Advanced Marketing Modeling

Syllabus SS 2022

Course Dates:

Lectures	Wednesday,	12:15 pm – 13:45 pm,	SPA 1, room 22 and/or digital
Exercises	Thursday,	12:15 pm – 13:45 pm,	SPA 1, room 22 and/or digital

Course Description and Objectives:

Evaluating marketing decisions and developing goal-oriented marketing strategies, e.g. maximizing firm profits, depend on the measurement of causal relationships between firms' objectives and marketing activities. In this course, we discuss in depth advanced methods to empirically determine the causal relationship between marketing activities and firms' objectives. In exercise courses students learn how to apply these methods to real data. Special attention is given to modeling the effects of marketing on sales and market share data. In this course we also focus on discrete choice models for individual purchase data and aggregate sales data. Successful participation in this class will enable students to quantify the impact of marketing on key performance measures and to evaluate the success of marketing activities.

Course Prerequisite:

Successful participation of Applied Econometrics (Master course) or an equivalent course.

Course Web Page:

Course material will be made available in the Moodle system of the Humboldt-University Berlin.

Course Reference Materials:

The empirical analyses are done in R. We use a well written textbook that links the computing software R to marketing which is "R for Marketing Research and Analytics" from Chris Chapman and Elea McDonnell Feit (2019, Springer International Publishing). It is recommended to purchase this book.

The following papers and book chapters must be studied in detail:

Berry, S.T. (1994), Estimating Discrete-Choice Models of Product Differentiation, RAND Journal of Economics, Vol. 25 (2), 242-262.

Berry, S. T., Levinsohn, J. & Pakes, A. (1995), Automobile prices in market equilibrium, Econometrica 63(4), 841-890.

Wooldridge, J.M. (2008), Introductory Econometrics, South-Western Cengage Learning, Chapters 2, 3 and 4, 68-166.

Chintagunta, P., V. Kadiyali and N. Vilcassim (2004), Structural Models of Competition: A Marketing Strategy Perspective, *Assessing Marketing Strategy Performance*, eds. C. Moorman and D. Lehmann, Cambridge: Marketing Science Institute, 95-113.

Conlon, Christopher, and Jeff Gortmaker (2020). Best practices for differentiated products demand estimation with PyBLP. *RAND Journal of Economics, 51* (4), 1108-1161.

Nevo, A. (2000), A Practitioner's Guide to Estimation of Random-Coefficient Logit Models of Demand, in: Journal of Economics & Management Strategy, Vol. 9(4), 513-548.

Train, K.E. (2009), Discrete Choice Methods with Simulation, Cambridge University Press, Chapter 3, 4, 6, 8, 9, 10.

https://onlinecourses.science.psu.edu/stat501/node/2

The following books provide additional background:

1. Anderson, S.P., de Palma A. and Thisse, J.-F. (1992), Discrete Choice Theory of Product Differentiation, The MIT Press.
2. Dubin, J. A. (1998), Studies in Consumer Demand – Econometric Methods Applied to Market Data, Kluwer Academic Publishers Group.
3. Franses, P.H. and Paap, R. (2010), Quantitative Models in Marketing Research, Cambridge University Press.
4. Hanssens, D.M., Parsons, L.J. and Schultz, R.L. (2003), Market Response Models: Econometric and Time Series Analysis, Kluwer Academic Publishers Group.
5. Leeflang, P.S.H, Wieringa, J.E., Bijmolt, T.H.A and Pauwels, K.H. (2015), Modeling Markets – Analyzing Marketing Phenomena and Improving marketing Decision Making, Springer.
6. Train, K.E. (2009), Discrete Choice Methods with Simulation, Cambridge University Press. 1st edition is available here: http://elsa.berkeley.edu/books/train1201.pdf.
7. Verboven, F. (1996), International Price Discrimination in the European Car Market. RAND Journal of Economics, 27(2), 240–268.
8. Wooldridge, J.M. (2008), Introductory Econometrics, South-Western Cengage Learning.

Other Course Materials:

All of the topics I will cover have been addressed in the marketing, statistics, and economics literature, both theoretically and in practice. Articles and book chapters relevant to each lecture are named below in the table which shows the sessions and content overview. It is expected that you will have done all of the readings prior to class. If you have questions, bring them to class and I will go over them.

Course Grading:

You have to register for the course via Agnes until May 13.
Your grade bases on a portfolio exam. You have to submit 3 special work performances (SWP).
SWP 1: non-graded, deadline May 13, 4:00pm
SWP 2: accounts for 50 % of final grade, deadline June 17, 4:00pm
SWP 3: accounts for 50 % of final grade, deadline August 26, 4:00pm
(In case you do not provide or submit an acceptable SWP 1 then you get a grade of 5.0 for SWP 1 and each SWP (1,2,3) counts equally.

All special work performances are posted on Moodle and all special work performances must be passed. Your work on the special work performances must be sent as pdf before the deadline to daniel.klapper@hu-berlin.de. Special work performances must be done in a group of 2 students (BSE students individually). The page constraints of each special work performance are announced in each the special work performance and are binding.

For students of the BSE program:
3 Special Work Performances   50%
Final assignment   50%

Course Software:

The majority of computing in the course will be done with R. This will include in-class demonstrations and a tutorial how to use R.

Course Topics:

We will cover the following general topics in this course:
   (1) Marketing models and marketing data
   (2) Response models for aggregate data
   (3) Marketing Analytics with R
   (4) Regression analysis for analyzing marketing effects on sales
   (5) Discrete choice models of demand
   (6) Discrete choice models for aggregated data
   (7) Discrete choice models for individual choice data

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CW	Date	L/E	Content and Readings
16	Apr 20	L	Course Logistics and Introduction to the Course
16	Apr 21 Pre-recording	E	3. Introduction to R Readings: Chapman & McDonnell Feit (2019), Chapter 2.

17	Apr 27		Dies Academicus
17	Apr 28	E	Discussion about the empirical data set and SWP 1
18	May 04	L	2 Response Models for Aggregated Data

18	May 05 Pre-recording	L	3. Introduction to R
			
			• Fundamentals of Data Analysis
			  o Describing Data
			  o Relationships Between Continuous Variables
			
			Readings:
			Chapman & McDonnell Feit (2019), Chapter 3, 4.

19	May 11		Dies Academicus

19	May 12 Pre-recording	L	3. Introduction to R
			
			• Fundamentals of Data Analysis
			  o Comparing Groups: Tables and Visualizations
			  o Comparing Groups: Statistical Tests
			  o Identifying Drivers of Outcomes: Linear Models
			
			Readings:
			Chapman & McDonnell Feit (2019), Chapter 5, 6, 7.

19	May 13		Registration deadline in Agnes
19	May 13, 4:00pm		Deadline Special Work Performance 1
20	May 18	L	4 Regression Analysis Reviewed
20	May 19	L	4 Regression Analysis Reviewed
21	May 25	L	General Feedback Session on SWP 1
21	May 26	E	No class: Ascension Day
22	Jun 01	L	Exercise on Regression Analysis, Discussion about SWP 2
22	Jun 02	E	Exercise on Regression Analysis, Discussion about SWP 2
23	Jun 08	E	Exercise on Regression Analysis, Discussion about SWP 2
23	Jun 09	E	Exercise on Regression Analysis, Discussion about SWP 2
24	Jun 15	L	5 Discrete Choice Models of Demand 5.1 Methodological Background 5.2 Discrete Choice Models for Aggregated Data
24	Jun 16	L	5 Discrete Choice Models of Demand 5.2 Discrete Choice Models for Aggregated Data
24	Jun 17, 4:00pm		Deadline Special Work Performance 2
25	Jun 22	E	Exercise on Discrete Choice Models for Aggregated Data, Discussion about SWP 3
25	Jun 23	E	Exercise on Discrete Choice Models for Aggregated Data, Discussion about SWP 3
26	Jun 29	L	5 Discrete Choice Models of Demand

			5.3 Discrete Choice Models for Aggregated Data
26	Jun 30	L	5 Discrete Choice Models of Demand 5.3 Discrete Choice Models for Individual Choice Data
27	Jul 06	E	Exercise on Discrete Choice Models for Individual Choice Data, Discussion about SWP 3
27	Jul 07g	E	Exercise on Discrete Choice Models for Individual Choice Data, Discussion about SWP 3
28	Jul 13	L/E	Feedback session on Special Work Performance 2
28	Jul 14	L/E	Feedback session on Special Work Performance 2
29	Jul 20	L/E	Feedback session on Special Work Performance 2
29	Jul 21	L/E	Feedback session on Special Work Performance 2
34	Aug 26		Deadline for SWP 3, 4:00pm

CW = Calendar week

L = Lecture

E = Exercise