

MARKETING RESEARCH WITH SPSS

Wim Janssens

Katrien Wijnen

Patrick De Pelsmacker

Patrick Van Kenhove



Prentice Hall

FINANCIAL TIMES

An imprint of Pearson Education

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney • Singapore • Hong Kong
Tokyo • Seoul • Taipei • New Delhi • Cape Town • Madrid • Mexico City • Amsterdam • Munich • Paris • Milan

Contents

Preface	ix	Two independent samples	60
		Nominal variables: χ^2 test of independence (cross-table analysis)	60
0 Statistical analyses for marketing research: when and how to use them	1	Ordinal variables: Mann-Whitney U test	65
Descriptive statistics	1	Interval scaled variables: t-test for independent samples	66
Univariate statistics	2	K independent samples	68
Multivariate statistics	3	Nominal variables: χ^2 test of independence	68
		Ordinal variables: Kruskal-Wallis test	68
	7	Interval scaled variables: Analysis of variance	68
1 Working with SPSS	7	K dependent samples	68
Chapter objectives	7	Nominal variables: Cochran Q	68
General	7	Ordinal variables: Friedman test	70
Data input	7	Interval scaled variables: Repeated measures analysis of variance	70
Typing data directly into SPSS	11	Further reading	70
Inputting data from other application programs	11		
2 Descriptive statistics	13		
Chapter objectives	14	4 Analysis of variance	71
Introduction	16	Chapter objectives	71
Frequency tables and graphs	19	Technique	71
Multiple response tables	22	Example 1: Analysis of variance as a test of difference or one-way ANOVA	72
Mean and dispersion	23	Managerial problem	72
Further reading	23	Problem	72
	23	Solution	73
	25	SPSS commands	73
	38	Interpretation of the SPSS output	75
3 Univariate tests	44	Example 2: Analysis of variance with a covariate (ANCOVA)	77
Chapter objectives	46	Technique: supplement	77
General	47	Managerial problem	78
One sample	47	Problem	78
Nominal variables: Binomial test (z-test for proportion)	47	Solution	79
Nominal variables: χ^2 test	47	SPSS commands	79
Ordinal variables: Kolmogorov-Smirnov test	47	Interpretation of the SPSS output	82
Interval scaled variables: Z-test or t-test for the mean	48	Example 3: Analysis of variance for a complete $2 \times 2 \times 2$ factorial design	92
Two dependent samples	50	Managerial problem	92
Nominal variables: McNemar test	52	Problem	93
Ordinal variables: Wilcoxon test	52	Solution	93
Interval scaled variables: t-test for paired observations	54	SPSS commands	93
	54	Interpretation of the SPSS output	96
	58		

Example 4: Multivariate analysis of variance (MANOVA)	6 Logistic regression analysis	184
Technique: supplement	Chapter objectives	184
Managerial problem	Technique	184
Problem	Example 1: Interval-scaled and categorical independent variables, without interaction,	
Solution	108	187
SPSS commands	108	187
Interpretation of the SPSS output	109	187
Example 5: Analysis of variance with repeated measures	110	187
Managerial problem	110	187
Problem	113	187
Solution	120	188
SPSS commands	120	188
Interpretation of the SPSS output	122	192
Example 6: Analysis of variance with repeated measures and between-subjects factor	122	
Managerial problem	122	206
Problem	125	206
Solution	125	207
SPSS commands	129	208
Interpretation of the SPSS output	129	210
Further reading	129	220
Endnote	129	229
One last remark	129	229
Example 3: The 'stepwise' method, in addition to the 'enter' method, and more than one 'block'	131	
Managerial problem	136	230
Problem	136	230
Solution	137	230
SPSS commands	137	230
Interpretation of the SPSS output	137	233
Example 4: Categorical independent variables with more than two categories	141	
Managerial problem	141	237
Problem	142	237
Solution	142	238
SPSS commands	142	238
Interpretation of the SPSS output	150	241
Further reading	174	243
Endnotes	174	244
5 Linear regression analysis	175	
Chapter objectives	175	
Technique	175	
Example 1: A cross-section analysis	175	
Managerial problem	175	
Problem	175	
Solution	175	
SPSS commands	175	
Interpretation of the SPSS output	175	
Example 2: The 'Stepwise' method, in addition to the 'Enter' method	175	
Problem	175	
Solution	175	
SPSS commands	175	
Interpretation of the SPSS output	175	
Example 3: The presence of a nominal variable in the regression model	175	
Problem	179	
Solution	179	
SPSS commands	179	
Interpretation of the SPSS output	179	
Further reading	181	
Endnotes	181	
6 Logistic regression analysis	183	
Chapter objectives	183	
Technique	183	
Example 1: Interval-scaled and categorical independent variables, without interaction,	183	
term	183	245
Managerial problem	183	245
Problem	183	245
Solution	183	245
SPSS commands	183	245
Interpretation of the SPSS output	183	245
Further reading	183	245
Endnote	183	245
7 Exploratory factor analysis	183	
Chapter objectives	183	
Technique	183	
Example: Exploratory factor analysis	183	
Managerial problem	183	249
Problem	183	249
Solution	183	250
SPSS commands	183	251
Interpretation of the SPSS output	183	251
Further reading	183	255
Endnote	183	278

8 Confirmatory factor analysis and path analysis using SEM	10 Multidimensional scaling techniques	363
Chapter objectives	Chapter objectives	363
Technique	Technique	363
Example 1: Confirmatory factor analysis	279 The form of the data matrix: the number of ways and the number of modes	363
Managerial problem	281 The technique: the measurement level of the input and output and the representation of the data	366
Problem	282 Data collection method: direct or indirect measurement	368
Solution	282 Example 1: 'Two-way, two-mode'	
AMOS commands	311 MDS – correspondence analysis	370
Interpretation of the AMOS output	311 Technique: supplement	370
Example 2: Path analysis	311 Managerial problem	370
Problem	311 Problem	373
Solution	312 Solution	373
AMOS commands	316 SPSS Commands	373
Interpretation of the AMOS output	316 Interpretation of the SPSS output	384
Further reading		
9 Cluster analysis	Example 2: 'Three-way, two-mode'	
Chapter objectives	317 MDS – 'two-way, one-mode' MDS using replications in PROXSCAL	398
Technique	317 Managerial problem	398
Example 1: Cluster analysis with binary attributes – hierarchical clustering	Technique: supplement	400
Managerial problem	319 Problem	401
Problem	319 Solution	402
Solution	320 SPSS commands: data specification	402
SPSS Commands	320 SPSS commands: dimensionality of the solution	404
Interpretation of the SPSS output	320 Interpretation of the SPSS output: dimensionality of the solution	407
Example 2: Cluster analysis with continuous attributes – hierarchical clustering as input for K-means clustering	324 Further reading	415
Managerial problem	324 Website reference	415
Problem	342 Endnotes	416
Solution		
SPSS commands: Hierarchical clustering	11 Conjoint analysis	417
Interpretation of the SPSS output: Hierarchical clustering	343 Chapter objectives	417
SPSS commands: K-means clustering	344 Technique	417
Interpretation of the SPSS output: K-means clustering	347 Example: Conjoint analysis	418
Further reading	353 Managerial problem	418
Endnotes	353 Problem	419
	355 Solution	419
	362 SPSS commands	419
	362 Interpretation of the SPSS output	428
	362 Further reading	433
	Index	435