

Research in Marketing
Individual Assignment 2021

Natalie Lieber

21102858

EXECUTIVE SUMMARY

Eco-Chocolate is a U.K. based confectionery brand selling organic, ethically sourced chocolate desserts in London and Paris. They want to move online using e-commerce and expand their digital presence. They aim to attract new customers, maintain existing customers, and increase brand awareness by identifying consumers' wants and needs as well as factors affecting sustainable consumption of goods. Part A of this report uses secondary research from business reports and academic literature to address Eco-Chocolate's expansion into the online (digital) market and to create awareness. Part B uses SPSS to analyse a survey questionnaire to investigate Eco-Chocolate's existing customer base.

Secondary business reports indicated that the majority of consumers are shopping online. Sustainability is a key factor among today's consumers but barriers such as price and lack of information are preventing many from choosing sustainable products. This research provided key insights for making recommendations to Eco-Chocolate. Academic literature provided insights and background information about sustainable consumption behaviour to make informed recommendations for Eco-Chocolate. The literature focused on how sustainable consumption behaviour is guided by personal and social values. People try to act congruently with these values, but it sometimes results in an attitude-behaviour gap.

Recommendations for Eco-Chocolate are to increase and vary posts on social media. I also recommend that Eco-Chocolate update their website with keywords commonly searched by consumers to improve their ranking on search engines. A 25% digital promotional offer for the customer and a friend would also increase brand awareness while satisfying sustainable behaviour pain points: difficulty, and price. Partnering with sustainability micro-influencers

would also raise brand awareness with target audiences online. The final recommendation is to provide free eco-friendly shipping and minimal, recyclable materials.

Part B is aimed at understanding Eco-Chocolate's existing customer base. SPSS analysis revealed that the more frequently a customer visits the store, the less likely they are to recommend it to a friend. It also revealed that the more convenient the store is perceived to be located to the customer, the more likely they are to recommend it to a friend.

PART A

Introduction and Background

Eco-Chocolate is a UK based confectionery brand selling organic, ethically sourced chocolate desserts in London and Paris. Eco-Chocolate aims to expand its presence online expand its digital presence and offerings online, along with investigating the potential opportunities and risks involved. The company would also like to increase its brand awareness by identifying consumers' wants and needs as well as factors affecting sustainable consumption of goods. To ensure success in these aims secondary market research was conducted to answer the following questions: How can Eco-Chocolate expand its online presence? Where should Eco-Chocolate promote their brand to increase brand awareness? What are consumers looking for in sustainable brands?

The Confectionary & Snacks market is witnessing a period of stagnation in sales, which can be attributed to the adoption of healthier lifestyles by consumers due to the pandemic (Pham, 2021). Sustainable/ eco-friendly foods often face barriers of purchase. Consumers cite high prices, preference of other/non-sustainable options, and poorer taste as reasons for not choosing sustainable food options (Kunst, 2021a). However, consumers in the UK are ready to pay a premium price for products which are natural, organic, and convenience. Many consumers are spending more money on higher quality products in less volume, rather than less on higher volume (United Kingdom Consumer & Retail Report - Q1 2022, 2022).

Consumers want sustainable food and drink options that taste as good or better than non-sustainable options without spending exuberant prices (Kirienko and Schreiber, 2021). This is positive news for Eco-Chocolate when paired with findings that sustainability remains a key consideration for consumers in 2021 with 32% of consumers adopting a more sustainable lifestyle, especially Gen Z (Deloitte, 2021).

The Covid-19 pandemic has changed consumer shopping behaviour. In the UK, over 80% of the population have made e-commerce purchases and this number is expected to reach 90% in the next few years (Tighe, 2021b). This makes search engine optimisation essential for businesses online. The more keywords that a brand uses which are consistent with what people are searching for online, the higher it ranks on search engines, and the more people encounter the brand (Sheffield, 2020).

Younger generations are increasingly purchasing items directly through social media specifically, with approximately one third of people aged 18 to 34 in the UK making a purchase via social media platforms in the past six months. Similar numbers were reported in France and promotional offers were the main reason French consumers cited for purchasing via social media (Tighe, 2021a). Facebook is the leading platform for social media purchasing, followed by Instagram, YouTube, and TikTok (Kunst, 2021b).

The pandemic has ushered in large growth in online sales, especially in the food and drink category. With the rise of eCommerce, sustainability is a main criterion for deliveries. Kirienko and Schreiber (2021) found that 38% of their respondents indicate minimal packaging waste as an important delivery criterion. Deloitte (2021) also found that 64% of respondents wanted brands to reduce packaging. Free shipping is also a key criterion for online shoppers when making purchase decisions, but more than 60% of consumers are willing to pay a surcharge for environmentally friendly shipping options (Kirienko and Schreiber, 2021).

Brief Literature Review

While there is not a singular, clear definition of sustainable consumption behaviour (SCB) used by researchers due to its ever-evolving nature, it is often summarized as the adoption of green lifestyle practices (Sharma and Jha, 2017) with words such as responsible, and environmentally friendly (Kadic-Maglajlic et al., 2019). SCB has also been defined as “actions that result in decreases in adverse environmental impacts as well as decreased utilization of natural resources across the lifecycle of the product, behaviour, or service” (White, Habib and Hardisty, 2019).

Social and individual values are major influences of SCB. Self-identity is a strong value influencing consumers’ behaviour. This value has been thoroughly researched and confirms the congruity of identity and behaviour, or that people who view themselves as sustainable are more likely to behave sustainably (Kadic-Maglajlic et al., 2019). People seek to ensure their values and behaviours are cohesive internally, but also externally. Consumers are often impacted by the presence, behaviours, and expectations of others and the effects of self-identity are intensified for those in “ingroup identification” (White, Habib and Hardisty, 2019). Sustainable behaviour often requires social, collective actions to be fully recognized, rather than individual action (White, Habib and Hardisty, 2019). Sharma and Jha (2017) confirm this in finding that values such as compassion, universalism, acceptance, and benevolence exhibit a significant positive relationship with sustainable consumption behaviour.

While aiming to act consistently with their personal values, people also seek to behave in ways that are congruent with group values. However, White, Habib and Hardisty (2019) also point out inconsistency effects or licensing effects which occur when individuals who have

engaged in a sustainable action one time are less likely to engage in another one later. Value-action or attitude-behaviour gaps are also commonly observed when studying sustainability. “For example, many consumers are concerned about the state of the environment, but at the same time they are not ready to change their consumption practices” (Sharma and Jha, 2017). There are many reasons why people find it difficult to act sustainably, even if they care about environmental issues such as culture, habits, finances, and lack of information (Kadic-Maglajlic et al., 2019).

Many unsustainable behaviours are learned in ways that make them automatic behavioural responses and can be a challenge to reform these habits. New responses need to be built slowly (White, Habib and Hardisty, 2019). Daniel Kahneman’s two systems of thinking explains that many of our daily decisions are done almost automatically in System 1 and that the majority of policy tools for changing behaviour target System 2 which is more deliberate and conscious (Lehner et al, 2016). These tools are often focused on providing information, which doesn’t necessarily lead to behaviour change because people often make decisions that are not in their best interest (Lehner et al., 2016). Habit formation is critical for SCB. Many sustainable actions are viewed as high effort, difficult, or time-consuming, resulting in a barrier to action. To alleviate this, brands should encourage repetition and make sustainable behaviours easy through extrinsic incentives. (White, Habib and Hardisty, 2019).

Recommendations

Consumers are shopping more and more online and via social media. With 80% of UK consumers having made a purchase online, digital sales and advertising cannot be dismissed (Tighe, 2021b). Eco-chocolate needs to consistently post social media, especially on Facebook, Instagram and TikTok. Customers want information on sustainability, as lack of information is cited as a key barrier to entry for sustainability, but information alone is not enough (Lehner et al., 2016). Posts should vary between informational graphics on sustainability, tips, and aesthetic product images to engage the audience.

Search Engine Optimisation (SEO) should be a key focus for Eco-Chocolate. Keywords such as eco-friendly chocolate, sustainable chocolate, organic chocolate, and sustainable gift ideas should be used on the website. This will drive consumers to the Eco-Chocolate website from search results. Regular analysis and updating of keywords should be done to reflect current consumers' searches regarding environmentally friendly confectionary and gift ideas. If Eco-Chocolate can rank higher on search engines for numerous keywords, the more people will be exposed to the brand.

I recommend implementing promotions as part of the marketing strategy because "promotions" was cited as the main reason for purchasing online by French consumers in a when surveyed (Tighe, 2021a). Specifically, an online promotional offer to send to a friend that would give both the customer and a friend 25% off their next orders A friend who wants to act sustainably is sent a promotional code is likely to use it to buy the sustainable chocolate because it is easy, consistent with their desired self-identity, and likely sent by a friend who is part of the desired in-group. A promotional code sent to a new customer increases awareness

for the brand. It also alleviates major pain points of sustainable consumption behaviour: difficulty and price.

Partnering with sustainable micro-influencers is also a vital way to raise awareness for Eco-Chocolate online. These influencers can be given a marginal discount code and share it with their audiences. Young people especially value the opinions of influencers because they represent the desired self (Kadic-Maglajlic, 2019). By having these sustainable influencers promote Eco-Chocolate on their social media accounts, it would raise awareness and drive traffic to the brand's website and social media accounts.

Advertising and selling sustainable products online simplify sustainable consumption behaviours and eases the habit-forming process by adapting to current customer behaviours. I recommend offering free eco-friendly shipping on all orders. The majority of consumers demand less wasteful packaging and free shipping. While many are willing to pay for eco-shipping, Eco-Chocolate should provide free eco-shipping and minimal, recyclable packaging be the default standard choice to nudge and ease customer decision making. To encourage repetition of purchase and sustainable behaviour, Eco-Chocolate should reward customers who show that they repurpose or recycle their chocolate wrappers with a discount code or a punch on a digital tracker card that rewards them with a free bar after 10.

PART B

To further investigate existing consumers of Eco-Chocolate, a self-competition questionnaire survey was given out. Survey respondents were given questions on demographics and other consumers' perceptions and behaviour such as word of mouth. Examining such variables will help Eco-Chocolate improve its understanding of its current customer base and form strategies aimed at maintaining them. Data was collected by surveying 105 of Eco-Chocolate's existing customers.

Question 1

A normality test was conducted to determine if the dataset is normally distributed. Originally, the data was not normally distributed. Outliers were deleted one at a time to achieve approximate normality. Approximate normality was concluded even though the "roughly bell-shaped histogram" (Appendix 1) assumption is violated because skewness is .969 which falls between the benchmark of -1 and 1 and Kurtosis is .175 which falls between the benchmark of -4 and 4 (Figure 3).

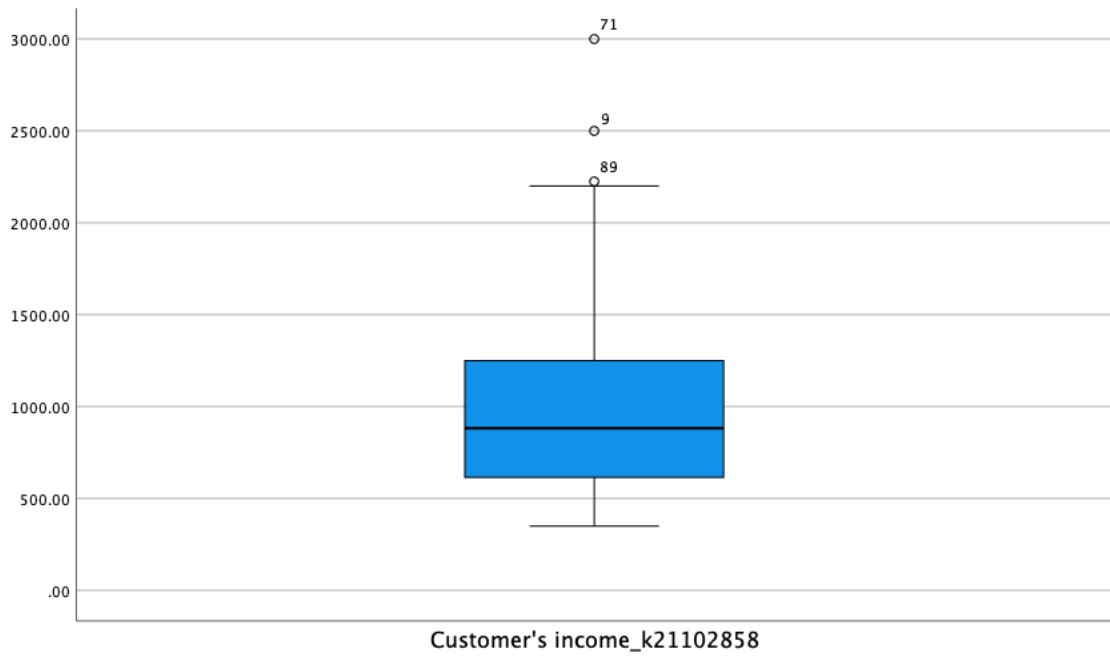


Figure 1: Boxplot for Normality Test showing the outliers causing the data to not be normally distributed

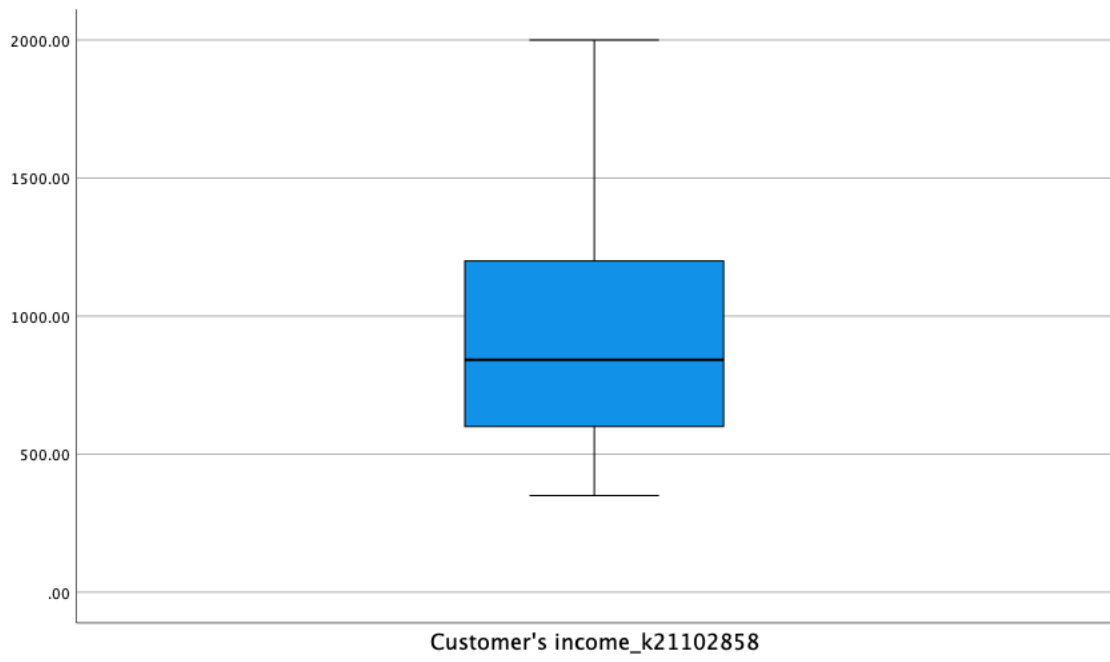


Figure 2: Boxplot for Normality Test with outliers removed (done one at a time)

Descriptives

		Statistic	Std. Error	
Customer's income_k21102858	Mean	960.6800	44.88829	
	95% Confidence Interval for Mean	Lower Bound	871.6119	
		Upper Bound	1049.7481	
	5% Trimmed Mean	934.6444		
	Median	842.0000		
	Variance	201495.816		
	Std. Deviation	448.88285		
	Minimum	350.00		
	Maximum	2000.00		
	Range	1650.00		
	Interquartile Range	600.00		
	Skewness	.969	.241	
	Kurtosis	.175	.478	

Figure 3: Descriptives Table for Normality

Question 2 (Frequency of Visits)

To investigate whether there is a difference between how frequently customer's visit the store and how likely they are to recommend the brand to friends, a One-Way ANOVA test was conducted.

H_0 : The likelihood of recommending the brand to friends is the same across the frequencies of visits.

H_1 : The likelihood of recommending the brand to friends is significantly different across the frequencies of visits.

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Likelihood to recommend the brand to friends_k21102858	Based on Mean	.028	2	102	.973
	Based on Median	.002	2	102	.998
	Based on Median and with adjusted df	.002	2	98.444	.998
	Based on trimmed mean	.004	2	102	.996

Figure 4: Tests of Homogeneity of Variances

One-Way ANOVA assumes that there is homogeneity of variance. This assumption is met due to the Levene's Test significance value based on the mean because it is greater than 0.05. (Figure 4).

ANOVA
Likelihood to recommend the brand to friends_k21102858

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20.282	2	10.141	9.788	<.001
Within Groups	105.680	102	1.036		
Total	125.962	104			

Figure 5: ANOVA Table

The Homogeneity of Variance was not violated so the ANOVA table (Figure 5) was used. This table shows significant difference between the groups at <.001; therefore, it is relevant to look at the Multiple Comparisons Table (Figure 6).

Multiple Comparisons

Dependent Variable: Likelihood to recommend the brand to friends_k21102858
Tukey HSD

(I) Frequency of visits	(J) Frequency of visits	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
high frequency	average frequency	-.75000	.50894	.308	-1.9605	.4605
	low frequency	-1.52809*	.37570	<.001	-2.4217	-.6345
average frequency	high frequency	.75000	.50894	.308	-.4605	1.9605
	low frequency	-.77809	.37570	.101	-1.6717	.1155
low frequency	high frequency	1.52809*	.37570	<.001	.6345	2.4217
	average frequency	.77809	.37570	.101	-.1155	1.6717

*. The mean difference is significant at the 0.05 level.

Figure 6: Multiple Comparisons Table

The asterisks on numbers in the Mean Difference column show significant difference between the two groups being compared. There is a significant difference between the low frequency of visiting and likelihood to recommend the brand to friends and the high frequency and likelihood to recommend the brand to friends.

The null hypothesis is rejected, and we accept the alternative and therefore we are interested in identifying the difference between our groups.

Descriptives

Likelihood to recommend the brand to friends_k21102858

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
high frequency	8	4.0000	1.30931	.46291	2.9054	5.0946	3.00	7.00
average frequency	8	4.7500	1.03510	.36596	3.8846	5.6154	3.00	6.00
low frequency	89	5.5281	.98960	.10490	5.3196	5.7366	3.00	7.00
Total	105	5.3524	1.10053	.10740	5.1394	5.5654	3.00	7.00

Figure 7: Descriptives Table

The Descriptives Table (Figure 7) puts the Likelihood to Recommend the Brand to Friends and frequencies in order. We can conclude that people with low frequency of visits are most likely to recommend the brand to friends based on mean values.

Question 3

To investigate the variables in terms of best predictors of likelihood to recommend the brand to friends, a multiple regression test was conducted.

Dummy variables were created for Average Frequency of Visit and High Frequency of Visits to effectively run the Multiple Regression. After running the regression, there was a Casewise Diagnostic Table (Figure 8) indicating an outlier. This outlier was removed, the regression was re-run, and no Casewise Diagnostic Table appeared. This indicated that there were not any significant outliers, and analysis could be continued.

Casewise Diagnostics^a

Case Number	Std. Residual	Likelihood to recommend the brand to friends_k21102858	Predicted Value	Residual
4	4.027	7.00	3.2903	3.70966

a. Dependent Variable: Likelihood to recommend the brand to friends_k21102858

Figure 8: Casewise Diagnostics Table

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.727 ^a	.529	.500	.77346	1.768

a. Predictors: (Constant), Loyalty card holder, Customer's income_k21102858, Dummy_averagefrequency, Perceived quality, Dummy_highfrequency, Perceived convenience for store location

b. Dependent Variable: Likelihood to recommend the brand to friends_k21102858

Figure 9: Model Summary Table

The Model Summary (Figure 9) shows that the R² (coefficient of determination) is .529 which explains that the variance in the dependent variable is explained by the model.

Figure 9 shows that the Adjusted R² for the regression model is .500. Therefore, independent variables in this model explain the 50.0% of the variance satisfaction level (this value is close to the R² value reported above). There are no concerns about the sample of this study.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	65.192	6	10.865	18.162	<.001 ^b
	Residual	58.029	97	.598		
	Total	123.221	103			

a. Dependent Variable: Likelihood to recommend the brand to friends_k21102858

b. Predictors: (Constant), Loyalty card holder, Customer's income_k21102858, Dummy_averagefrequency, Perceived quality, Dummy_highfrequency, Perceived convenience for store location

Figure 10: ANOVA Table for Regression

$H_0 =$ all regression coefficients are equal to zero
 $H_1 =$ not all regression coefficients are equal to zero

Using the above hypothesis and ANOVA table (Figure 10), statistical significance of the model is proven as sig. = <.001 with the benchmark is $p < .05$. We reject the null hypothesis and accept the alternative.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.773	.497		3.565	<.001	.786	2.761					
	Customer's income_k21102858	.000	.000	.056	.789	.432	.000	.000	.084	.080	.055	.979	1.021
	Perceived quality	.026	.065	.030	.390	.697	-.104	.156	.313	.040	.027	.832	1.201
	Perceived convinience for store location	.427	.074	.500	5.795	<.001	.281	.573	.648	.507	.404	.653	1.531
	Dummy_highfrequency	-.552	.360	-.127	-1.531	.129	-1.267	.163	-.436	-.154	-.107	.705	1.418
	Dummy_averagefrequency	-.249	.306	-.061	-.815	.417	-.857	.358	-.156	-.082	-.057	.865	1.157
	Loyalty card holder	.638	.163	.291	3.913	<.001	.314	.961	.435	.369	.273	.879	1.138

a. Dependent Variable: Likelihood to recommend the brand to friends_k21102858

Figure 11: Original Coefficients Table

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	2.649	.419		6.322	<.001	1.818	3.480					
	Perceived convinience for store location	.483	.070	.566	6.856	<.001	.343	.623	.648	.564	.507	.804	1.244
	Dummy_highfrequency	-.803	.359	-.185	-2.241	.027	-1.515	-.092	-.436	-.218	-.166	.804	1.244

a. Dependent Variable: Likelihood to recommend the brand to friends_k21102858

Figure 12: New Coefficients Table

$H_0 =$ the coefficient (each independent variable) is zero.
 $H_A =$ the coefficient (each independent variable) is significantly different from zero.

We reject the null hypothesis and accept the alternative.

Figure 11 shows the original Coefficients Table with all the variables shown. After assessing the coefficients using beta and significance, variables were deleted one at a time starting with the highest value because they were not significant. The regression was re-run each time. This was repeated until only perceived location and dummy for high frequency variables remained being significant predictors of Likelihood to Recommend the Brand to a Friend, as shown in Figure 12.

To assess the regression coefficients the unstandardized column was used. It shows a positive relationship between perceived convenience for store location and likelihood to recommend the brand to a friend and a negative relationship for high frequency of visits and likelihood to recommend. Meaning the more frequently a customer visits, the less likely they are to recommend the store to a friend. This could be a result of only seven respondents in the survey out of 105 marked high frequency.

Regression coefficients were compared using beta values.

Perceived convenience of store location strongly reflects likelihood to recommend to a friend with Beta = .566.

Frequency of visits reflects less of a likelihood to recommend to a friend with Beta = .185.

Collinearity Statistics	
Tolerance	VIF
.804	1.244
.804	1.244

Figure 13: VIF Values

Multicollinearity was checked using the VIF values from the New Coefficients Table (Figure 13). Both values are <10 so there no evidence of multicollinearity.

Assumptions

Normality Tests

Multiple regression assumes that the residuals are normally distributed. The histogram and P-P Plot of Regression Standardized Residual were analysed to determine normal distribution.

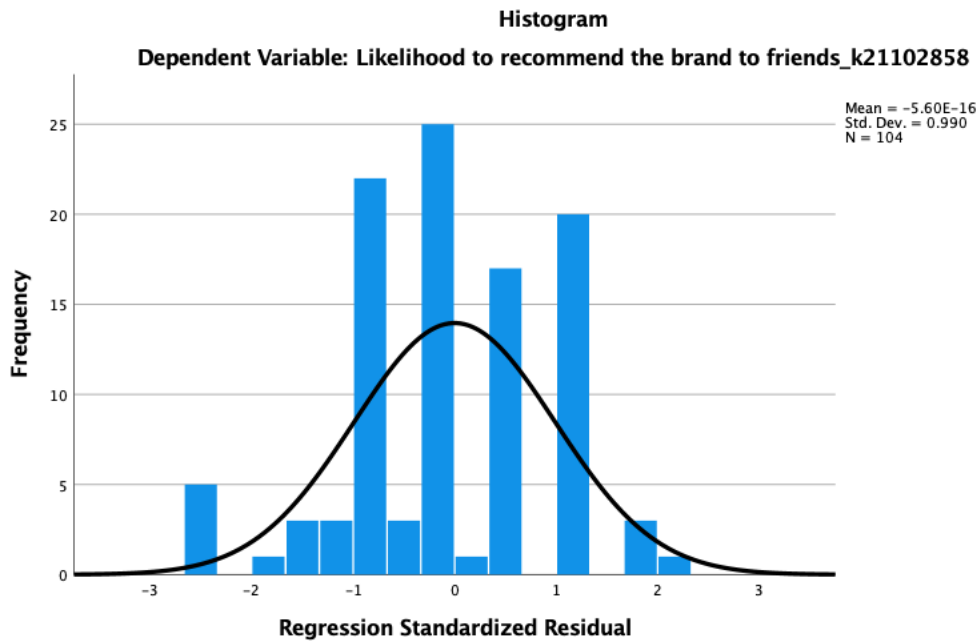


Figure 14: Normality Histogram

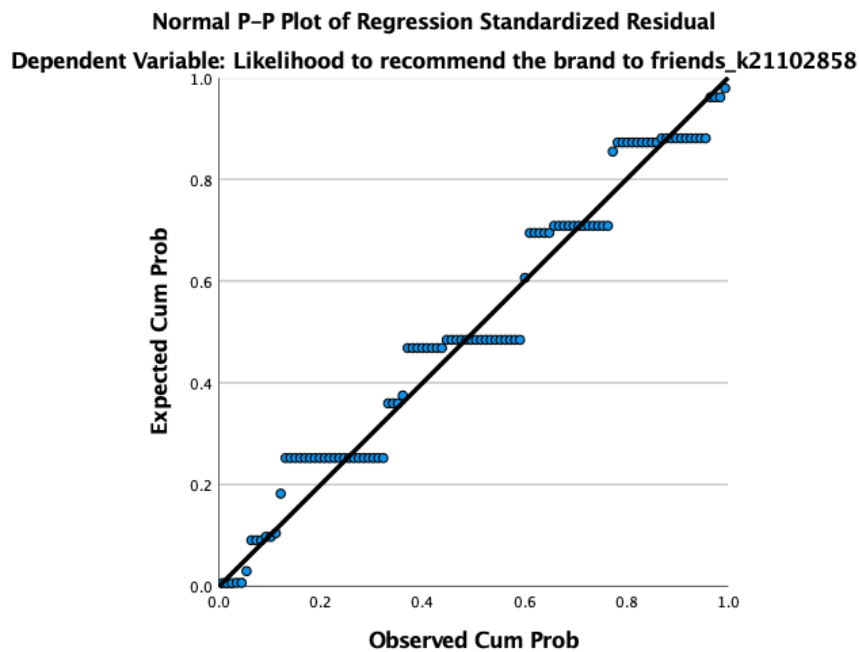


Figure 15: Normal P-P Plot of Regression Standardized Residual

The histogram and P-P plot confirm this assumption. The histogram (Figure 14) is roughly bell-shaped; therefore, the normality of residuals/ errors is normally distributed. Similarly, the points on the P-P plot all fall roughly along the diagonal line so the same assumption is confirmed (Figure 15).

Homoscedasticity of Errors

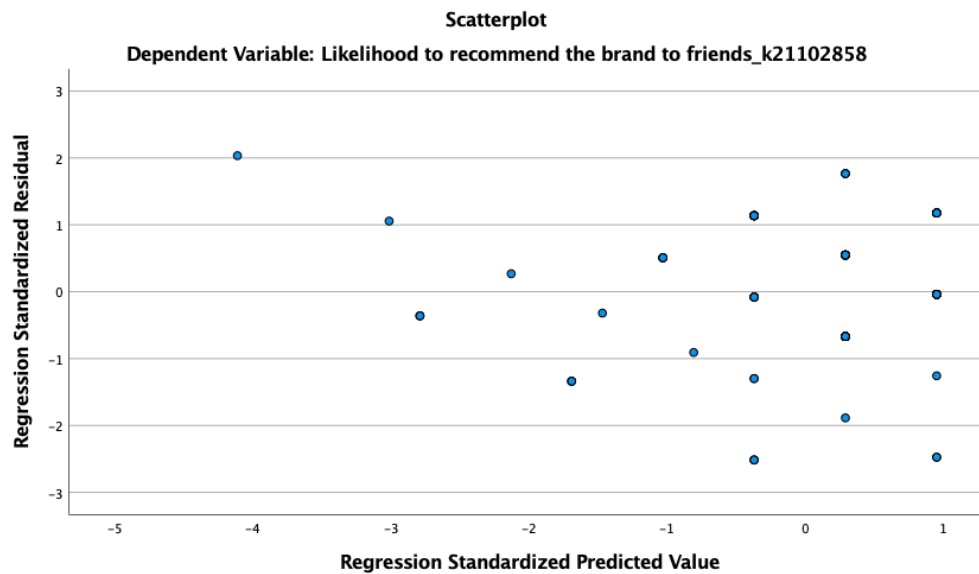


Figure 16: Scatterplot

Multiple regression assumes homoscedasticity of errors. A scatterplot (Figure 16) is used to assess this. We can confirm the homoscedasticity of errors assumption because the points pass through zero and are distributed across the graph.

Independence

Independence of errors was tested using Durbin-Watson test statistics (Figure 9). The value of 1.809 falls within the benchmarks of 1.5 and 2.5. Thus, the independence of errors assumption is met.

Conclusion

Overall, the model has explanatory power (R^2) 43.6% for the predictors:

Perceived Convenience for Store Location (Beta = .566)

Dummy_highfrequency (Beta = .185)

Satisfaction = $\beta_0 + \beta_1 * X_{01} + \beta_2 * X_{02} + e_i$

The regression meets the assumptions of regression.

REFERENCES

Deloitte (2021). *Shifting sands: Are consumers still embracing sustainability?* [online]

Deloitte United Kingdom. Available at: <https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html> .

Kadic-Maglajlic, S. et al. (2019) Being engaged is a good thing: Understanding sustainable consumption behavior among young adults. *Journal of business research*. [Online] 104644–654.

Kirienko, E. and Schreiber, L. (2021). *Sustainable Consumption in the UK 2021 Report*.

[online] Statista. Available at: <https://www.statista.com/study/89745/sustainable-consumption-in-the-uk-report/>.

Kunst, A. (2021a). *Barriers to sustainable food/beverage purchases in the UK 2021*. [online]

Statista. Available at: <https://www.statista.com/forecasts/1241120/barriers-to-sustainable-food-beverage-purchases-in-the-uk>.

Kunst, A. (2021b). *Social media purchases by platform in the UK 2021*. [online] Statista.

Available at: <https://www.statista.com/forecasts/1275921/most-popular-platforms-for-social-media-purchases-in-the-united-kingdom>.

Lehner, M. et al. (2016) Nudging – A promising tool for sustainable consumption behaviour? *Journal of cleaner production*. [Online] 134166–177

Pham, P. (2021). *Confectionery & Snacks Report 2021*. [online] Statista. Available at:

<https://www.statista.com/study/48835/confectionery-and-snacks-report/>.

Pocol, C.B., Marinescu, V., Amuza, A., Cadar, R.-L. and Rodideal, A.A. (2020). Sustainable vs. Unsustainable Food Consumption Behaviour: A Study among Students from Romania, Bulgaria, and Moldova. *Sustainability*, 12(11), p.4699.

Profeta, A. et al. (2021) The impact of Corona pandemic on consumer's food consumption: Vulnerability of households with children and income losses and change in sustainable consumption behavior. *Journal für Verbraucherschutz und Lebensmittelsicherheit*. [Online] 16 (4), 305–314.

Sharma, R. & Jha, M. (2017) Values influencing sustainable consumption behaviour: Exploring the contextual relationship. *Journal of business research*. [Online] 7677–88.

Sheffield, J. P. (2020) 'Search Engine Optimization and Business Communication Instruction: Interviews With Experts', *Business and Professional Communication Quarterly*, 83(2), pp. 153–183.

Tighe, D. (2021a). *Social shoppers by country and age 2020*. [online] Statista. Available at: <https://www.statista.com/statistics/1192455/share-of-people-who-purchased-goods-on-social-media-by-age-group/#statisticContainer> [Accessed 4 Jan. 2022].

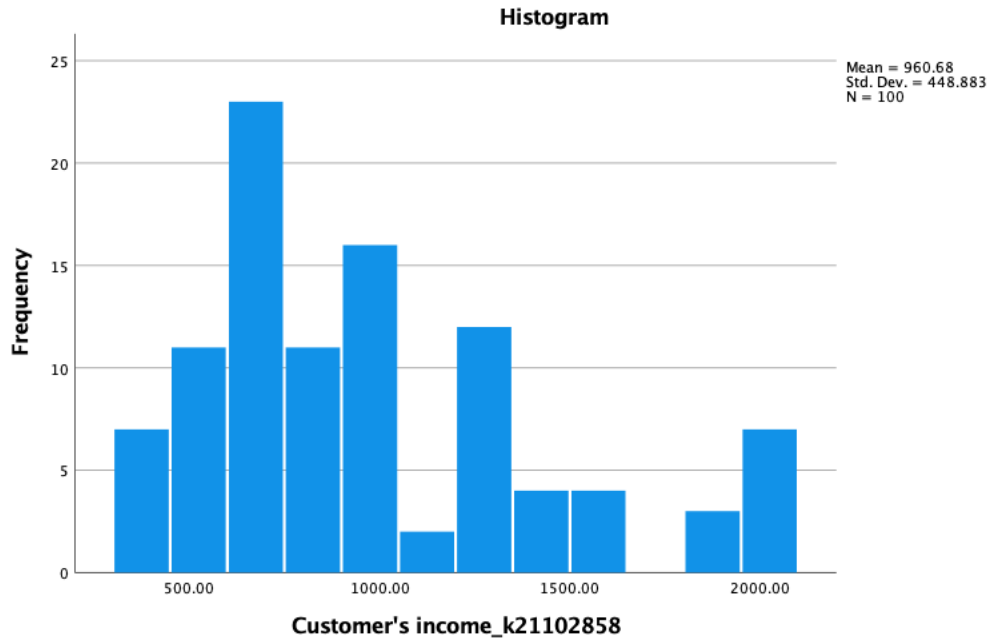
Tighe, D. (2021b). *Topic: Online shopping behavior in the UK*. [online] Statista. Available at: <https://www.statista.com/topics/7887/online-shopping-behavior-in-the-uk/#dossierKeyfigures>.

United Kingdom Consumer & Retail Report - Q1 2022. 2022. London: Fitch Solutions Group Limited.

White, K. et al. (2019) How to SHIFT Consumer Behaviors to be More Sustainable: A Literature Review and Guiding Framework. *Journal of marketing*. [Online] 83 (3), 22–49.

Appendix

Appendix 1



Appendix 2

