Midterm Be602 2021

Name= Vaishnavi Amod Deshpande

Student Id= 20949690

Q1 Brand X is interested in knowing whether there is proportional difference between merchants who say that the number of customers they received from the deal met or exceeded their expectation compared to those who received fewer customers than they were expecting?

▶ Frequencies

Statistics

Q10 (How has the number of customers you received from your deal compared to what you were expecting?)

N	Valid	262
	Missing	0

Q10 (How has the number of customers you received from your deal compared to what you were expecting?)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The number of customers met your expectations	63	24.0	24.0	24.0
	You received fewer customers than you expected	177	67.6	67.6	91.6
	You received more customers than you expected	22	8.4	8.4	100.0
	Total	262	100.0	100.0	

Sample 1 Proportion (or total number)
0.324

Sample 1 Size (N_1)
262

Sample 2 Proportion (or total number)
0.676

Sample 2 Size (N_2)
262

Significance Level:

○ 0.01
◉ 0.05
○ 0.10

One-tailed or two-tailed hypothesis?:

○ One-tailed
◉ Two-tailed

The value of z is -8.0576. The value of p is < .00001. The result is significant at p < .05.

[Calculate Z] [Reset]

Explanation

H0= There is no proportional difference between merchants and others in terms of receiving customers

Ha= There is a proportional difference between merchants and others in terms of receiving customers

The value of p is < .00001

As per P value we reject Ho as result is significant.

Hence, we can say that there is a difference between them in terms of receiving customers.

Q2 Brand X is interested in knowing whether there is any relationship between the time that the merchants have been in existence and the number of locations that they have? This will help Brand X figure out whether they need an overall company focused pitch or a more localized approach pitch when Brand X's salespeople approach new Merchants to come to the platform

Correlations

			d2_recode	d3_recode
Spearman's rho	d2_recode	Correlation Coefficient	1.000	.176**
		Sig. (2-tailed)	.	.005
		N	259	254
	d3_recode	Correlation Coefficient	.176**	1.000
		Sig. (2-tailed)	.005	.
		N	254	256

**. Correlation is significant at the 0.01 level (2-tailed).
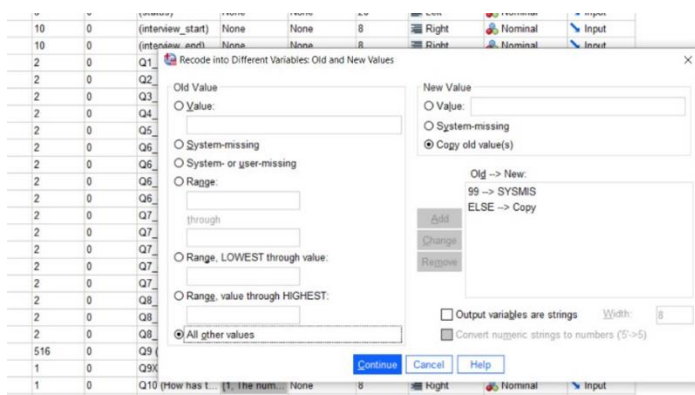
Ho= There is no relationship between the time that the merchants have been in existence and the number of locations that they have.

Ha= There is a relationship the time that the merchants have been in existence and the number of locations that they have.

As per result table,

There is a very low positive relationship (association) between the time that the merchants have been in existence and the number of locations that they have. (.176)

P value is 0.005 so we reject Ho as result is significant

Q3 Brand X is interested in knowing whether the number of customers received from the deal compared to what the merchants were expecting and merchants' perceptions of whether the relationship with Brand X has been either a success or not has any bearing on their likelihood of continuing business relationship with Brand X?

➡ Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
Q10 (How has the number of customers you received from your deal compared to what you were expecting?)	1	The number of customers met your expectations	63
	2	You received fewer customers than you expected	177
	3	You received more customers than you expected	22
Q11 (Overall, would you say that your relationship with Brand X has been successful for your business?)	1	Yes	103
	2	No	96
	3	Not Sure	63

Tests of Between-Subjects Effects

Dependent Variable: Q5_1 (How likely are continue your business relationship with Brand X?)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1630.576[a]	8	203.822	40.770	.000
Intercept	1536.381	1	1536.381	307.318	.000
q10	5.046	2	2.523	.505	.604
q11	390.254	2	195.127	39.031	.000
q10 * q11	22.141	4	5.535	1.107	.354
Error	1264.829	253	4.999		
Total	10876.000	262			
Corrected Total	2895.405	261			

a. R Squared = .563 (Adjusted R Squared = .549)

Corrected model is significant (as p value is less than 0.01), whereas interaction between factors is not significant as per p value.

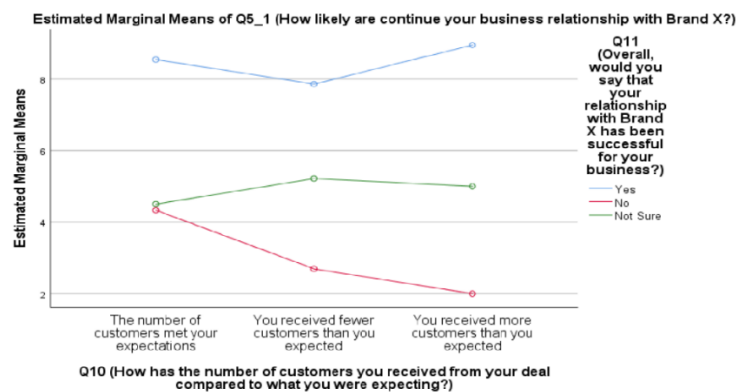Factor 1= q10 (Number of customers) = non-significant

Factor 2= q11 (Relationship with brand x) = significant

Estimated Marginal Means

Q10 (How has the number of customers you received from your deal compared to what you were expecting?) * Q11 (Overall, would you say that your relationship with Brand X has been successful for your business?)

Dependent Variable: Q5_1 (How likely are continue your business relationship with Brand X?)

Q10 (How has the number of customers you received from your deal compared to what you were expecting?)	Q11 (Overall, would you say that your relationship with Brand X has been successful for your business?)	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
The number of customers met your expectations	Yes	8.540	.316	7.917	9.163
	No	4.333	1.291	1.791	6.876
	Not Sure	4.500	.707	3.108	5.892
You received fewer customers than you expected	Yes	7.857	.378	7.113	8.601
	No	2.692	.234	2.231	3.154
	Not Sure	5.216	.313	4.599	5.832
You received more customers than you expected	Yes	8.944	.527	7.907	9.982
	No	2.000	1.581	-1.114	5.114
	Not Sure	5.000	1.581	1.886	8.114

Estimated Marginal Means of Q5_1 (How likely are continue your business relationship with Brand X?)

As per graph, if the relationship with brand x is successful then we can do a business with them but if not, then there is no need to do a business with them.

Q4 Since word of mouth is a powerful tool for promoting a business, Brand X is really interested in knowing how well merchants' perceptions of closeness to an ideal business relationship impact recommendation by merchants to other businesses. Can you decipher the strength and nature of this relationship and quantify it so it can be used for predictive purposes?

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.912[a]	.831	.830	1.359

a. Predictors: (Constant), Q3_1 (How close is your business relationship with Brand X to an ideal business relationship?)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2358.308	1	2358.308	1277.016	.000[b]
	Residual	480.150	260	1.847		
	Total	2838.458	261			

a. Dependent Variable: Q4_1 (How likely are you to recommend Brand X to another business?)

b. Predictors: (Constant), Q3_1 (How close is your business relationship with Brand X to an ideal business relationship?)

Coefficients[a]

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	.567	.154		3.678	.000
	Q3_1 (How close is your business relationship with Brand X to an ideal business relationship?)	.942	.026	.912	35.735	.000

a. Dependent Variable: Q4_1 (How likely are you to recommend Brand X to another business?)

Table 1 model summary=

R= .912 and R^2= .831

As per above the statement, around 85-90% variation in recommendation by merchants to other businesses is coming from merchants' perceptions of closeness to an ideal business relationship impact.

As per table 2, our model is significant (0.000^b)

Equation is

recommendation by merchants to other businesses = 0.567+0.942*(perceptions of closeness to an ideal business relationship impact)

Q.5 To serve its Merchants better, Brand X is interested in knowing whether small businesses (up to 20 employees) differ in their overall satisfaction with the business relationship as compared to medium and large size businesses (more than 20 employees). The answer to this question is critical for Brand X as that can help them focus their efforts to enhance overall satisfaction. Can you help?

Group Statistics

	EmployeeSatisfaction	N	Mean	Std. Deviation	Std. Error Mean
Q1_1 (What is your overall satisfaction with the business relationship between you and Brand X?)	Upto 20 Employees	228	5.09	3.256	.216
	More than 20 Employees	29	7.45	2.772	.515

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Q1_1 (What is your overall satisfaction with the business relationship between you and Brand X?)	Equal variances assumed	4.902	.028	−3.734	255	<.001	<.001	−2.361	.632	−3.605	−1.116
	Equal variances not assumed			−4.230	38.541	<.001	<.001	−2.361	.558	−3.490	−1.231

Ho= Small businesses (up to 20 employees) do not differ in their overall satisfaction with the business relationship as compared to medium and large size businesses.

Ha= Small businesses (up to 20 employees) differ in their overall satisfaction with the business relationship as compared to medium and large size businesses

P value is less so rejected Ho

As per table, we can see P value is less than 0.01 so overall satisfaction with business relationships varies between small and large enterprises.