Tuesday, August 30, 14:00, Room H1058

Pricing in Europe: Which Factors Influence Country-specific Price Differences?

Ulrich Lutz, Universität Karlsruhe (TH)

Pricing is one of the areas in managerial decision making which are most strongly affected by European Economic Integration. By using primary data from firms in different European countries, strategic dimensions of pricing have been uncovered which are relevant against the background of European Integration.

Often, country specific price differences must be reduced. Therefore, it is becoming essential for firms to analyse the factors which determine their local prices. A comprehensive empirical analysis of reasons for international price differences has not yet been published.

Here, empirical data reveal main factors which influence prices in Western European countries. Relationships between those factors and the degree, to which firms perceive price differentiation, are investigated, in order to show why price differences are observable in Europe today. Results are discussed with respect to presumable developments within the European market and the extent to which those factors can be influenced by the firms themselves.

Tuesday, August 30, 14:30, Room H1058

A Unifying Approach for Benefit Segmentation and Profit Orientated Product Line Design Based on Reservation Price Conjoint Data

Eberhard Aust, Universität Karlsruhe
W. Gaul, Universität Karlsruhe

Traditional conjoint analysis based approaches with respect to product line design entail up to 5 sequentially concatenated steps - part worths estimation, benefit segmentation, new product candidate generation, product line configuration and continuous pricing. Within most steps one can obtain only approximate solutions for realistically sized problems. Thus, one may be faced with a severe cumulation of error. A unifying approach (UNILIN) is presented that allows for a simultaneous solution of all 5 subproblems by estimating the parameters of a constrained latent class model via a modified EM-algorithm. The novel approach extends previous work of Aust, Gaul (1994) by replacing welfare and market share objectives by profit objectives. The basic idea is to form benefit segments that allow to sell to each segment - if existent - the product with maximum positive difference between reservation price and cost at its reservation price. One has to ensure that none of the status quo market products and the new products to be introduced at their current prices or optimal prospective prices has a higher consumer surplus. The scope of the approach is illustrated with a bundle pricing application.

References:

Aust, E., Gaul, W. (1994): A Unifying Approach for Benefit Segmentation and Product Line Design Based on Rankorder Conjoint Data, Diskussionspapier 179, Institut für Entscheidungstheorie und Unternehmensforschung, Universität Karlsruhe

Tuesday, August 30, 15:00, Room H1058

Adaptive Clustering in the Statistical Computing Environment XploRe

Hans-Joachim Mucha, Institut für Angewandte Analysis und Stochastik

Cluster analysis attempts to detect structures in the data. Some of the most important and widely applicable clustering techniques are partitioning methods and hierarchical clustering algorithms, respectively. Well-known methods from these both families are available simply by commands in the interactive statistical computing environment *XploRe*. Moreover, new adaptive clustering methods (which are often much more stable against random selection or small random disturbance of the data) can be carried out by macros. Additionally, the importance of each variable regarding clustering can be evaluated by taking into account their adaptive weight. The adaptive techniques are based on adaptive distances which should also be used in order to obtain multivariate plots. Applications to empirical data are presented. Their practical attractions and limitations are discussed.

Tuesday, August 30, 15:30, Room H1058

Referenzpreismodelle mit latenten Variablen

Martin Natter, Wirtschaftsuniversität Wien
Harald Hruschka, Universität Regensburg

Verzichtet man bei Neuralen Netzwerken von vornherein darauf Interaktionen zwischen allen Variablen zu ermöglichen und läßt theoretisches Wissen in die Netzwerkstruktur einfließen, dann können die sogenannten Hidden Units Neuraler Netze als latente Variablen betrachtet werden und sind daher einer Interpretation zugänglich (Hruschka und Natter 1993). In dieser Funktion sind Neurale Netze mit den in der Psychometrie bekannten latenten Variablen Modellen (Arminger 1994) vergleichbar. Neurale Netze werden in dieser Arbeit dazu verwendet, Referenzpreise als solche latente Variable zu formulieren und danach auch zu interpretieren. Aufgrund der Hypothese, daß Preisvorstellungen der Vergangenheit auch die aktuellen Preisvorstellungen beeinflussen, werden Rückkoppelungen dieser Referenzpreise modelliert. Während Referenzpreise, die eine verhaltenstheoretische Erklärung für einen vom absoluten Preis unabhängigen Effekt einer Preisvariation geben, als dynamische latente Variable modelliert werden, wirken die anderen Prädiktoren weiterhin direkt auf die Nachfrage. Der empirische Teil der Arbeit basiert auf einer Scannerdatenbasis. Ergebnisse werden mit linearen, exponentiellen und logistischen Marktreaktionsmodellen ohne Referenzpreise verglichen.

Arminger, G. (1994): Ökonometrische Schätzmethoden für neuronale Netze. In Bol, G., Nakhaeizadeh, G. und Vollmer, K.-H. (1994): Finanzmarktanwendungen Neuronaler Netze und ökonometrischer Verfahren. Physica-Verlag.

Hruschka, H. und Natter, M. (1993): A Posteriori Segmentation in Marketing by Neural Network Models. In: (Proceedings of the Sixth International Symposium on) Applied Stochastic Models and Data Analysis, Volume I, S. 375–387, (Eds.): J.Janssen und C.H. Skiadas, World Scientific Publ. Co.

Wednesday, August 31, 14:00, Room H1058

Classification Using Emotional Responses to Dynamic Stimuli

Daniel Baier, Universität Karlsruhe (TH)
Bruno Neibecker, Universität Karlsruhe (TH)

Various methods have been proposed in marketing research to measure emotional responses to TV-spots, pop-music and other dynamic stimuli. So, e.g., an application of the so-called "program analyzer" (see, e.g., Neibecker (1987) for respective references) can be used to gather individual like/dislike responses to an on-going stimulus presentation.

In traditional commercial and non-commercial research studies the resulting individual scores per time unit are aggregated in order to provide the so-called "reaction profile", whereas newer research studies show that an a priori segmentation of respondents (using pre-specified background characteristics) with segment-specific reaction profiles can lead to better diagnostic information.

We present new cluster-based segmentation approaches, where the individual scores per time unit are regarded as samples of continuous functions at discrete points. Generalized distance measures (see, e.g., DeSoete (1993)) and cluster analysis (see, e.g., Gaul, Baier (1994)) are used for classification of respondents. Applications of the new approaches demonstrate methodological advantages.

References:

DeSoete, G. (1993): "Hierarchical Clustering of Sampled Functions", in: Opitz, O., Lausen, B., Klar, R. (Eds.), Information and Classification, Springer, Berlin Heidelberg New York, 3-16.

Gaul, W., Baier, D. (1994): "Marktforschung & Marketing Management – Computerbasierte Entscheidungsunterstuetzung", 2.Auflage, Oldenbourg, Muenchen.

Neibecker, B. (1987): "The Dynamic Component in Attitudes Towards the Stimulus", in: Wallendorf, M., Anderson, P. (Eds.), Advances in Consumer Research XIV, 482-486.

Keywords: Classification, cluster-based segmentation, marketing research.

Wednesday, August 31, 14:30, Room H1058

Computergestützte Bewertung von Marken

Matthias Sander, Universität Tübingen

Markierte Waren sind inzwischen auf allen Produktmärkten zu finden. Auch auf Dienstleistungsmärkten hat sich die Marke inzwischen etabliert. In jüngster Zeit ist sowohl von der Wissenschaft als auch von der Praxis die Frage verstärkt diskutiert worden, wie der Wert von Marken bestimmt werden kann. Im Vordergrund steht dabei die Marke als Markenzeichen, d. h. als immaterieller Vermögensgegenstand. Informationen über den Wert von Marken sind insbesondere für den Markeninhaber von Bedeutung; sie helfen ihm beispielsweise, im Falle der Bilanzierung einen adäquaten Wert für die Marke in der Bilanz festzulegen, bei der Festlegung einer Schadensersatzforderung im Falle der mißbräuchlichen Nutzung der Marke (Markenpiraterie) oder beim Kauf bzw. Verkauf einer Marke. Ein wesentliches Problem der Markenbewertung besteht darin, daß der Wert der Marke von dem Wert der übrigen Eigenschaften eines Produkts herausgelöst werden muß. Es wird gezeigt, auf welche Weise unter Einsatz der Computertechnologie eine theoretisch fundierte Bewertung von Marken vergenommen werden kann. Anhand eines empirischen Beispiels wird die praktische Umsetzbarkeit der vorgeschlagenen Vorgehensweise demonstriert.

Wednesday, August 31, 15:00, Room H1058

COSTA: A Decision Support System for a Contribution Optimizing Sales Territory Alignment

Bernd Skiera, University of Kiel

The alignment of sales territories is a major problem in sales force management. Its effect on profit contribution might be considerable. The common approach of companies and scientists attempts to establish "equalterritories in terms of potential and/or workload. However, the establishment of equal territories lacks an economic foundation. First, this approach does not establish sales territories which necessarily maximize profit contribution, and second, it gives no information concerning possible profit improvement of an existing sales territory. For this reason the decision support system COSTA (Contribution Optimizing Sales Territory Alignment) was developed. It is based on a computerized interactive mapping-program. COSTA creates an alignment of territories on the base of sales response functions and the resulting profit contribution. COSTA was implemented in a german company and has been used for the determination of the optimal sales territory alignment. The resulting territory alignment differed significantly from the alignment the company was currently using and which was not at all balanced relative to criterias such as workload or potential. The predicted increase in profit contribution after selling expense exceeded 5 %. Furthermore, COSTA was used to analyse the following problems: 1) Determinination of the best location for the base offices of sales persons in territories which have not been assigned to a certain sales person. 2) Analysis of the market coverage the company was currently reaching. 3) Determination of the best locations where future sales persons should be added. 4) Analysis of the effect on profit contribution of a sales force which would be willing to stay more days abroad.

Wednesday, August 31, 15:30, Room H1058

Strategisches Serviceportfolio

Leo Schubert, Fachhochschule Konstanz

Heute ist in vielen Branchen das Bemühen um Kundenzufriedenheit ein zentrales Thema. Angestrebt werden loyale und zufriedene Kunden um langfristig kostengünstig Marktanteile zu sichern. Die vom Kunden erfahrenen Servicequalitäten (Kompetenz, Freundlichkeit, Vertrauen, Schnelligkeit etc.) formen seine Einstellung und sein Verhalten. Gemessen werden dabei verbal geäußerte Zufriedenheit, Cross-selling- Verhalten, Weiterempfehlung, Loyalität etc.. Zur Beschreibung des Einflusses der Qualitätsfacetten auf Einstellung und Verhalten werden in der Praxis primär multiple lineare Regressionsmodelle verwendet. Um unter den Servicequalitäten Motivatoren und Hygiene- faktoren zu identifizieren wird eine nicht zwangsläufig lineare Beziehung angenommen. Die Darstellung und Bestimmung der Motivatoren und Hygienefaktoren wird in einer strategischen Marix vorgenommen.

Wednesday, August 31, 16:30, Room H1058

Mean Value Estimation in Biased Samples

Manfred Schwaiger, Universität Augsburg

Biased samples are a common problem in marketing research and occur frequently in survey-sampling due to nonresponse. Considering the negative economic effects that may result when estimating population parameters from biased data, a procedure that uses additional information to take bias into account appears to be evidently useful. If a sample contains at least one variable whose mean value is known in the whole population (auxiliary variable), a solution of the described problem can be provided. In this paper an extrapolation algorithm is presented that uses the differences between sample means and population means of the auxiliary variables to calculate linear object weights g_i for all sample objects $i = 1, \ldots, n$. The term $\sum_i g_i y_i$ serves then as estimator for μ_y. Setting the sum of all object weights to one provides unbiased expected values for independent, identically distributed random variables $Y^{(k)}$. It is obvious that weighting objects increases the variance of the estimation function compared to classical mean value estimation. On the other hand, taking bias into account raises the precision of point estimators. An optimization problem is presented that handles the trade-off between increase of variance and raised precision. Empirical results will demonstrate the relevance of the algorithm.

Wednesday, August 31, 17:00, Room H1058

Total Approximation Problems

Sven Bartels, Universität Karlsruhe

The standard method for solving overdetermined linear systems $Ax = b$ is the discrete approximation problem $\min_{x \in \mathbb{R}} ||b - Ax||$. By using this approach, one implicitly assumes that all errors are contained in the vector b. I order to account for errors in the matrix A, the total least squares and total approximation problems were introduced by G.H. Golub, C.F. Van Loan and G.A. Watson. In this talk, we discuss two new variants of the problem. The first one is a robust variant of the total approximation problem which is based on Huber's M-estimator. The second one takes into account a given structure in the matrix A (e.g. Toeplitz), thus leading to the structured total approximation problem.

Wednesday, August 31, 17:30, Room H1058

Remarks on Price Calculation under Interdependencies in the Assortment

Hans Pechtl, Universität Passau

The Amoroso-Robinson-formula for optimal prices has to be modified if the price of the product influences the sales of another product in the assortment. Traditionally, the Niehans-formula is considered as a solution for optimal pricing under the situation of such interdependencies. Some reflections using marginal analysis, however, demonstrate that the Niehans-formula confounds relevant aspects in the price response; an extension of this formula thus leads to different results.

To estimate the parameters of the decision rules the functional form of the price responses has to be known. Some theoretical thoughts show that traditional price-response functions offer an invalid model for representing interrelated demand. Therefore, price management is just at the beginning of modeling nad optimizing the impact of price if interdependencies in an assortment exist.

References

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Thursday, September 1, 09:00, Room H1058

Three-Way Decomposition of Elasticities Using Scanner Data

Lutz Hildebrandt, Humboldt Universität zu Berlin
Daniel Klapper, Universität Bielefeld

During the last decade the way to combine psychometric models and econometric models has been investigated by different researchers. E.g., market share models using scanner panel data have become the bases to develop competitive maps to investigate different types of effects between and across instruments and competitors. In this paper a special case of the fully extended market share model, the CCHM-Model (Carpenter, Cooper, Hanssens & Midgley) is applied to scanner panel data. From the direct and cross competitive effects of the marketing variables market share elasticities can be estimated. These coefficients may be interpreted as competitive power or receptivity of a product against its competitors. Using different periods the data provide a three-way data array. This may be decomposed by a three-mode factor analysis to uncover the competitive pattern in a given market. The general model to decompose three-way elasticity matrices is the Tucker3 model. The study compares two methods to estimate the Tucker3 model, TUCKALS3 and PFCORE. The methodological surpluses and short-comings are shown and an estimation of validity is given. In addition a constrained three-mode factor analyses is applied to investigate certain a priori known competitive situations.

Thursday, September 1, 09:30, Room H1058

Marketing Mix Optimization with Different Models of Consumer Behaviour

Reinhold Decker, Universität Karlsruhe (TH)
Matthias Röhle, Universität Hildesheim

The way in which marketing instruments are taken into account in quantitative models of consumer behaviour is of great importance when using those approaches for marketing mix optimizations. Therefore, the underlying objective functions have to be analyzed both with respect to their theoretical tractability and practical applicability.

Actual motivations for research in this field of marketing mix modelling are provided, e.g., by the papers of Gruca/Sudharshan and Gruca/Kumar/Sudharshan published in Journal of Marketing Research (1991) and Marketing Science (1992) respectively. Based on their results concerning two well-known econometric choice models we have extended the investigation to stochastic models of consumer behaviour. The theoretical reflections with regard to the suitability of those models for profit maximizations will be supplemented by an empirical example.

Semi-Plenary Lecture

Thursday, September 1, 11:30, Room H1058

The Role of Operations Research in Market Segmentation and Product Positioning

Paul Green, Wharton School, University of Pennsylvania

This talk first describes the history of operations research in marketing during the decades of the sixties, seventies, and eighties. The speaker then discusses recent methodological developments in tradeoff modeling, product design optimization, and clustering, as applied to brand positioning and buyer segmentation.