Group 3:

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Question 1:

What is the nature of association between Brand Commitment and Likelihood to Recommend for the 6 brands included in the data?

Solution -

We found the correlation among the variables Q13 and Q11, for each brand.

Correlations

		Brand X	JC Penney	Kohl's	Nordstrom	Amazon	TJ Maxx	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. Brand X)	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. JC Penney)	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. Kohl's)	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)	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. Amazon)	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. TJ Maxx)
Brand X	Pearson Correlation	1	.180	.045	.168**	-.012	.041	-.705**	-.225*	-.124**	-.231**	-.055*	-.131**
	Sig. (2-tailed)		.076	.072	.000	.619	.097	.000	.026	.000	.000	.028	.000
	N	4331	98	1610	1590	1608	1603	4331	98	1610	1590	1608	1603
JC Penney	Pearson Correlation	.180	1	-.176	-.274	-.329	.157	-.012	-.673**	-.146	-.034	.148	.068
	Sig. (2-tailed)	.076		.277	.343	.135	.561	.904	.000	.369	.908	.512	.802
	N	98	98	40	14	22	16	98	98	40	14	22	16
Kohl's	Pearson Correlation	.045	-.176	1	.016	-.031	-.119*	-.062*	.209	-.730**	-.082	-.088	.030
	Sig. (2-tailed)	.072	.277		.787	.576	.017	.014	.197	.000	.158	.109	.552
	N	1610	40	1610	296	334	401	1610	40	1610	296	334	401
Nordstrom	Pearson Correlation	.168**	-.274	.016	1	-.023	-.053	-.090**	.118	-.013	-.691**	-.043	.015
	Sig. (2-tailed)	.000	.343	.787		.641	.261	.000	.687	.827	.000	.380	.755
	N	1590	14	296	1590	429	457	1590	14	296	1590	429	457
Amazon	Pearson Correlation	-.012	-.329	-.031	-.023	1	-.008	.003	.351	-.023	.069	-.497**	.015
	Sig. (2-tailed)	.619	.135	.576	.641		.881	.918	.109	.673	.156	.000	.774
	N	1608	22	334	429	1608	350	1608	22	334	429	1608	350
TJ Maxx	Pearson Correlation	.041	.157	-.119*	-.053	-.008	1	-.055*	-.133	.125*	.023	.098	-.713**
	Sig. (2-tailed)	.097	.561	.017	.261	.881		.027	.625	.013	.631	.068	.000
	N	1603	16	401	457	350	1603	1603	16	401	457	350	1603

Null Hypothesis: There is no correlation between Brand Commitment and Likelihood to Recommend

Alternative Hypothesis: There is correlation between Brand Commitment and Likelihood to Recommend

1. Brand X:
    a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
    b. Pearson Correlation: -0.705 Significant Negative association between Brand Commitment and Likelihood to Recommend for Brand X
2. JC Penny
    a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
    b. Pearson Correlation: -0.673 Significant Negative association between Brand Commitment and Likelihood to Recommend for JC Penny
3. Kohls

   a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
   b. Pearson Correlation: -0.730 Significant Negative association between Brand Commitment and Likelihood to Recommend for Kohls
4. Nordstorm
   a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
   b. Pearson Correlation: -0.691 Significant Negative association between Brand Commitment and Likelihood to Recommend for Nordstorm
5. Amazon
   a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
   b. Pearson Correlation: -0.497 Significant Negative association between Brand Commitment and Likelihood to Recommend for Amazon
6. TJ Maxx
   a. P-Value: 0.000 < 0.01 Highly significant evidence again H0.
   b. Pearson Correlation: -0.713 Significant Negative association between Brand Commitment and Likelihood to Recommend for TJ Maxx

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Question 2:

Amazon is interested in knowing whether the satisfaction with their reward program differs by the gender and household income.

Solution -

Dependent variable: Satisfaction with Amazon reward program (q21a_3)

Independent Variables: Gender (s1), Household Income (s8)

We did a **TWO-WAY Anova** test here.

Null Hypothesis: Mean satisfaction based on gender and household-income is same for Amazon reward program

Alternate Hypothesis: Means are not equal

Tests of Between-Subjects Effects

Dependent Variable: Amazon Prime (For the following programs that you are enrolled in, how satisfied are you with the value of the rewards?)

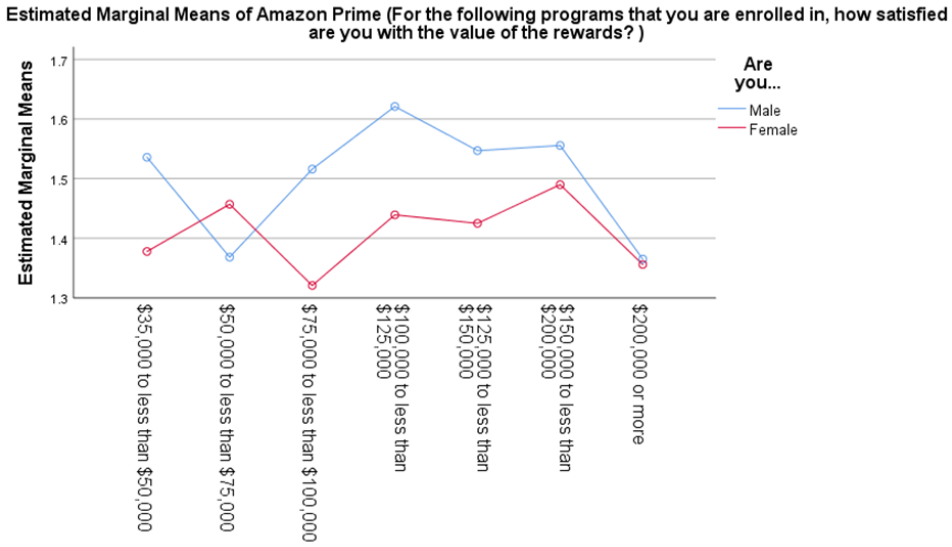
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	13.871[a]	13	1.067	1.762	.044
Intercept	2840.831	1	2840.831	4690.951	.000
s1	2.834	1	2.834	4.680	.031
s8	5.247	6	.874	1.444	.194
s1 * s8	5.184	6	.864	1.427	.200
Error	1315.965	2173	.606		
Total	5798.000	2187			
Corrected Total	1329.835	2186			

a. R Squared = .010 (Adjusted R Squared = .005)

1. Overall Model: Significant
2. Effect of S1 (Gender): Significant

3. Effect of S8(Household income): Insignificant

Hence, we can say that Gender has a significant effect on the satisfaction with their reward program of Amazon.



Based on this plot, we see that Females are more satisfied with Amazons program as compared to Males for most of the income groups; except for income range $50000 - $75000.

Based on scale - Very Satisfied: 1

Somewhat Satisfied: 2

Q3) JC Penny and Amazon are both interested in knowing whether there is a relationship between annual household income and the respective Likelihood to Purchase (time frame) for their brands

Since, there is a likelihood to purchase we have marked the values for Q12 (I'm not sure when I will shop there again) as missed value.

Annual household income – s8 in the questionnaire

Likelihood to purchase – q12x12 in the questionnaire

Variables q12x2 and s8 are nominal variables, they do not follow the normal distribution. We will use Spearman's Rank Correlation.

Nonparametric Correlations

Correlations

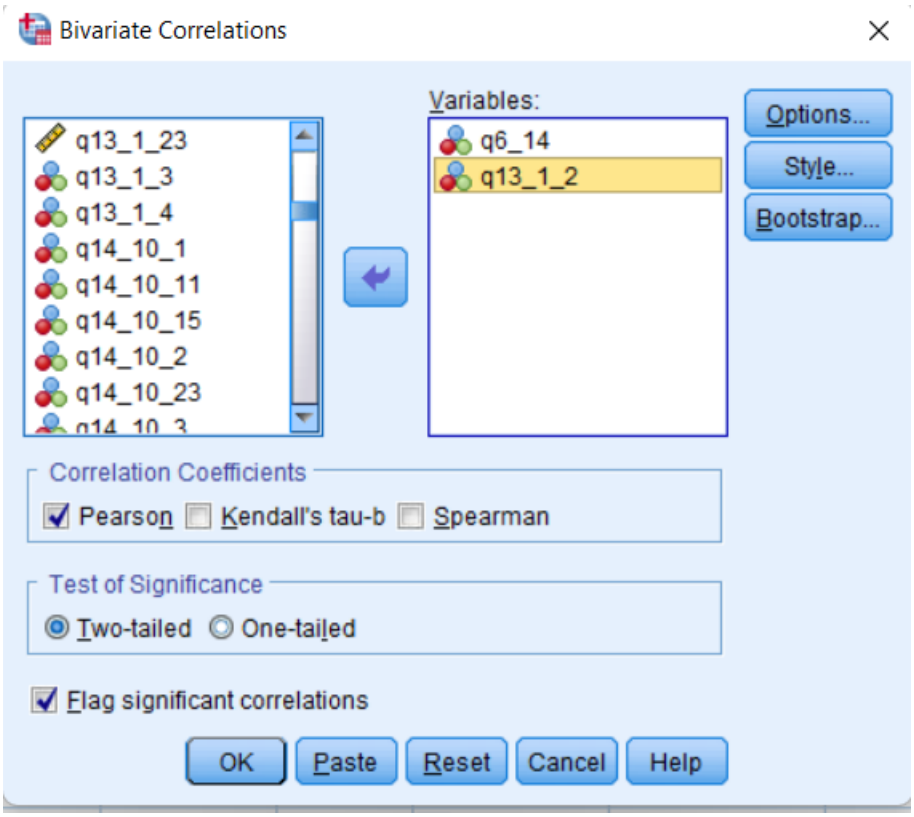
			JC Penney	Which of the following best describes your annual household income?	Amazon
Spearman's rho	JC Penney	Correlation Coefficient	1.000	.032	.240
		Sig. (2-tailed)	.	.767	.294
		N	87	87	21
	Which of the following best describes your annual household income?	Correlation Coefficient	.032	1.000	-.070**
		Sig. (2-tailed)	.767	.	.006
		N	87	4331	1561
	Amazon	Correlation Coefficient	.240	-.070**	1.000
		Sig. (2-tailed)	.294	.006	.
		N	21	1561	1561

**. Correlation is significant at the 0.01 level (2-tailed).

For JCPenney, we have negligible positive correlation (0.032), but it is insignificant (0.767).

Correlation between annual household income and likelihood to order again for Amazon is significant (0.006) and has a negative insignificant correlation (-0.070).

Q-4) **Does perceptions of Brand Love for JC Penny impact the Likelihood of Recommendation? What is the strength and nature of that relationship?**

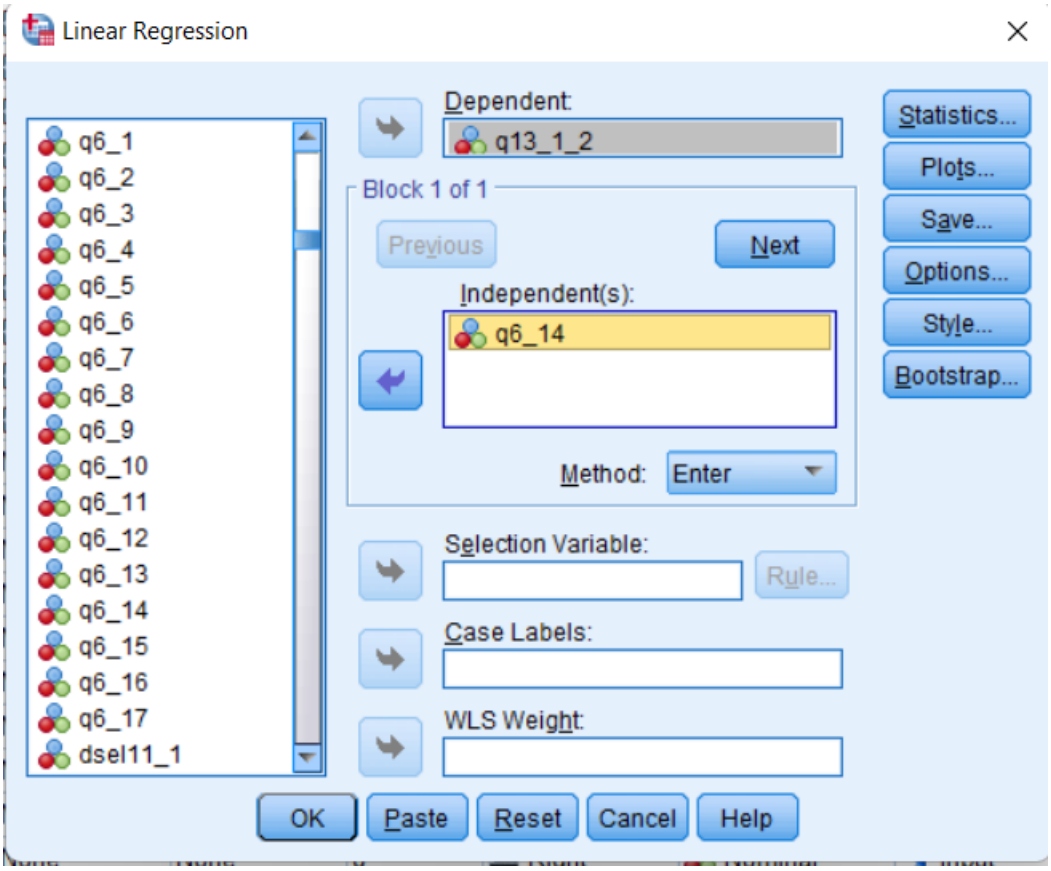

Bivariate Correlations
Variables:
q13_1_23
q13_1_3
q13_1_4
q14_10_1
q14_10_11
q14_10_15
q14_10_2
q14_10_23
q6_14
q13_1_2
Options...
Style...
Bootstrap...
Correlation Coefficients
Pearson
Kendall's tau-b
Spearman
Test of Significance
Two-tailed
One-tailed
Flag significant correlations
OK
Paste
Reset
Cancel
Help

Correlations

Correlations

		JC Penney (Which statement best captures how you feel about the following brands?)	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. JC Penney)
JC Penney (Which statement best captures how you feel about the following brands?)	Pearson Correlation	1	-.633**
	Sig. (2-tailed)		.000
	N	4331	98
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. JC Penney)	Pearson Correlation	-.633**	1
	Sig. (2-tailed)	.000	
	N	98	98

**. Correlation is significant at the 0.01 level (2-tailed).



Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.633[a]	.401	.395	1.656

a. Predictors: (Constant), JC Penney (Which statement best captures how you feel about the following brands?)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	176.246	1	176.246	64.246	.000[b]
	Residual	263.356	96	2.743		
	Total	439.602	97			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	10.982	.497		22.116	.000
	JC Penney (Which statement best captures how you feel about the following brands?)	-1.766	.220	-.633	-8.015	.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. JC Penney)

Result:-

From the Pearson coefficient, we can see that there is negative correlation, and the p-value is less than 0.01 Hence the null hypothesis is rejected.

JCPenny has a negative correlation for the love of brand and likelihood to recommend. But scale of recommendation is opposite to love the brand. So, we can derive a positive relation (related).

Strength = -1.766