

Contents

List of Figures	vii
List of Tables	x
List of Contributors	xiii
Acknowledgments	xiv
Introduction	xv
<i>Richard P. Bagozzi</i>	
1 Measurement in Marketing Research: Basic Principles of Questionnaire Design	1
<i>Richard P. Bagozzi</i>	
2 Qualitative Marketing Research	50
<i>Bobby J. Calder</i>	
3 Sampling	73
<i>Seymour Sudman</i>	
4 Mail and Telephone Surveys in Marketing Research: A Perspective from the Field	116
<i>Daniel C. Lockhart and J. Robert Russo</i>	
5 Regression Analysis for Marketing Decisions	162
<i>Dipak Jain</i>	
6 Experimental Design: Generalization and Theoretical Explanation	195
<i>Brian Sternthal, Alice M. Tybout, Bobby J. Calder</i>	
7 Analysis of Experimental Data	224
<i>Dawn Iacobucci</i>	
8 Classic Factor Analysis	279
<i>Dawn Iacobucci</i>	

vi CONTENTS

9	Structural Equation Models in Marketing Research: Basic Principles	317
	<i>Richard P. Bagozzi</i>	
10	The Evaluation of Structural Equation Models and Hypothesis Testing	386
	<i>Richard P. Bagozzi and Hans Baumgartner</i>	
	Index	423

List of Figures

1.1	The structure of theory	4
1.2	Illustration of the structure of theory applied to the effects of source credibility	7
1.3	Examples of the semantic differential	13
1.4	Examples of ratio scales	16
1.5	A multitrait-multimethod matrix for three traits and three methods	21
1.6	Types of error in research	27
1.7	Some processes respondents go through when answering attitude questionnaire items	34
2.1	Opposing definitional models of qualitative research	68
3.1	Examples of BRR designs for 16 and 20 pairs	98
4.1	Price elasticity for individuals who see product prices displayed in different orders	123
4.2	Relationship of number of call-backs to costs per completed survey and sampling error	134
4.3	Change in responses to dichotomous questions as they relate to number of call-backs and percentage response rate	136
4.4	Return rate by incentive level	141
4.5	Differences between returners and non-returners by physician specialties	143
4.6	Hypothesized combination of Triandis (1977) and Fishbein and Ajzen (1976) models that best predicts mailed questionnaire returning behavior	144
4.7	Alpha distribution (standard pattern of mailed questionnaire returns)	146
4.8	Alpha distribution (with effect of reminders included)	146
5.1	Estimated regression line and the breakdown of the total variation in Y	167
5.2a	No evidence of heteroscedasticity	178

5.2b	(Absolute) magnitude of residual increases as X increases	179
5.3a	Positive autocorrelation	179
5.3b	Negative autocorrelation	180
6.1	The effects of knowledge and price on brand sales/evaluation	200
6.2	The effect of complexity and message repetition on product judgments	207
6.3	Expanded parka study design findings	214
6.4	Dependent measures varying in proximity to the independent variable	216
7.1	F-tests seen intuitively as a comparison of between-group differences to within-group differences ($F3 > F1 > F2$)	230
7.2	Two 2×2 designs: one with an interaction, one without	235
7.3	Simple effects	247
7.4	The power of MANOVA over ANOVA	257
7.5	Plot of "service satisfaction" data	260
8.1	Venn diagram representing variances and covariances of p original measures and single composite	283
8.2	Eigenvectors in $p = 2$ -dimensional scatterplot	285
8.3	Example of principal components	287
8.4	Causality assumed in factor analysis	289
8.5	Relationships among common and unique factors	290
8.6	Structure of underlying factors	292
8.7	Scree tests	295
8.8	Example of $r = 2$ and $r = 3$ common factors	296
8.9	Graphical rotations	298
8.10	Graphical factor rotation	299
8.11	An example	302
8.12	Example of a higher-order factor analysis	306
9.1	The elements and structure of the holistic construal	318
9.2	The congeneric measurement model for four measures of a single construct	324
9.3	The congeneric measurement model for two constructs, each indicated by two measures	328
9.4	Multidimensional expectancy-value attitudes	336
9.5	Multidimensional expectancy-value attitude model with additive and multiplicative effects	338
9.6	Second-order confirmatory factor analysis model for beliefs about the consequences of giving blood	340
9.7	Confirmatory factor analysis-model for MTMM design with three traits and three methods	344
9.8	The correlated uniqueness model for three traits and three methods	351
9.9	Guidelines for the analysis of MTMM matrix data	359
9.10	The effects of measurement error on tests of hypotheses: illustration of a means for correcting for the consequences of random error	364

9.11	Full model with measurement error taken into account in attitudes, subjective norms, and intentions	366
9.12	Some consequences of omitted variables	370
9.13	Further consequences of omitted variables: parallel exogenous causes	372
9.14	Simple non-recursive and recursive models	374
9.15	Causal models of reciprocal causation	376
10.1	Summary of model specifications	411

List of Tables

1.1	Criteria for convergent and discriminant validity in the Campbell and Fiske multitrait multimethod matrix (three traits and three methods)	23
1.2	Pearson product-moment correlations among measures of the use of computers by wholesale-distribution companies in four areas as judged by the chief executive officer (method 1) and subordinates (method 2)	25
1.3	Variables affecting size and direction of context effects	36
1.4	Norms for writing questions and queries to address in this regard	40
3.1	Examples of clusters	84
3.2	Typical sample sizes used for consumer and industrial marketing research	111
4.1	Most commonly used survey methodologies	121
4.2	Mail, telephone, and focus group methods compared	127
4.3	Costs per interview for a national and local survey conducted by three different methods	128
4.4	Major costs for telephone and mail surveys	129
4.5	Results of first dialing attempts	131
4.6	Disposition of dialings in a Lavrakas study and a recent marketing research study on hospital decision-making	131
4.7	Disposition of call sheets in Lavrakas study	132
4.8	Regression equations predicting expected return rate from two US studies	139
4.9	Return rates for physicians and pharmacists using three levels of incentives and two levels of contacts	141
4.10	Return rates for difficult to reach populations	142
4.11	Hypothesized stages of mailed questionnaire response	145
4.12	Number of mail, telephone, in-person, and focus group studies participated in during 1991	149
4.13	Factor loadings and suggested names for importance items with acceptable internal consistency	150

4.14	Factor loadings and suggested names for importance items with unacceptable internal consistency	151
4.15	Reliability (standardized Chronbach's Alpha) of 13 factors on importance scale and each (reliable) method's importance rating	152
4.16	Performance of four survey methods on items	153
6.1	Diagnostic measures of response	219
7.1	Small one-way ANOVA example: data and computations	231
7.2	Customer satisfaction data for illustration of ANOVA, MANOVA, and MANCOVA	237
7.3	Univariate analyses of variance on the data in Table 7.2	239
7.4	The ANOVA table for a 3-factor factorial	241
7.5	ANOVA on 2×3 ad x price example	243
7.6	Univariate analyses of covariance	252
7.7	Relationships between models covered in this chapter	253
7.8	Numerical example of one-sample and two-sample Hotelling's T^2	255
7.9	Multivariate ANOVA: computation of H's and E for a 2-factor factorial	258
7.10	Multivariate analysis of variance of service satisfaction data	259
7.11	Multivariate analysis of covariance of service satisfaction data	262
7D.1	Univariate ANOVA table for a 1-factor within-subjects design	270
7D.2	Repeated measures as a function of raw data (y_i 's) or difference scores ($y_{i-1} - y_i$'s)	272
9.1	Correlation matrix of four measures of attitude toward giving blood – aroused sample ($n = 110$)	326
9.2	Findings for goodness-of-fit indices, parameter estimates, and reliability indices for one-factor congeneric, tau-equivalent, and parallel forms models applied to the data in Table 9.1 (aroused sample)	326
9.3	Correlation matrix of four measures of attitude toward giving blood – unaroused sample ($n = 110$)	329
9.4	Findings for goodness-of-fit indices, parameter estimates, and reliability indices for two-factor congeneric and parallel forms models applied to the data in Table 9.3 (unaroused sample)	329
9.5	Correlation matrix for seven measures of beliefs about the consequences of giving blood ($n = 127$)	340
9.6	Partitioning of variance for second-order confirmatory factor analysis example	341
9.7	Findings for confirmatory factor analysis of supplier influence on wholesale distributors using data from Phillips (1981)	347
9.8	Parameter estimates for correlated uniqueness model applied to the data in Arora (1982)	352

9.9	Illustration of the direct product model applied to data from Foxman, Tansuhaj, and Ekstrom (1989)	356
9.10	Summary of pros and cons with regard to contemporary procedures for assessing construct validity	361
9.11	Variance-covariance data matrices for coupon usage study	367
9.12	Key parameter estimates for the models in Figure 9.10 and sample A in Table 9.11	368
9.13	Data for reciprocal causation example	377
10.1	Summary of overall goodness-of-fit indices	398
10.2	Observed variance-covariance matrix	413
10.3	Overall goodness-of-fit measures and model comparisons	414
10.4	Results for the target model	415