Group 8:

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Q-1) What is the impact of Brand Commitment, Likelihood to Purchase and Brand Salience on being a promoter for TJ Maxx?

Solution 1:

Dependent variable: Q13

Independent variable: Q9, Q11, Q12

Converting all values to interval scale in SPSS

Likelhihood Recommend						
Q13 How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. **PROGRAMMER: ALLOW ONLY ONE ANSWER PER BRAND. SHOW EACH RETAILER ON SEPARATE SCREENS.**						
	Brand X	**JC Penney**	**Kohl's**	**Nordstrom**	**Amazon**	**TJ Maxx**
0	○	○	○	○	○	○
1	○	○	○	○	○	○
2	○	○	○	○	○	○
3	○	○	○	○	○	○
4	○	○	○	○	○	○
5	○	○	○	○	○	○
6	○	○	○	○	○	○
7	○	○	○	○	○	○
8	○	○	○	○	○	○
9	○	○	○	○	○	○
10	○	○	○	○	○	○

For this question, we'll need to recode the variable Q13 to produce 2 classes: promotors and non-promotors.

Non-promotors: 0-8

Promotors: 9-10

Brand Commitment

Q11 **Imagine you had to shop at a retail store, which of these statements best describes how much you would consider shopping at each of these stores? (Please select one answer for each brand)**

1 **PROGRAMMER: ALLOW ONLY ONE ANSWER PER BRAND.**

ACCEPT ONLY ONE ANSWER IN FIRST ROW "ONLY STORE WOULD CONSIDER"

	Brand X	JC Penney	Kohl's	Nordstrom	Amazon	TJ Maxx
Favorite store; only one I consider	○	○	○	○	○	○
Store I prefer and consider highly	○	○	○	○	○	○
Store I consider equally with others	○	○	○	○	○	○
Store I might consider, less so than others	○	○	○	○	○	○
Not a store I usually consider	○	○	○	○	○	○
Store I would never consider	○	○	○	○	○	○

Likelihood to Puchase

Q12 For the following retailers, when do you anticipate your next purchase at that store might be?

PROGRAMMER: ALLOW ONLY ONE ANSWER PER BRAND.

	Brand X	JC Penney	Kohl's	Nordstrom	Amazon	TJ Maxx
Within the next month	○	○	○	○	○	○
Within next 1-3 months	○	○	○	○	○	○
With next 3-6 months						
Within next 6-9 months	○	○	○	○	○	○
Within 9 months – 1 year	○	○	○	○	○	○
Longer than 1 year	○	○	○	○	○	○
I'm not sure when I will shop there again						

Missing values "I'm not sure when I will shop there again" are excluded from Q12

Brand Salience

Q9 When you think about retail stores, some seem to be **on their way up and have a lot going for them**, while others don't. Which of these statements best describes how you feel about each of these stores?

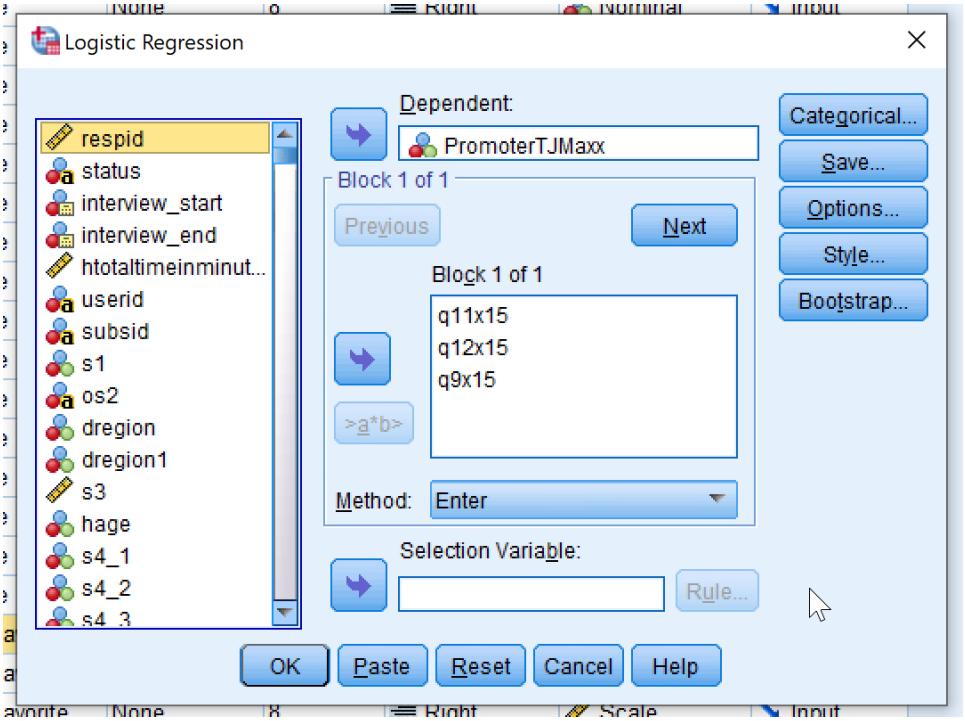
(*Please select one answer for each brand*)

PROGRAMMER: ALLOW ONLY ONE ANSWER PER BRAND.

	Brand X	JC Penney	Kohl's	Nordstrom	Amazon	TJ Maxx
On its way up	○	○	○	○	○	○
Holding its ground	○	○	○	○	○	○
On its way down	○	○	○	○	○	○

Since we have 2 classes here, we'll use **Logistic Regression**

Analyze -> Regression -> Logistic Binary



Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	1316	30.4
	Missing Cases	3015	69.6
	Total	4331	100.0
Unselected Cases		0	.0
Total		4331	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
.00	0
1.00	1

The above output explains the cases that were included and excluded from the analysis. 1316 cases were included

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted		
			PromoterTJMaxx		Percentage Correct
			.00	1.00	
Step 0	PromoterTJMaxx	.00	848	0	100.0
		1.00	468	0	.0
	Overall Percentage				64.4

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.594	.058	106.552	1	.000	.552

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	TJ Maxx BC	362.941	1	.000
		TJ Maxx LP	228.159	1	.000
		TJ Maxx BS	189.356	1	.000
	Overall Statistics		407.272	3	.000

The above output explains a “NULL” model I.e. a model with only the constant included. All the variables other than the constant are not included in the regression equation.

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	510.490	3	.000
	Block	510.490	3	.000
	Model	510.490	3	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	1202.569[a]	.322	.442

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

In the "Omnibus Tests of Model Coefficients" table, we observe that there are 3 degrees of freedom, and the significance level is <0.01 so highly significant.

The "Model Summary" table is used to know the variance explained by the variables. We consider the "Nagelkerke R square" here and see that 44.2% of variance is explained by the variables.

Classification Table[a]

			Predicted		
			PromoterTJMaxx		Percentage Correct
	Observed		.00	1.00	
Step 1	PromoterTJMaxx	.00	718	130	84.7
		1.00	135	333	71.2
	Overall Percentage				79.9

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	TJ Maxx BC	-1.191	.105	128.826	1	.000	.304
	TJ Maxx LP	-.375	.070	28.937	1	.000	.687
	TJ Maxx BS	-.735	.136	29.043	1	.000	.480
	Constant	4.770	.322	219.092	1	.000	117.946

a. Variable(s) entered on step 1: TJ Maxx BC, TJ Maxx LP, TJ Maxx BS.

In the “Classification Table”, we see the overall accuracy percentage of the model is 79.9%.

In the “Variables in the Equation” table, we observe that all the variables TJ Maxx BC, TJ Maxx LP and TJ Maxx BS and the constant have significance value < 0.01 so these are highly significant.

Logistic Regression model:

Ln(P(Y)/1-P(Y)) = 4.770 + (-1.191)*(TJ Maxx BC) + (-0.372)*(TJ Maxx LP) + (-0.735)*(TJ Maxx BS)

Q-2) What is the probability of someone being a promoter for TJ Maxx who is likely to make a purchase within the next 1 month, thinks that TJ Maxx as a brand is on its way up and considers TJ Maxx their favourite Store?

From the previous question we have the equation as follows:

Ln(P/(1-P))= 4.77 - 1.191*TJMaxx BC – 0.375 *TJMaxx LP – 0.735*TJMaxx BS

Value for likely to make a purchase within the next 1 month: 1

Value for considers TJ Maxx their favourite Store: 1

Value for on its way up: 1

After plug in those values, we get:

4.77 - 1.191 * 1 – 0.375 *1 – 0.735 * 1 = 2.469

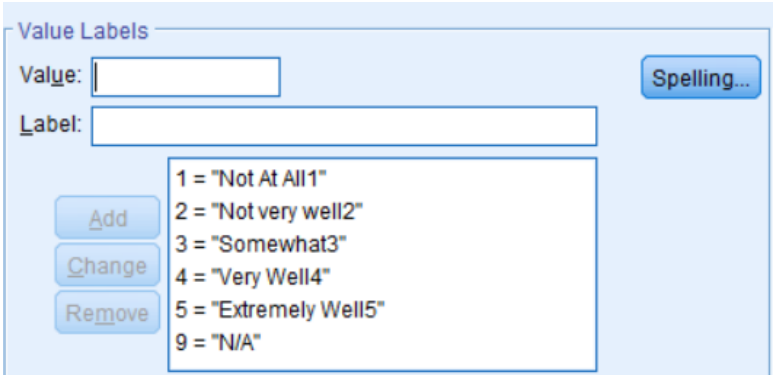
P = (exp(2.469) / (1 + exp(2.469) = 0.92193982844

The probability of someone being a promoter for TJ Maxx with all independent variables as 1 is around 0.92 percent.

Q-3) Is there a simpler set of factors that explains the data captured by brand imagery perception statements for Nordstrom?

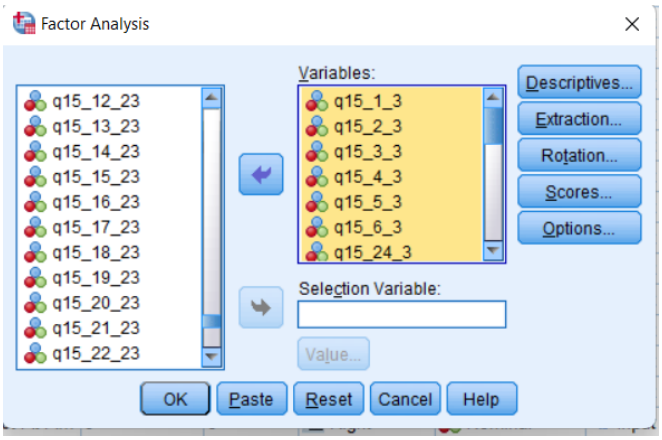
We have taken Brand imagery perception – Q15 (Brand Imagery – Competitive Brand #1) here and code for Nordstrom is 3.

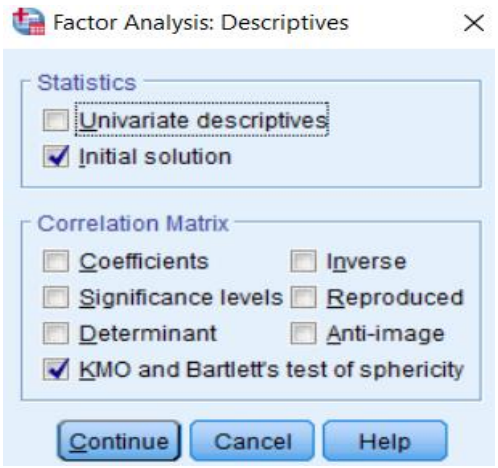
First, we will remove NA Values which is 9 from Q 15

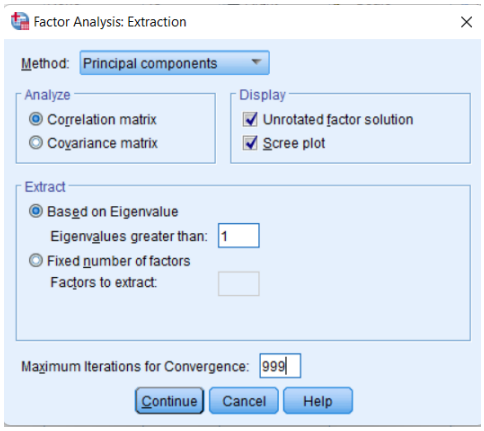


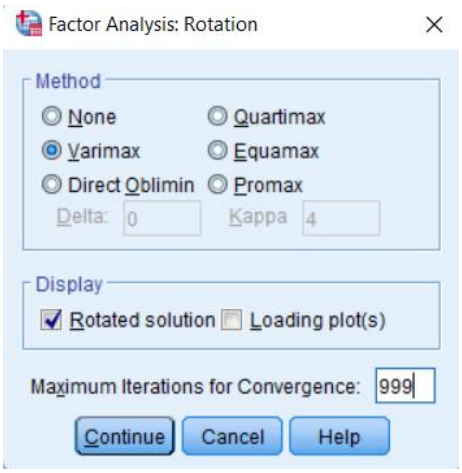
Name	Type	Width	Decimals	Label	Values	Missing
q15_1_3	Numeric	1	0	Good value for t...	{1, Not At A...	9
q15_2_3	Numeric	1	0	Great sales (Be...	{1, Not At A...	9
q15_3_3	Numeric	1	0	Good shopper r...	{1, Not At A...	9
q15_4_3	Numeric	1	0	Top quality mer...	{1, Not At A...	9
q15_5_3	Numeric	1	0	Has the latest ...	{1, Not At A...	9
q15_6_3	Numeric	1	0	Carries the bra...	{1, Not At A...	9
q15_24_3	Numeric	1	0	Has brands/pro...	{1, Not At A...	9
q15_7_3	Numeric	1	0	Good place to ...	{1, Not At A...	9
q15_8_3	Numeric	1	0	Best selection ...	{1, Not At A...	9
q15_9_3	Numeric	1	0	A store I trust f...	{1, Not At A...	9
q15_10_3	Numeric	1	0	Is a store for pe...	{1, Not At A...	9
q15_11_3	Numeric	1	0	Easy to find wh...	{1, Not At A...	9
q15_12_3	Numeric	1	0	Store I am prou...	{1, Not At A...	9
q15_13_3	Numeric	1	0	Fun and excitin...	{1, Not At A...	9
q15_14_3	Numeric	1	0	Has warm and f...	{1, Not At A...	9
q15_15_3	Numeric	1	0	Has available s...	{1, Not At A...	9
q15_16_3	Numeric	1	0	Makes it easy t...	{1, Not At A...	9
q15_17_3	Numeric	1	0	I often discover ...	{1, Not At A...	9
q15_18_3	Numeric	1	0	Helps express ...	{1, Not At A...	9
q15_19_3	Numeric	1	0	Inspires me to t...	{1, Not At A...	9
q15_20_3	Numeric	1	0	Has merchandi...	{1, Not At A...	9
q15_21_3	Numeric	1	0	Offers a consist...	{1, Not At A...	9
q15_22_3	Numeric	1	0	Offers convenie...	{1, Not At A...	9
q15_23_3	Numeric	1	0	Innovative in ma...	{1, Not At A...	9

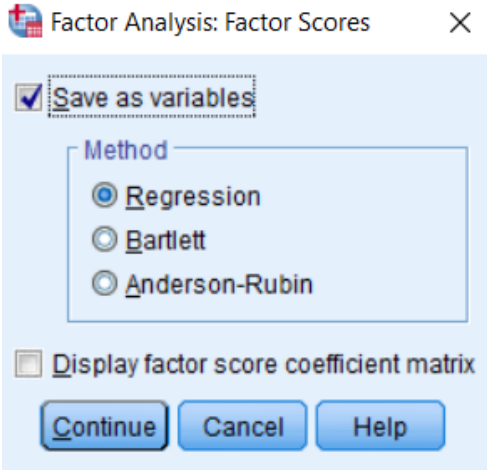
Then we are performing Analyze -> Dimension Reduction -> Factor

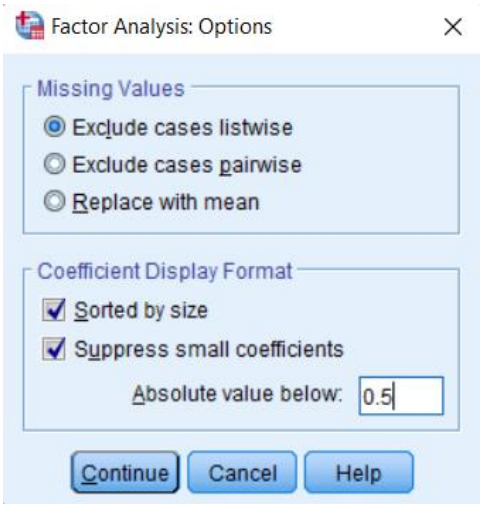



Factor Analysis: Descriptives
Statistics
Univariate descriptives
Initial solution
Correlation Matrix
Coefficients
Inverse
Significance levels
Reproduced
Determinant
Anti-image
KMO and Bartlett's test of sphericity
Continue
Cancel
Help


Factor Analysis: Extraction
Method: Principal components
Analyze
Correlation matrix
Covariance matrix
Display
Unrotated factor solution
Scree plot
Extract
Based on Eigenvalue
Eigenvalues greater than: 1
Fixed number of factors
Factors to extract:
Maximum Iterations for Convergence: 999
Continue
Cancel
Help


Factor Analysis: Rotation
Method
None
Quartimax
Varimax
Equamax
Direct Oblimin
Promax
Delta: 0
Kappa 4
Display
Rotated solution
Loading plot(s)
Maximum Iterations for Convergence: 999
Continue
Cancel
Help


Factor Analysis: Factor Scores
Save as variables
Method
Regression
Bartlett
Anderson-Rubin
Display factor score coefficient matrix
Continue
Cancel
Help


Factor Analysis: Options
Missing Values
Exclude cases listwise
Exclude cases pairwise
Replace with mean
Coefficient Display Format
Sorted by size
Suppress small coefficients
Absolute value below: 0.5
Continue
Cancel
Help

Output :

For KMO Values should be between 0.5 and 1. Below 0.5 we will reject the Factor Analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.972
Bartlett's Test of Sphericity	Approx. Chi-Square	12211.217
	df	276
	Sig.	.000

We got 0.972 here means here, KMO- value is between 0.5 and 1.0 indicating appropriateness.

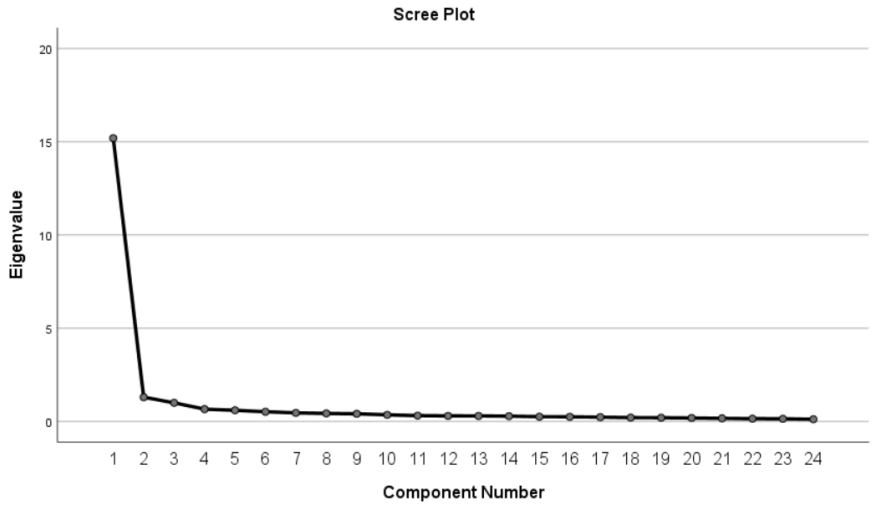
The significance value is 0.000 means if Bartlett's test of sphericity is rejected, then factor analysis is appropriate.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	15.194	63.309	63.309	15.194	63.309	63.309	8.524	35.518	35.518
2	1.299	5.412	68.721	1.299	5.412	68.721	7.969	33.202	68.721
3	.998	4.160	72.881						
4	.658	2.743	75.624						
5	.599	2.496	78.120						
6	.518	2.158	80.277						
7	.457	1.905	82.182						
8	.431	1.795	83.977						
9	.411	1.713	85.690						
10	.354	1.475	87.165						
11	.310	1.293	88.458						
12	.297	1.237	89.695						
13	.295	1.228	90.923						
14	.282	1.176	92.100						
15	.254	1.058	93.158						
16	.247	1.030	94.188						
17	.230	.957	95.145						
18	.206	.859	96.003						
19	.197	.822	96.825						
20	.186	.773	97.599						
21	.167	.696	98.295						
22	.148	.616	98.911						
23	.143	.594	99.505						
24	.119	.495	100.000						

Extraction Method: Principal Component Analysis.

We can see we get 2 factors here and Eigenvalues are greater than 1 here.



Based on the scree plot, we are getting 2 Factors.

All Analyses are suggestion 2 Factors, but we can also explore 3 Factors as well.

Component Matrix[a]

	Component 1	2
Helps express my personal style (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means	.863	
Store I am proud to shop at (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Do	.849	
Fun and exciting shopping experience (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1	.848	
Inspires me to try new things (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means '	.848	
I often discover new things to buy (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 me	.841	
Is a store for people like me (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means '	.840	

Innovative in making shopping easier (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1	.836	
Carries the brands I want (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Does	.834	
A store I trust for important occasions (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and	.820	
Offers convenient ways to shop in stores and online (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremel	.817	
Easy to find what I'm looking for (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 mea	.811	
Offers a consistent experience online and in store (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end(1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely	.799	
Has merchandise worth paying more for (Below is a list of different statements that people have made about retail stores. Please read each	.798	

Best selection of brands and designers (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and	,795	
Good place to shop for gifts (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'D	,782	
Has brands/products I want, but can't find anywhere else. (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Ex	,780	
Makes it easy to return items (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means '	,769	
Has available salespeople (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Does	,758	
Good value for the money (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Does	,758	
Has warm and friendly salespeople (Below is a list of different statements that people have made about retail stores. Please read each	,758	

Has the latest styles & fashions (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 mean	.750	
Great sales (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Does Not Describe	.725	
Top quality merchandise (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'Does N	.695	-.500
Good shopper rewards program (Below is a list of different statements that people have made about retail stores. Please read each statement and rate ^begin(1)^Nordstrom^end (1)^ on a scale of 1 to 5, where 5 means 'Describes Extremely Well,' and 1 means 'D	.683	

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Thus 68% is explored by 2 Factors, but we can still consider 3 Factor analysis.

Q-4) Should Nordstrom be focusing on the brand imagery factors above or Brand Commitment and Likelihood to Purchase in order to increase the Likelihood of Recommendation?

The brand imagery --- Q 15

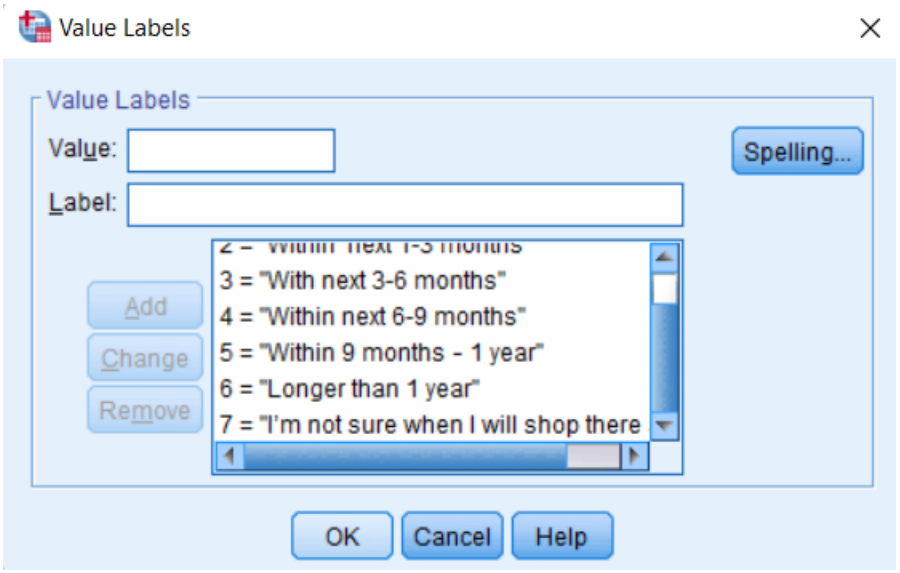
Brand Commitment ---- Q 11 (Independent)

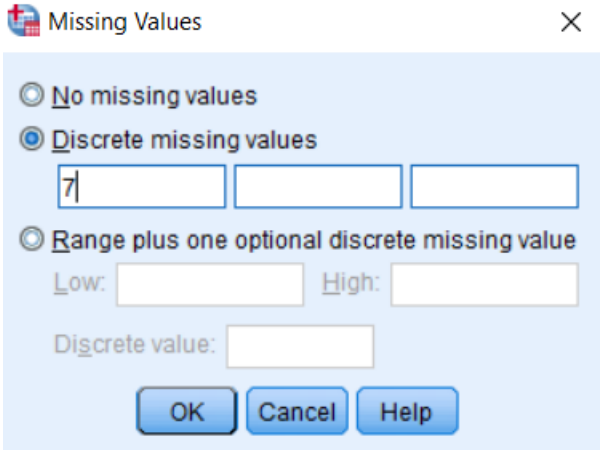
Likelihood to Purchase ---- Q 12 (Independent)

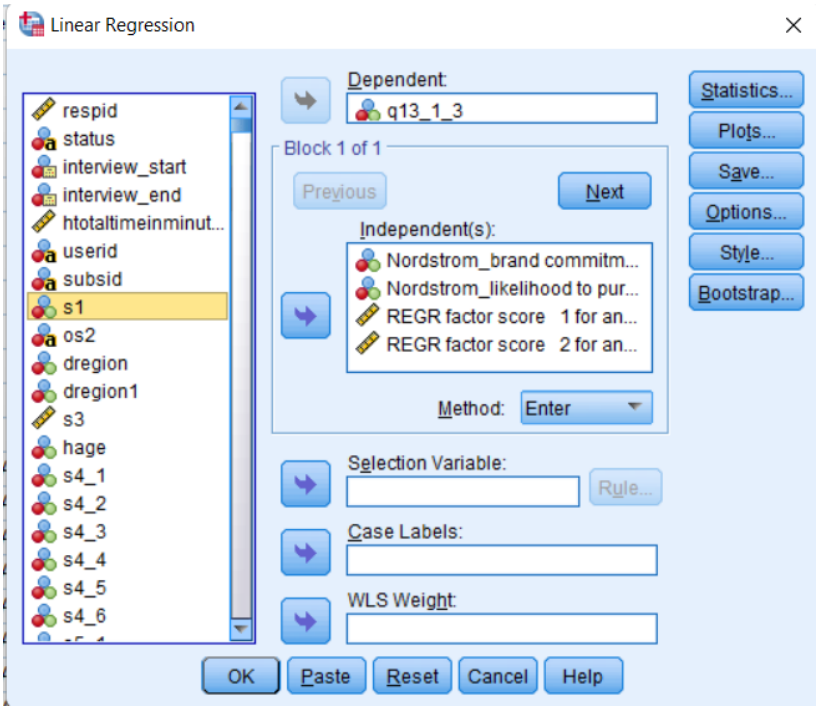
Likelihood of Recommendation ---- Q 13 (Dependent)

Analyze --> Regression --> Linear

In Q12, there is missing value (I'm not sure when I will shop there again - 7) so, we will remove that here.


Value Labels
Value Labels
Value:
Label:
Spelling...
Add
Change
Remove
3 = "With next 3-6 months"
4 = "Within next 6-9 months"
5 = "Within 9 months - 1 year"
6 = "Longer than 1 year"
7 = "I'm not sure when I will shop there
OK
Cancel
Help


Missing Values
No missing values
Discrete missing values
7
Range plus one optional discrete missing value
Low:
High:
Discrete value:
OK
Cancel
Help



Perform linear regression based on the brand commitment and likelihood to purchase and the other two new features we get from the previous question.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.706[a]	.499	.494	1.264

a. Predictors: (Constant), REGR factor score 2 for analysis 2, REGR factor score 1 for analysis 2, Nordstrom_brand commitment, Nordstrom_likelihood to purchase

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	663.185	4	165.796	103.840	.000[b]
	Residual	665.801	417	1.597		
	Total	1328.986	421			

a. Dependent Variable: Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Nordstrom)

b. Predictors: (Constant), REGR factor score 2 for analysis 2, REGR factor score 1 for analysis 2, Nordstrom_brand commitment, Nordstrom_likelihood to purchase

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.862	.224		39.606	.000
	Nordstrom_brand commitment	-.356	.078	-.204	-4.559	.000
	Nordstrom_likelihood to purchase	-.062	.059	-.048	-1.043	.297
	REGR factor score 1 for analysis 2	.831	.073	.439	11.331	.000
	REGR factor score 2 for analysis 2	.707	.080	.380	8.835	.000

a. Dependent Variable: Q13_1 (How likely are you to recommend the following retailer to friends and family members, on a scale from 0-10, where 0=Not at all likely to recommend, and 10= Will definitely recommend. Nordstrom)

Since we have here three independent variables are significant (P <0.01), so rank them with beta coefficients.

Ranking:

REGR factor score 1 for analysis 2

REGR factor score 2 for analysis 2

Nordstorm_brand commitment

We're getting the above values based on the inverted scale for "Brand Commitment"

Equation:

8.862 + (-0.356)*(Nordstorm_brand commitment) + (0.831)*(REGR factor score 1 for analysis 2) + (0.707)*(REGR factor score 2 for analysis 2)

So the brand imagery 2 factors which we got in the previous question has a positive correlation and likelihood to purchase and brand commitment is negatively correlated. Thus, the Nordstrom brand should be focusing on the brand imagery factors