Behavior and Pricing Theory

Multi-Part Pricing Systems and Revenue Management Mechanisms

Literature Review: Consumer Behavior/Microeconomics

- Kardes, Frank R., Consumer Behavior and Managerial Decision Making, Prentice Hall, New Jersey, 2002.
- Nagle, Thomas T., The Strategy and Tactics of Pricing, Prentice-Hall, Englewood Cliffs, 1987.
- Peter, Paul J., Consumer Behavior and Marketing Strategy, Irwin, Chicago, 1996.
- Nicholson, Walter, Intermediate Macroeconomics and Its Applications, Dryden, New York, 1987.
- Pappas, James L., Managerial Economics, Dryden, New York, 1987.
- Alchian, Armen A., Exchange & Production: Competition, Coordination and Control, Wadsworth Publishing, 1983.

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Literature Review: Pricing Theory

- Bain, Joe S., Price Theory, Henry Hold and Co., New York, 1952.
- Allen, Clark Lee, Elementary Mathematics of Price Theory, Wadsworth Publishing, California, 1962.
- Dooley, Peter C., Elementary Price Theory, Appleton-Century-Crofts, New York, 1967.
- Nagle, Thomas T., The Strategy and Tactics of Pricing, Prentice-Hall, Englewood Cliffs, 1987.
- Dorward, Neil, The Pricing Decision: Economic Theory and Business Practice, Harper & Row, London, 1987.
- Montgomery, Stephen L., Profitable Pricing Strategies, McGraw-Hill, New York, 1988.
- Devinney, Timothy M., Issues in Pricing: Theory and Research, Lexington Books, Massachusetts, 1988.
- Monroe, Kent B., Pricing: Making Profitable Decisions, McGraw-Hill, New York, 1990.
- Morris, Michael H., Market-Oriented Pricing, Quorum Books, New York, 1990.
- Dolan, Robert, Pricing Power, The Free Press, New York, 1996.

Multi-Part Pricing Systems and Revenue Management Mechanisms

Consumer Behavior Theory

- **Consumer Attention, Comprehension, Memory and Judgment**
 - *Attention Intensity, Stimuli, Cognitive Capacity, Novelty, Spatial Proximity, Attitudes, Beliefs, Preferences, Environment*
- **Consumer Choice: Attraction, Trade-Off Contrast, and Compromise Affect**
 - *Stimulus and Memory (Mixed), Attitude and Attribute, Comprehension*
- **Persuasion and Influence: Message-Learning, Cognition, Reference Points**
 - *Rational and Emotional Appeals, Relative and Attributional Judgments*
- **Market Segmentation, Brand Equity, and Product Management**
 - *Geographic, Demographic, Psychographic, Behavioral, Personal/Situation*

Multi-Part Pricing Systems and Revenue Management Mechanisms

Pricing Theory

- **Products are Bundles of Attributes and Benefits (Value Satisfiers)**
- **Prices are determined by Budget, Time, Cognition, Behavior-Effort, and Value**
- **Consumers are utility maximizing under budget constraints (ability to pay)**
- **Information and search-opportunity costs are high (asymmetric)**
- **Housing services are “normal goods” (commodity) in a pure-highly “competitive market” (substitution)**
- **Market clearing prices are determined by supply and demand**
- **Demand can be influenced by rising/lowering price (elasticity)**
- **Rents may have monopolistic characteristics based on proximity and product life-cycle attributes**

“Pricing is an important expression of your strategic and marketing plan, and communicating your philosophy to the target market.”

Multi-Part Pricing Systems and Revenue Management Mechanisms

Pricing Strategy

- **Analyze Consumer-Product Relations, Determine Needs**
- **Analyze the Environment, Competition, and Market Segmentation-Position**
- **Determine the Role of Price in Marketing Strategy**
- **Estimate Relevant Production and Marketing Costs**
- **Set Pricing Objectives by Product Type**
- **Developing and Communicating Pricing Strategy**
- **Set Price, Monitor Results, Make Changes**
- **Types: *Floor, Penetration, Parity, Premium, Price Leadership, Predatory, Value-Based, Skim, Slide-Down, Elasticity, Following, Segment, Cost-Plus, Flexible, Preemptive, Phase-out, Loss Leader, Adaptive, Cooperative, Opportunistic, etc.***



Significant Variables

Multi-Part Pricing Systems and Revenue Management Mechanisms

Cross-Sectional Approach to Multi Part Pricing Variables:

- **National Macro Economic Variables (Systematic)**
- **Regional/Urban Metro Area Economic and Apartment Market Variables (Systematic)**
- **Submarket/Neighborhood/Employment/Demographic/Competitive Market Variables (Unsystematic)**
- **Property/Unit Quality, Pricing, Demand Variables – Market Segmentation (Unsystematic)**

Multi-Part Pricing Systems and Revenue Management Mechanisms

Macro Economic Variables (Systematic):

- Bond Yields, Inflation Rates, and Mortgage Interest Rates
- Consumer-Business Sentiment and Factory Orders
- Gross Domestic Product, Employment and Income Growth
- Stock Prices, Business Investment, Credit Conditions (Spreads)
- Home Prices-Sales, Housing Affordability, Home Ownership Rates and Permit-Construction Volumes

Multi-Part Pricing Systems and Revenue Management Mechanisms

Regional/Urban Metro Area Economic Variables (Systematic):

- Economic Base Diversification (Industrial Concentration)
- Major Employers Exposure
(Expansion/Relocation/Hiring/Layoffs)
- Overall Market Vacancy Rates, Effective Rent Growth, and Concessions (Supply-Constrained/Unconstrained)
- Level of Multifamily/Single-Family Construction, Home Prices Appreciation, and Affordability (Substitution Affect)

Multi-Part Pricing Systems and Revenue Management Mechanisms

Submarket, Neighborhood, Employment, Demographic, and Competitive Market Variables (Unsystematic):

- Vacancy Rates and Effective Rent Growth (Concessions)
- Industry and Major Employer Exposure (Clustering)
- New Multifamily and Single-Family Housing Supply (Competition)
- Home Prices and Housing Affordability
- Renter Occupied Housing, Renter Cohorts, and Income Levels
- Proximity to Amenities, Schools, and Employment

Multi-Part Pricing Systems and Revenue Management Mechanisms

Property/Unit Quality, Pricing, Demand Variables – Market Segmentation (Unsystematic):

- Property Location: Amenities, Jobs, Shopping, Schools, etc.
- Product Quality, Age, Size, Unit Mix, Signage
- Direct Competition (2-to-4 miles): Availability, Base Rents, Unit Types, Curb Appeal, and Concessions
- Unit Time on Market, Traffic, and Turnover
- Location in Community: Proximity to Club House, Pool, Parking, Street Access, Security, etc.
- Unit Amenities: Configuration, Balcony, View, Fireplace, Storage, Appliances, etc.



Methodologies

Multi-Part Pricing Systems and Revenue Management Mechanisms

Methodologies, Model Building and Data Analysis

- **Correlation/Covariance/Cross Tabulation Analysis**
- **Time-Series/Cross-Sectional/Step-Wise/Logistic Regression Analysis**
- **Principle Components/Cluster/Factor/Discriminant Analysis**
- **Path Analysis/Conjoint/Multidimensional Scaling/Probit**
- **Multivariate Analysis: ANOVA/ANCOVA/MANOVA/MANCOVA**
- **Multivariate-Constrained Optimization/Input-Output/Linear Programming/Simulation**
- **Hedonic Pricing Models/Options Pricing Theory/NPV**



Software Applications

Multi-Part Pricing Systems and Revenue Management Mechanisms

Software Applications

Revenue Maintenance/Management Software

- **Manugistics - *NetWORKS Lease/Rent Optimizer (LOR)***
- **Real Page (*OneSite Leasing & Rents* - Certain yield management capabilities)**

Property Management-Accounting Software

- **Yardi (No yield management capabilities yet)**
- **AMSI (No yield management capabilities)**

Multi-Part Pricing Systems and Revenue Management Mechanisms

Software Applications

Statistical Software Applications

- **SAS, SPSS, MiniTab, Stata, Statistica, etc.**

Methodologies, Model Building and Data Analysis

- **Data Mining (Extraction), Essbase (Cubes), etc.**

Other Software Applications

- **Customer Relationship Management (CRM)**
- **Geographic Information Systems (GIS)**

Multi-Part Pricing Systems and Revenue Management Mechanisms

Software Applications

Revenue Maintenance/Management Software

- **Manugistics - *NetWORKS Lease/Rent Optimizer (LOR)***
 - **Archstone Communities Implementation – *First Mover***
 - Forecast/Analyze Market Demand for Different Units Types
 - Calculates economic value of each unit category in marketplace
 - Set Leasing Terms based on Consumer Demand (Preferences)
 - Derive optimal balance between rent yield and occupancy costs
 - Enhance Overall Revenue Contribution from New/Renewing Leases
 - ***Utilizes Optimization Algorithms to Max Revenue/Min Occupancy***
 - Real Time statistics-historical observations to forecast Supply/Demand
 - Market Conditions and Competitive Behavior
 - Base Rents and Concessions

Multi-Part Pricing Systems and Revenue Management Mechanisms

Software Applications

Revenue Maintenance/Management Software

- **Real Page (*OneSite Leasing & Rents* - Certain yield management capabilities)**
 - Competitive Pricing Analysis
 - Lease Term Renewal Optimization
 - Dynamic Price Triggers (MP/F Research Data)
 - Sophisticated waitlist management program



Benefits

Multi-Part Pricing Systems and Revenue Management Mechanisms

Benefits of Revenue Management-Enhancement Systems

- **Forward looking**
- **Unbiased/Quantitative**
- **Simulation/Scenario/Sensitivity (“What if”) Analysis**
- **Automation**
- **Disciplined pricing mechanism**



Constraints and Limitations

Multi-Part Pricing Systems and Revenue Management Mechanisms

Constraints and Limitations

- **Legal Constraints (Fair Housing)**
- **Budget Constraints (Expensive)**
- **Legacy Systems, Upgrades, and Integration**
- **Hardware Systems: Data Storage and Processing**
- **Software Systems: Licensing and Upgrades**
- **Skilled Labor Force (Development/Maintenance)**

- **Management and Personnel Acceptance - Learning Curve**
- **Actionable, Useful, Credible Outputs**

- **Return on Investment (IRR)**
- **Break-Even/Payback Period**



How are Rents Really Determined

Multi-Part Pricing Systems and Revenue Management Mechanisms

Internal Revenue Management-Enhancement Systems

- **Weekly (New)/Monthly (Existing) Meeting**
- **Portfolio, Divisional, Regional, and Property Managers**
- **Rent Roles, Variance Reports, Competitive Market Surveys and Interviews, Leasing Reports, Traffic Reports, etc.**
- **Determine availability-demand by floor plan/unit type**
- **Set Rents to maximize occupancy and revenue**
- **Maintain Resident Credit/Property Profile**



Role of Real Estate Economist/Analyst

Multi-Part Pricing Systems and Revenue Management Mechanisms

Role of Real Estate and Financial Economists: - *Provide*

- **Strategic and Program Planning**
 - Communication and Presentation of Results
- **Education and Training**
 - Microeconomics: Consumer Behavior, Pricing Theory, Market Analysis
- **Fundamental and Technical Analysis and Forecasting**
 - Economic/Demographic
 - Real Estate Market
 - Marketing Research
- **Systems Development and Project Management**
 - Project Management
 - Variable Identification, Benchmarks and Statistical Modeling
 - Report production, and Data Analysis



Conclusions

Multi-Part Pricing Systems and Revenue Management Mechanisms

Conclusions

- Organizations and operations are moving away from **Real Estate Focused to Customer Focused**
- Rents are determined by
 - Perceived Economic Value
 - Macro/Micro Economic-Demographic Variables
 - Optimizing Trade-Off between Revenue/Occupancy
- Black-Box Approaches are only Inputs into broader operating processes and procedures
- Expended demands/opportunities for Real Estate Economists: Micro Economic, Statistical Modeling, and Marketing Research