

Topics in Pricing Models

ENMG 698F

Professor: Georges Zaccour

1. Course Description and objectives

The course covers a series of pricing models that are useful in practice. It starts by a general introduction to the main concepts underlying pricing decisions in different market structures. Next, it exposes the students to a variety of pricing situations, with the aim of deriving in each case suitable pricing strategies.

The students will learn about

- The economics, marketing and perceptual drivers of pricing;
- Pricing strategically in (imperfectly) competitive markets, while anticipating other firms' responses;
- Assessing the impact of price on demand (and other variables, e.g., perception and buying intention), using easy-to-implement statistical models;
- Understanding multi-attribute models and conjoint analysis and their use in measuring consumer's perception of price;
- Adapting prices to diffusion effects (e.g., social, imitation and word-of-mouth effects);
- Pricing perishable products and services.

By the end of the course, students will acquire modeling skills and possess tools to integrate the 3Cs of pricing (Customers, Competitors, and Costs) into best practices.

2. Pedagogical Approach

The course combines lectures and discussion of articles.

3. Grading

Presentation of an article:	10%
Two individual assignments:	25%
One team assignment:	25%
Final exam:	40%

4. Course Sessions

Sessions 1-3: Introduction to Pricing Decisions

Topics:	Main determinants of pricing; Economics, accounting and marketing of pricing; Price discrimination; Generic pricing strategies; Pricing in the presence of strategic consumers; Useful tools for optimal and competitive pricing.
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Readings:

Lilien, G., P. Kotler and K.S. Moorthy (1992). Marketing Models. Prentice Hall, Chap. 4, 169-217.

Skouras T., G.J. Avlonitis and K.A. Indounas (2005). Economics and marketing on pricing: how and why do they differ?, *The journal of product and brand management*. 14, 6, 362–374.

Baker R.J (2009). Pricing on purpose: How to implement value pricing in your firm. *Journal of Accountancy*; 207, 6, 62–68.

A. Farshbaf-Geranmayeh, G. Zaccour. (2019). Pricing and Advertising in a Supply Chain in Presence of Strategic Consumers, under review.

Sessions 4: Sales Promotion Models

Topics:	Rationale of price promotion; Short- and long-term effects of price promotion; Descriptive vs. prescriptive models; Retailer's promotion models; Trade promotion models; Coupon models.
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Readings:

Blattberg, R.C., S.A., Neslin (1993). Sales Promotion Models, in *Handbooks in Operations Research and Management Science*, Volume 5, Marketing, edited by J. Eliashberg and G.L. Lilien, Chap. 12, 553-610.

Additional Readings:

Ailawadi, I K. L., K. Gedenk, C. Lutzky, and S A. Neslin (2007). Decomposition of the sales impact of promotion-induced stockpiling. *Journal of Marketing Research*, 44, 3, 450–467.

Guadagni, P.M. and J.D.C. Little (1983). A logit model of brand choice calibrated on scanner data. *Marketing Science*, 2, 203-238.

Kopalle, P.K, C.F. Mela and L. Marsh (1999). The dynamic effect of discounting on sales: Empirical analysis and normative pricing implications. *Marketing Science*, 18, 3, 317–332.

Martín-Herrán, G., S.P. Sigué and G. Zaccour (2010). The dilemma of pull and push promotion. *Journal of Retailing*, 86, 1, 51-68.

Neslin, S.A. (1990). A market response model for coupon promotions. *Marketing Science*, 9, 2, 125-145.

Session 5: Pricing with conjoint analysis

Topics: Brief introduction to multi-attribute models;
Introduction to conjoint analysis;
Map of applications of conjoint analysis in pricing;
Measuring reservation price;
Multipart tariffs.

Readings:

Matanovich, T., G.L. Lilien and A. Rangaswamy (1999). Engineering the price-value relationship. *Marketing Management*, 8, 1, 48–53.

Orme, B.K. (2006). Getting started with conjoint analysis: Strategies for product design and pricing research. Research Publishers.

Additional Readings:

Iyengar, R., K. Jedidi and R. Kohli (2008). A conjoint approach to multipart pricing. *Journal of Marketing Research*, 45, 2, 195–210.

Jain, D.C., E. Muller and N.J. Vilcassim (1999). Pricing patterns of cellular phones and phonecalls: A segment level analysis. *Management Science*, 45, 2, 131–141.

Jedidi, K., S. Jagpal and P. Manchanda (2003). Measuring heterogeneous reservation prices for product bundles. *Marketing Science*, 22, 1, 107–130.

Sessions 6-7: Pricing in Supply Chains (Marketing Channels)

Topics: Double marginalization;
Bilateral monopoly and competitive marketing channels;
Dual marketing channels (online vs. offline);
Price contracts (single-part tariff, two-part tariff, quantity discount, slotting allowances);
Review of coordination mechanisms in marketing channels;
Pricing in franchising systems.

Readings:

Choi, S.C. (1991). Price competition in a channel structure with a common retailer. *Marketing Science*, 10, 4, 271-296.

Jeuland, A. and S. Shugan (1983). Managing Channel Profits," *Marketing Science*, 2 (summer), 239-272.

Jiang, B., L., Tian L, Y., Xu, et al. (2016). To share or not to share: demand forecast sharing in a distribution channel. *Marketing Science*, 35(5): 800-809.

McGuire, T. and R. Staelin (1983). An industry equilibrium analysis of downstream vertical integration. *Marketing Science*, 2, 161-192

Moorthy, K. (1988). Strategic decentralization in channels. *Marketing Science*, 7, 4, 335-355.

Additional Readings:

Ingene, C., S. Taboubi and G. Zaccour (2012). Game-Theoretic Coordination Mechanisms in Distribution Channels: Integration and Extensions for Models without Competition. *Journal of Retailing*, 88, 4, 476-496.

Ingene, C. and M. Parry (1995). Coordination and manufacturer profit maximization: The multiple retailer channel. *Journal of Retailing*, 71, 2, 129-151.

Jørgensen, S., S.P. Sigué and G. Zaccour (2001). Stackelberg leadership in a marketing channel. *International Game Theory Review*, 3, 1-14.

Dantas, D., S. Taboubi and G. Zaccour (2014). Which business model for e-book pricing? *Economics Letters*, 125, 126-129.

Session 8: Students' Presentations

Sessions 9-10: Pricing in Presence of Social and Imitation Effects

Topics: Demand learning (imitation and saturation effects);
 Cost dynamics;
 Social network effects;
 Forecasting models;
 Optimal control models;
 Competitive models.

Readings:

Bass, F.M. (1969). A new product growth model for consumer durables. *Management Science* 15, 5, 215–227.

Crapis, D., B., Ifrach, C., Maglaras, et al. (2016) Monopoly pricing in the presence of social learning, *Management Science*, 63(11): 3586-3608.

Jing B. (2011b). Social learning and dynamic pricing of durable goods. *Marketing Science*, 30, 5, 851-865.

Jørgensen, S., G. Zaccour (2004). *Differential Games in Marketing*, International Series in Quantitative Marketing, Kluwer Academic Publishers, 65-100.

Additional Readings:

Eliashberg, J. and A.P. Jeuland (1986). The impact of Competitive entry in a developing market upon dynamic pricing strategies. *Marketing Science*, 5, 1, 20–36.

Papanastasiou, Y., N., Savva (2016). Dynamic pricing in the presence of social learning and strategic consumers. *Management Science*, 63, 4, 919-939.

Jørgensen, S., P.M. Kort and G. Zaccour (1999). Production, inventory, and pricing under cost and demand learning effects. *European Journal of Operational Research*; 117, 382–395.

Jansens, G. and G. Zaccour (2014). Strategic price subsidies for new technologies. *Automatica*, 50, 1999-2006.

Sessions 11: Structural Models of Pricing

Topics: Why structural models;
Survey of structural pricing (issues, models and main findings);
Specifying a structural pricing model;
Estimating and testing a pricing structural model;
Policy analysis.

Reading:

Chintagunta, P., T. Erdem, P. E. Rossi and M. Wedel (2006). Structural modeling in marketing: Review and assessment. *Marketing Science*, 25, 6, 604–616.

Additional Readings:

Draganska, M. and D.C. Jain (2006). Consumer preferences and product-line pricing strategies: An empirical analysis. *Marketing Science*, 25, 2, 164–174.

Lambrecht, A., K. Seim and B. Skiera (2007). Does uncertainty matter? Consumer behavior under three-part tariffs. *Marketing Science*, 26, 5, 698–710.

Thomadsen, R. (2007). Product positioning and competition: The role of location in the fast food industry. *Marketing Science*, 26, 6, 792 –806.

Sudhir, K., P. K. Chintagunta and V. Kadiyali (2005). Time-varying competition, *Marketing Science*. 24, 1, 96–109.

Session 12: Students' Presentations

Sessions 13-14: Pricing Perishable Products and Services

Topics: Main issues involved in pricing of perishable products;
Characteristics of services;
Newsvendor problem and extensions;
Advance selling;
Revenue management.

Readings:

Bitran G. and R. Caldentey (2003). An overview of pricing models for revenue management. *Manufacturing and Service Operations Management*; 5, 3; 203–229.

Elmaghraby W. and P. Keskinocak (2003). Dynamic pricing in the presence of inventory considerations: Research overview, current practices, and future directions. *Management Science*; 49, 10; 1287–1309.

Maddah, B., L., Moussawi-Haidar, M., El-Taha, H., Rida (2010). Dynamic cruise ship revenue management, *European Journal of Operational Research*, 207, 1, 445-455

Jørgensen, S., G. Zaccour. (2019). Optimal Pricing and Advertising Policies for a One-Time Entertainment Event. *Journal of Economic Dynamics and Control*, 100, 395–416.