Too Good to Go

Project

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Executive Summary

The **primary objective of this analysis will be to evaluate the effectiveness of the Too Good To Go app** in reducing food waste and promoting sustainability, understand user behavior, and provide actionable recommendations for enhancing the app's impact on sustainability.
The analysis will be conducted using a dataset from a survey focusing on sustainability and Too Good To Go, encompassing information on app usage, user demographics, and customer preferences.

We will perform **univariate analyses** to assess data quality, to perform a sample analysis, understand distribution, central tendency, and dispersion, and draw initial conclusions on the sample's behavior and habits.

Subsequently, we will carry out **bivariate analyses** to examine relationships between pairs of variables, identifying potential correlations and patterns. This analysis will address six research questions:

1. What are the attitudes of consumers towards food waste in Italian homes?
2. What are the main drivers for consumers who choose to use food waste management apps?
3. What is the relationship between food waste apps and price?
4. What is the balance quantity in a box?
5. What are the features that limit the use of apps such as Too Good To Go?
6. How do distance and time to reach the store affect the use of Too Good To Go?

Finally, we will conduct a **cluster analysis** to identify homogeneous groups within the dataset. This technique will segment users into clusters with similar characteristics and behaviors, facilitating a deeper understanding of different user profiles and their preferences regarding sustainability and app usage.
The description of the clusters and the identification of the most attractive customer segment will be completed through bivariate screening.

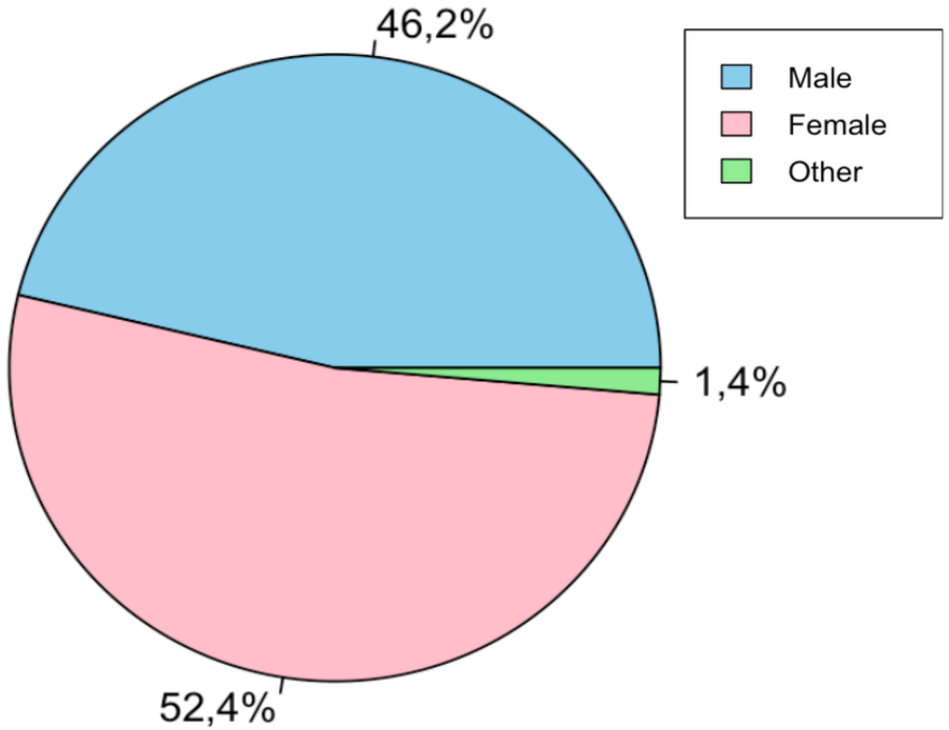
EXPLORATORY ANALYSIS

Exploratory analysis

1. Socio-Demographic analysis of the sample population
2. Habits and attitudes related to sustainability
3. Too Good to Go: usage and thoughts

1. Socio-Demographic analysis of the sample population

Gender classification



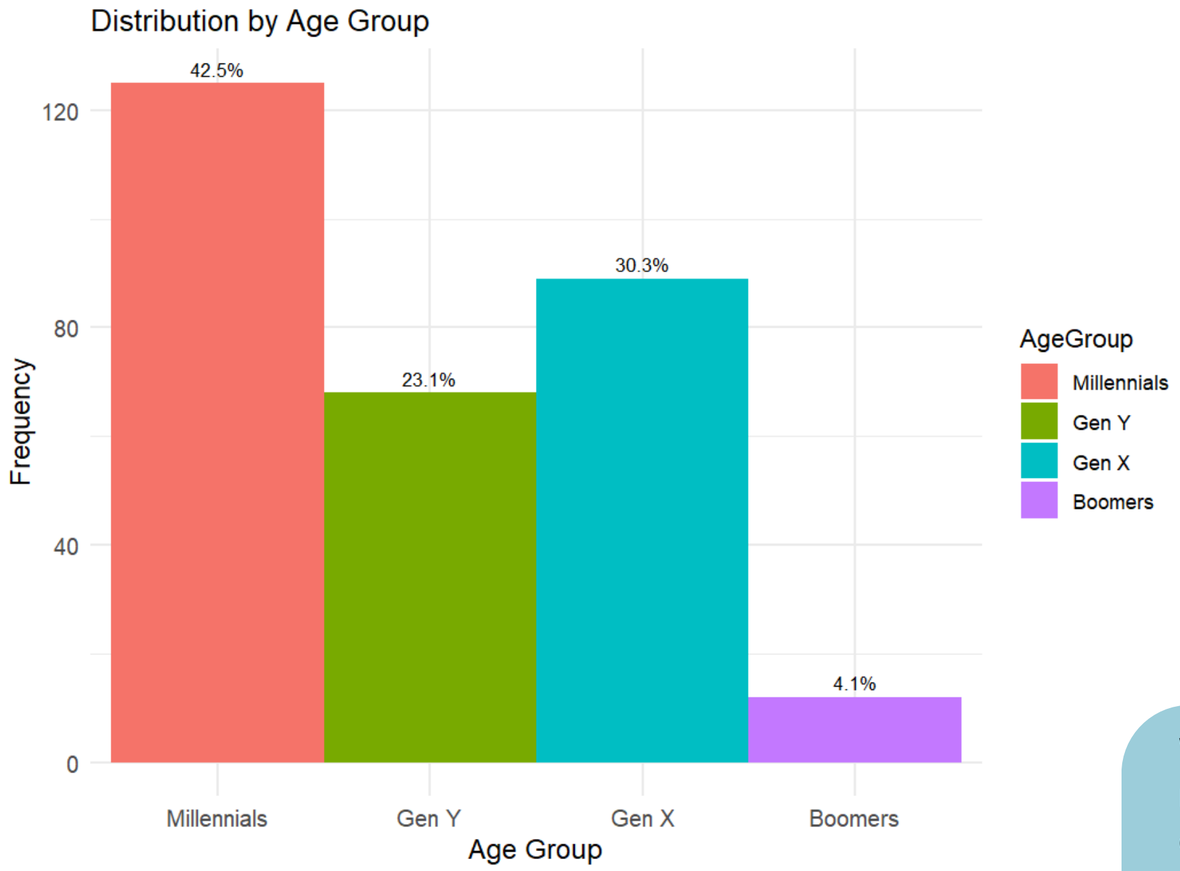
In our sample, approximately **46,2%** of individuals identify as **male**, **52.4%** as **female**, and the remaining **1.4%** either identify as **non-binary** or prefer **not to specify** their gender. These proportions closely align with demographic **data provided by ISTAT** for northern Italy, where **males constitute 48%** of the population, **females 52%**, and non-binary individuals comprise around 1% of the italian population. It's important to note that our comparison is specifically tailored to the northern region of Italy, as our market analysis is focused solely on that geographic area. All observations in our sample are derived exclusively from this northern region.

Non-binary individuals and those who have chosen not to specify their gender are combined and represented as a single category in the pie chart for simplicity and clarity.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	136	46.3	46.3	46.3
	Female	154	52.4	52.4	98.6
	Non-binary	1	.3	.3	99.0
	not declared	3	1.0	1.0	100.0
	Total	294	100.0	100.0	

Age of the sample



Looking at the age of the people in the sample we decided to split them in four classes: the so called **Millennials** (or generatizon Z), from 19 to 26 years of age; the **Generation Y**, from 27 to 42; the **Generation X**, from 43 to 58; and the **Boomers** from 59 up to 70 (oldest person in the sample).

As we can see 125 out of the 294 people are millennials, 68 are part of the Generation Y, 88 of the Generation Z and just 12 makes it to the last class: the Boomers.

There's a huge difference between these data and the ones given by ISTAT: just considering the people in the range of age highlighted in the sample we have that the millennials only represent the 12.4% of the population, Gen Y the 26..4%, Gen X the 37.1% and the remaining 24.1% are the Boomers.

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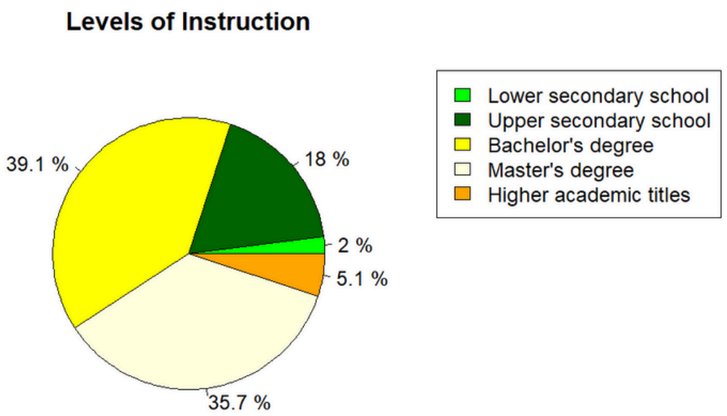
We can observe that the medium value of the parameter age in the sample is 35.5, the mode is 22 and the median 32, which strnghten the assumption that the distribution of the age in the sample is not coherent with the actual data about northern Italy.

N	Valid	294
	Missing	0
Mean		35,15
Median		32,00
Mode		22
Std. Deviation		13,712
Minimum		19
Maximum		70

Levels of instruction of the sample



The percentages regarding the level of instruction of the people analyzed in our sample are **very different to the ones provided by ISTAT for the year 2022**, which states that 21.3% of the northern italian has an upper secondary school qualification as their highest title of instruction, while just the 23.7% of the population has at least a bachelor's degree, which is very different from the cumulative 79.9% we can observe in the sample.

This phenomenon may be related to the fact that people with higher level of instruction are more capable and sensitive with sustainability, so they'll have an higher propension to use the product "too good to go", which provides saving money for food in a sustainable way. Moreover, the greater concentration of users in urban areas, where a population with higher education resides, may contribute to the discrepancy with the data provided by ISTAT

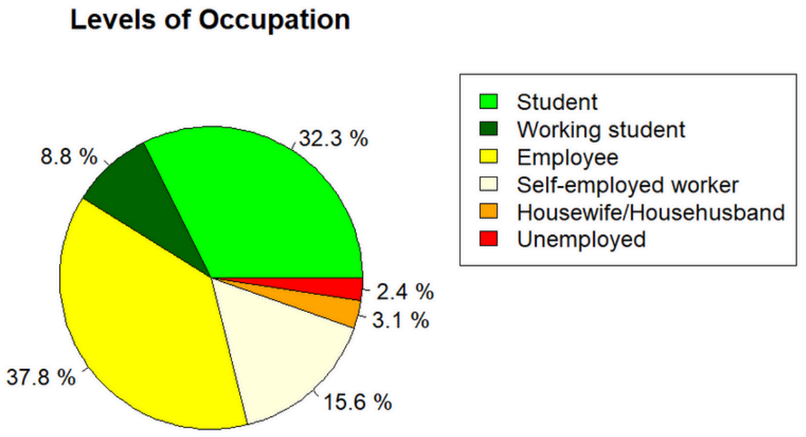
Levels of Instruction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Lower secondary school	6	2,0	2,0	2,0
	Upper secondary school	53	18,0	18,0	20,1
	Bachelor's degree	115	39,1	39,1	59,2
	Master's degree	105	35,7	35,7	94,9
	Higher academic titles	15	5,1	5,1	100,0
	Total	294	100,0	100,0	

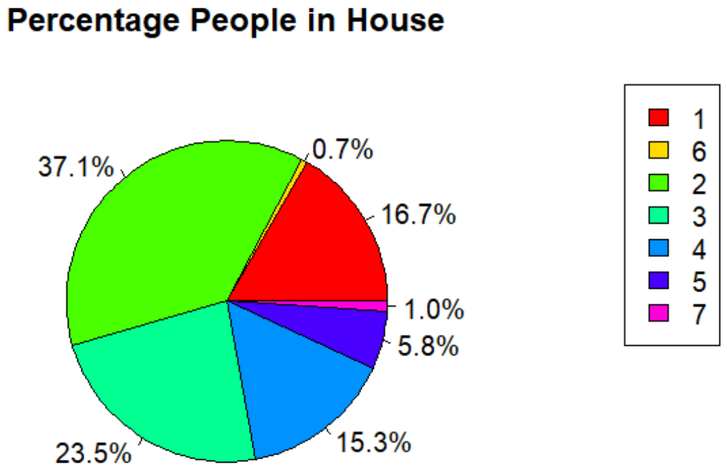
Levels of occupation of the sample

For what concerns the levels of occupation described in the sample, some of the **percentages are coherent to the ones we can find on ISTAT's reports**, the actual percentage of dependent workers (36.6%), the one of independent workers (17.7%). Differently, the percentage of unemployed people (4.7%) and the percentage of housewives (5.3%) are not so close to the values observed in the sample.
Also the data about the students is not coherent since just the 5.1% of the northern italian population in the considered target age is made by students, same for the working students which are attested to be the 40% of the entirety of the students.

So basically we can say that "Too Good To Go" appears to attract a wide variety of users, with a significant representation of students, employed and self-employed workers, reflecting a combination of economic and environmental motivations. The discrepancies in the employment levels of the sample suggest that "Too Good To Go " is particularly popular among students and young workers, attracted by discounts and sustainability. Employees and independent workers also use the app, motivated by savings and environmental responsibility.



People in House

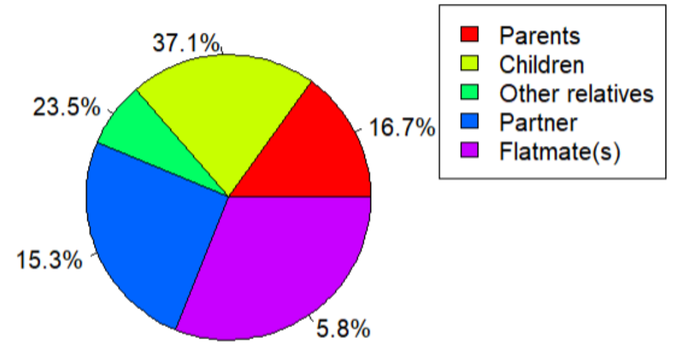


Comparing our data with ISTAT's 2023 figures reveals significant disparities in household composition. While single-person households are less common in our survey (16.7%), two-person (37.1%) and three-person households (23.5%) are more prevalent compared to national averages. This suggests that "Too Good To Go" might be particularly popular among two and three-person families, possibly due to the convenience and utility of purchasing surplus food at discounted prices. The lower presence of single-person households may indicate lesser usage of the app, potentially due to lower need or different consumption habits.
In summary, the differences between our sample and ISTAT data **highlight a higher incidence of two and three-person families among "Too Good To Go" users.** This provides valuable insights into the family composition of app users and helps to better understand the characteristics of the resident population utilizing this service.

People in House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	49	16,7	16,7	16,7
	2	109	37,1	37,1	53,7
	3	69	23,5	23,5	77,2
	4	45	15,3	15,3	92,5
	5	17	5,8	5,8	98,3
	6	2	,7	,7	99,0
	7	3	1,0	1,0	100,0
	Total	294	100,0	100,0	

Roles of people living with you



ISTAT data shows Italian families divided into two categories: those without a nucleus (36.9%), mainly singles, and those with a nucleus (62%), further divided into single-nucleus families (59.1%) and families with additional members (2.9%). The diverse family dynamics in Italy include families with only children (37.1%) and families with only relatives (16.7%).
Too Good To Go appeals to users across various living situations, notably families and couples, drawn to its food sustainability and waste reduction features. Families with children find value in both economic savings and educational opportunities. While users with roommates are fewer, there's potential for growth, especially among cost-conscious young adults.

People in House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	49	16,7	16,7	16,7
	2	109	37,1	37,1	53,7
	3	69	23,5	23,5	77,2
	4	45	15,3	15,3	92,5
	5	17	5,8	5,8	98,3
	6	2	,7	,7	99,0
	7	3	1,0	1,0	100,0
	Total	294	100,0	100,0	

Conclusions of the sample

There are several issues regarding the quality of the data described in the sample. After comparing our data with those collected by ISTAT, we believe they do not adequately represent people between the ages of 18 and 70 living in Northern Italy.

Although we have a good balance regarding gender, we have noticed that there may be sampling issues concerning other characteristics:

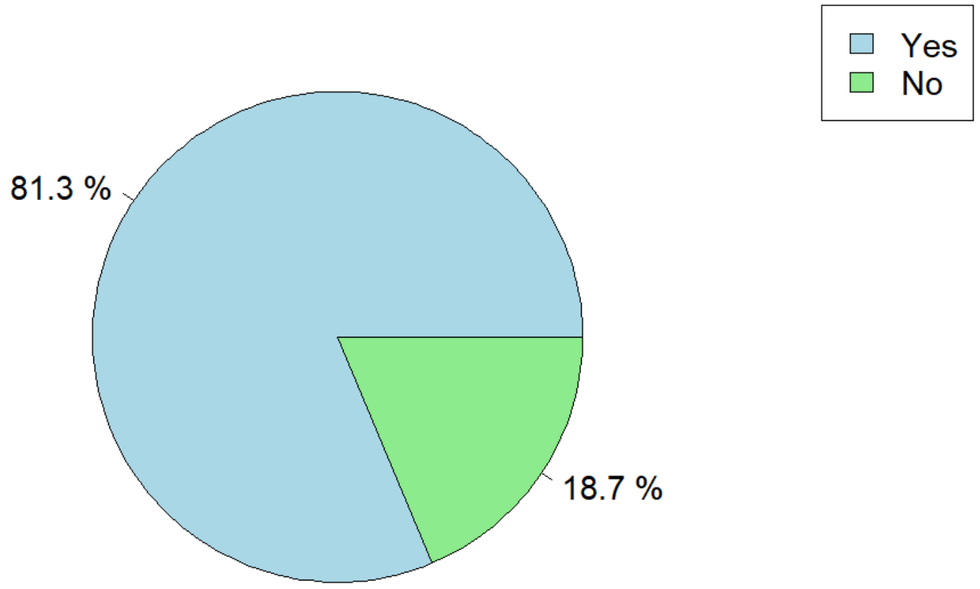
- Education: This could lead to biases in the analysis of preferences;
- Occupation: This could affect the willingness to pay;
- People living in the same household, both in terms of number and role: This could lead to incorrect assumptions about household consumption patterns.

Therefore, we believe it is necessary to **exercise caution when extending the results obtained from the analysis of our sample to the overall target population**, considering the possible limitations found in the aforementioned characteristics.

2. Habits and attitudes related to sustainability

Sustainability Attitudes

Do you pay attention to sustainability?



		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	239	81,3	81,3	81,3
	No	55	18,7	18,7	100,0
	Total	294	100,0	100,0	

We analyzed consumer habits to understand **sustainability practices** and **food shopping preferences**.

Our study highlights the importance of eco-friendly products and the key factors influencing grocery purchasing decisions, revealing trends in sustainable consumption.

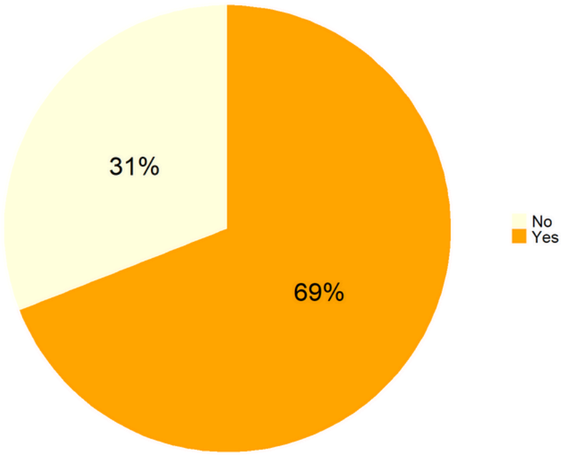
About **81.3%** of the respondents of our reference sample assessed themselves as people who care about sustainability theme

Types of eco-sustainable actions

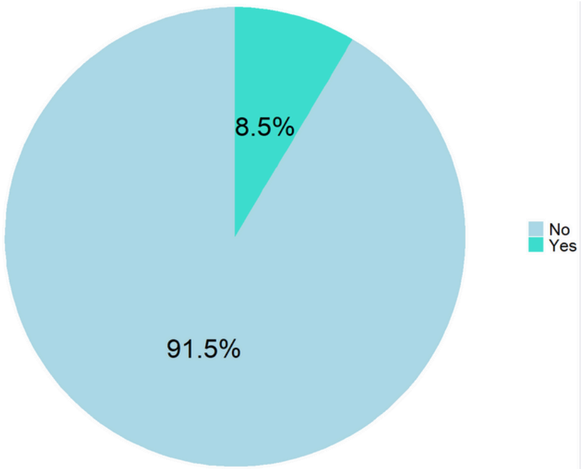
The sample population reported engaging in one or more of the following eco-sustainable actions:

- I recycle the products I use.
- I prefer using public transportation or going by foot.
- I try to limit the use of water, gas, food, light, etc.
- I buy second hand clothes.
- I prefer to buy products with less or sustainable packaging.
- I prefer to buy products that are bio or local.
- None.

Limit use of water, gas, food, light:



Buy second hand clothes:

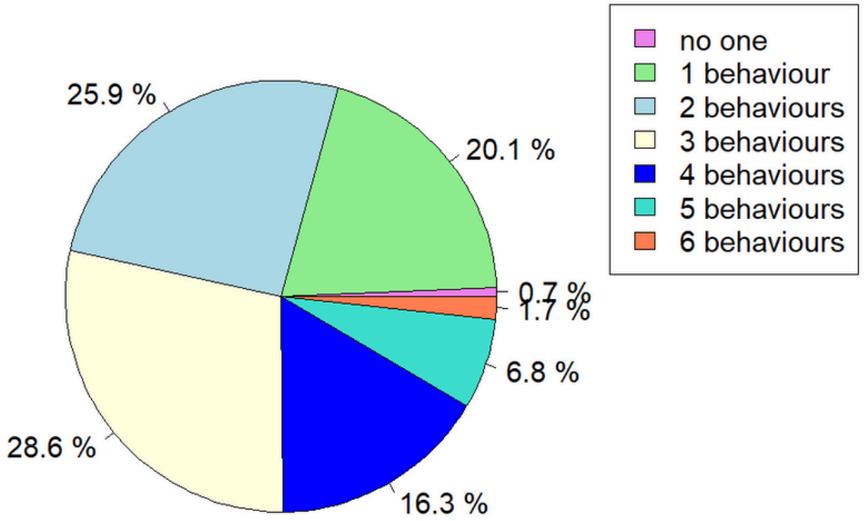


The most sustainable activity adopted by the analyzed sample is **limiting the use of resources** such as water, gas, and food, with **69%** of respondents stating that they implement this behavior. Conversely, the least common activity is **purchasing second-hand clothing**, practiced by only **8.5%** of the sample.

The emergence of **limiting food waste** as the most prevalent activity within the analyzed sample suggests a promising aspect for applications like Too Good to Go, which aim to reduce food waste.

Number of eco-sustainable actions adopted by each individual

How many eco-sustainable habits do you really adopt?

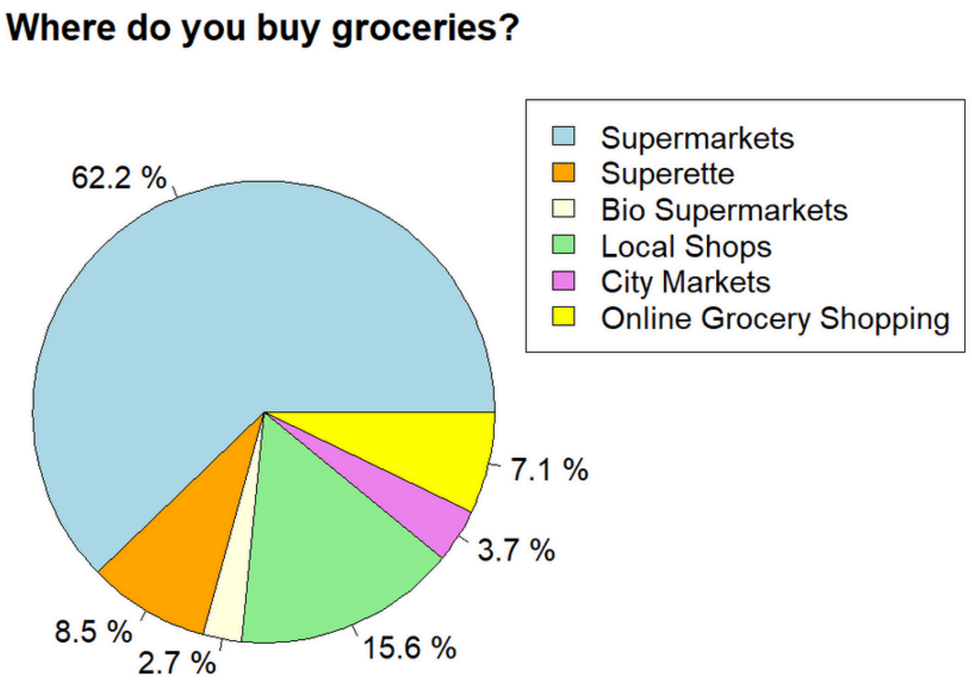


N. of behaviours	Absolute frequency	Percentage	Cumulative absolute
0	2	0,68%	2
1	59	20,07%	61
2	76	25,85%	137
3	84	28,57%	221
4	48	16,33%	269
5	20	6,80%	289
6	5	1,70%	294
tot	294	100%	

Although more than 80% of the sample population considers themselves climate-conscious, only **24.8%** report incorporating **more than 3 eco-sustainable** actions into their daily routine.

This highlights that despite a high level of environmental awareness, the commitment to multiple sustainable practices is relatively low.

Places where people buy grocery

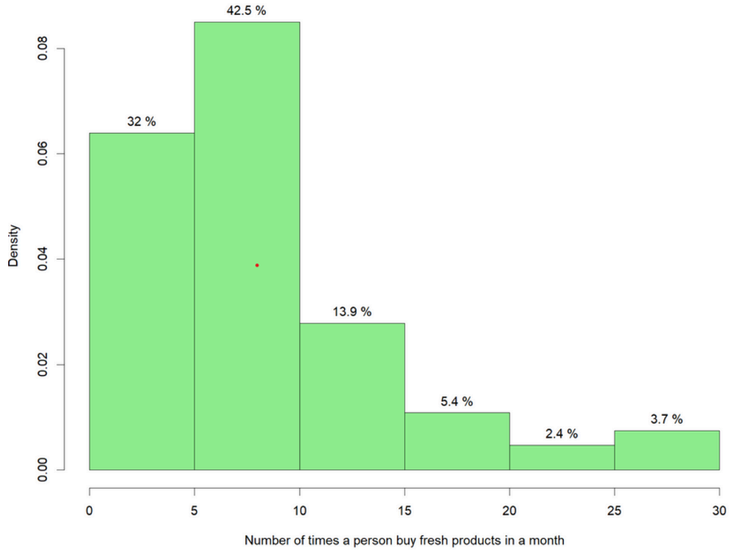


		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Supermarkets	183	62,2	62,2	62,2
	Superette	25	8,5	8,5	70,7
	Bio supermarkets	8	2,7	2,7	73,5
	Local shops	46	15,6	15,6	89,1
	City Markets	11	3,7	3,7	92,9
	Online grocery shops	21	7,1	7,1	100,0
	Total	294	100,0	100,0	

The majority of people do their food shopping in **Supermarkets (62.2%)**, while only a little part of them refers to **Bio Supermarkets (2.7%)**, that are known for having a wider variety of bio and eco-conscious products.

Only 21 people out of 294 buy grocery **online (7.1%)**, on supermarkets official websites or apps like Amazon Fresh, Getir and Esselunga Online.

Number of times people buy fresh products



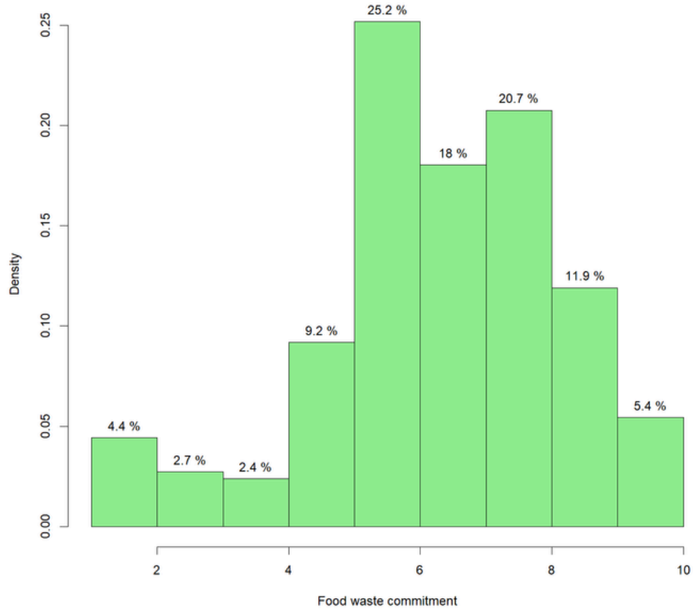
74.5% of the people in our sample report purchasing fresh food, which expires more quickly, **between 0 and 10 times per month.**

Only **3.7%** of them buys fresh products **almost every day.**

N	Valid	294
	Missing	0
Mean		9,32
Median		8,00
Mode		8
Std. Deviation		6,399
Variance		40,942
Minimum		1
Maximum		30

It Indicates **reliance on non-perishable foods**. This could be influenced by factors as convenience and minimizing waste, that we will discuss in the following analysis

How committed are people in the fight against food waste?

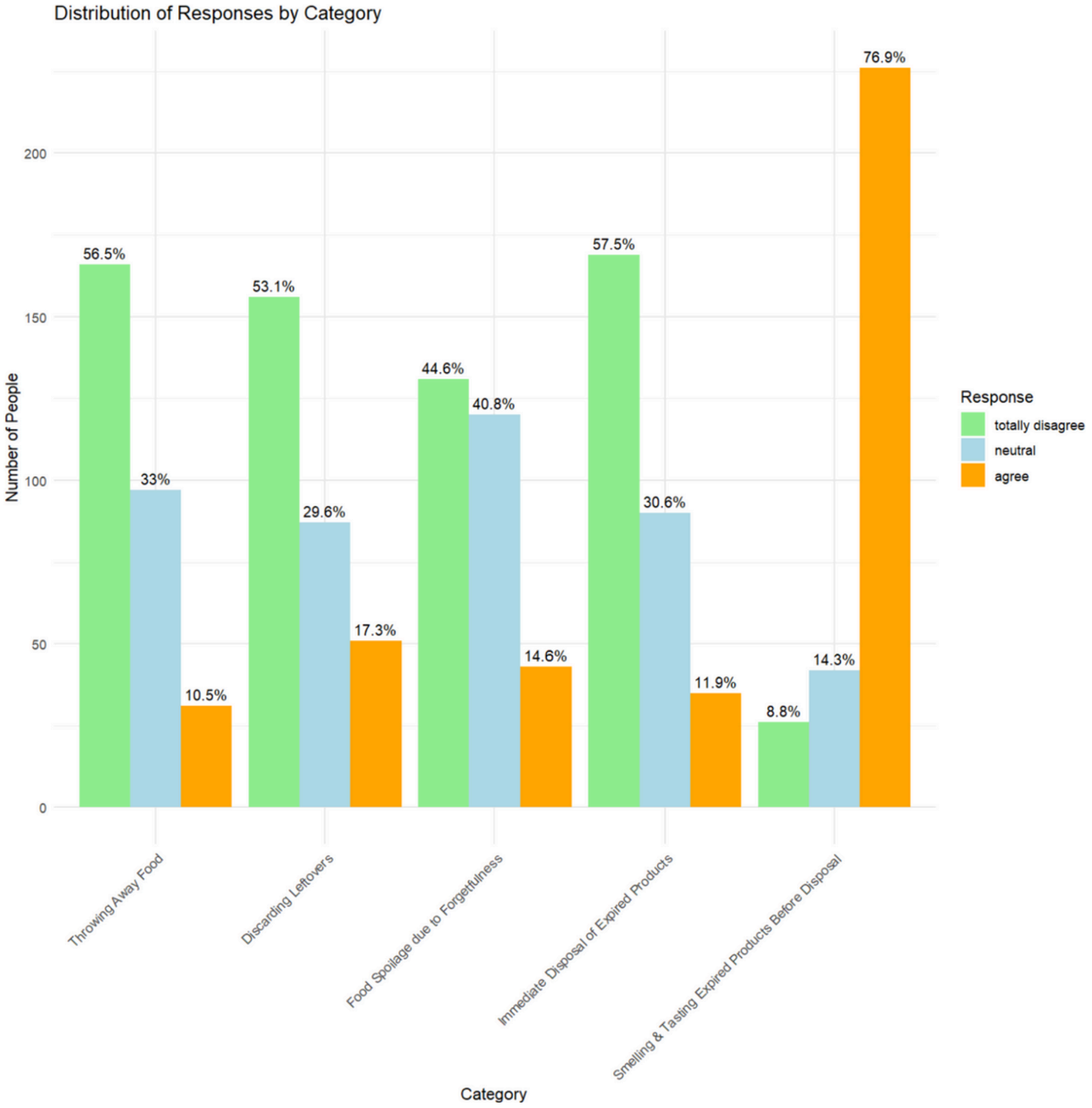


This part of the analysis shows that most people are committed to reducing food waste, with **25.2%** at a level of 6.

The **average level is 6.74**, showing a strong general engagement of people that tend to conduct actions in order to reduce food waste

N	Valid	294
	Missing	0
Mean		6,74
Median		7,00
Mode		6
Std. Deviation		1,948
Variance		3,795
Minimum		1
Maximum		10

It's evident that the prevailing attitudes and inclinations within the community provide a **promising foundation for Too Good To Go** to flourish.



The sample was asked to rate a series of **actions related to food waste** on a scale from 1 to 10, where 1 indicates total disagreement and 10 total agreement, including:

1) Direct food waste.
2) Waste of leftover food.
3) Food forgotten in the refrigerator and then discarded.
4) The practice of immediately discarding expired food.
5) The habit of evaluating expired food before disposing of it.

Statistics

		throw away food	throw away leftlovers	forgot in the fridge	throe away expires products	smell before throw away expires products
N	Valid	294	294	294	294	294
	Missing	0	0	0	0	0
Mean		3,58	3,84	4,04	3,59	7,49
Median		3,00	3,00	4,00	3,00	8,00
Mode		2	1	2	1	8

The results show that, except for action 5, the average ratings fall within **medium to low levels (ranging from 3.58 to 4.04)**. This distribution suggests a stance of disagreement or neutrality towards actions that may lead to food waste, including waste of food, leftovers, and expired products.

Regarding action 5 specifically, the average rating (7.49) indicates that the population is more inclined to avoid food waste, showing a propensity to consider **evaluating food even after its expiration date**.

The presented graph illustrates the percentages of scores assigned by each individual to each of the actions considered. Scores are categorized from 0 to 3, included in the "total disagreement" category, from 4 to 6, attributed to the "neutral" category, and finally from 7 to 10, classified as "agreement"

Habits conclusions

From this part of our exploratory analysis we reached a higher level of consciousness about our sample population attitude on sustainable practices.

Eco-Consciousness and Sustainable Actions:

81.3% consider themselves environmentally conscious, yet there's a gap between awareness and the adoption of multiple sustainable practices.

Food Shopping Preferences:

62.2% shop at supermarkets, only 2.7% at bio supermarkets, and 7.1% online.
The reliance on non-perishable foods highlights convenience and waste minimization as important factors in consumer choices: 74.5% buy fresh food 0 to 10 times per month

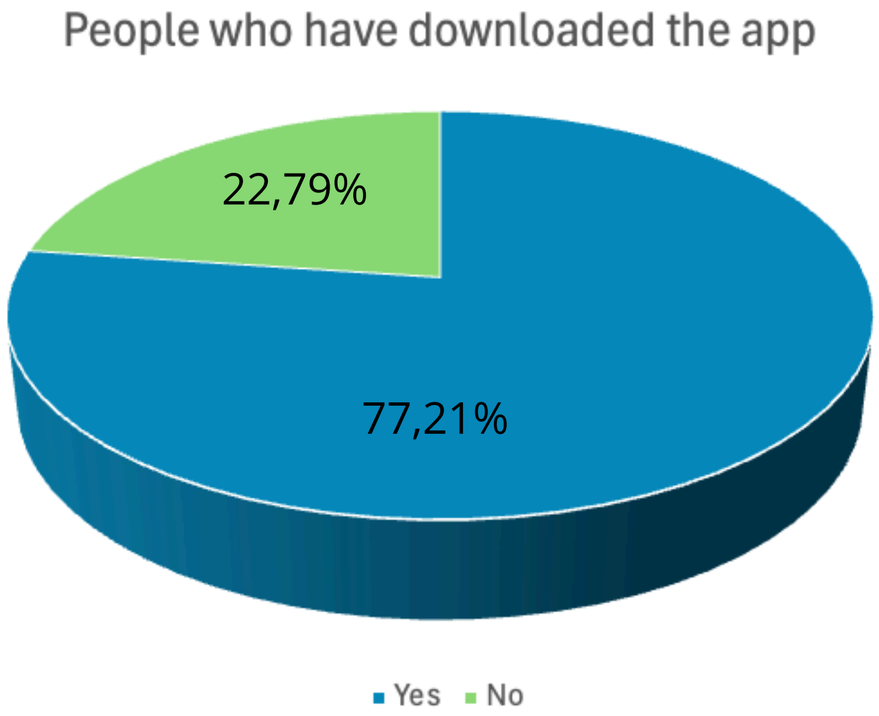
Food Waste:

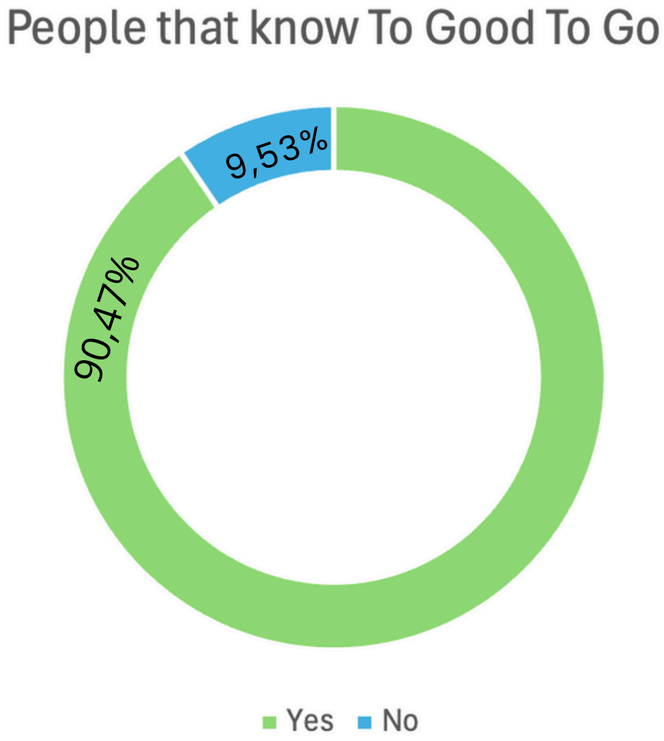
Only 24.8% adopt more than three eco-sustainable practices daily.
Evaluating expired food before discarding it is common (average rating 7.49), showing a strong commitment to reducing waste.
The prevailing attitudes towards minimizing waste and the existing behaviors suggest that Too Good To Go can effectively resonate with this consumer base, encouraging further reduction in food waste and fostering more sustainable consumption habits.

3. Too Good to Go: usage and thoughts

Too Good To Go

To gain a comprehensive overview of awareness of To Good To Go, we have analyzed also queries regarding familiarity with the 'Too Good To Go' app in our survey, that will help us as a starting point for our market analysis. Specifically, respondents were asked **whether they had ever heard of the app, how many had downloaded it, and for those who had downloaded it, the frequency of usage.**

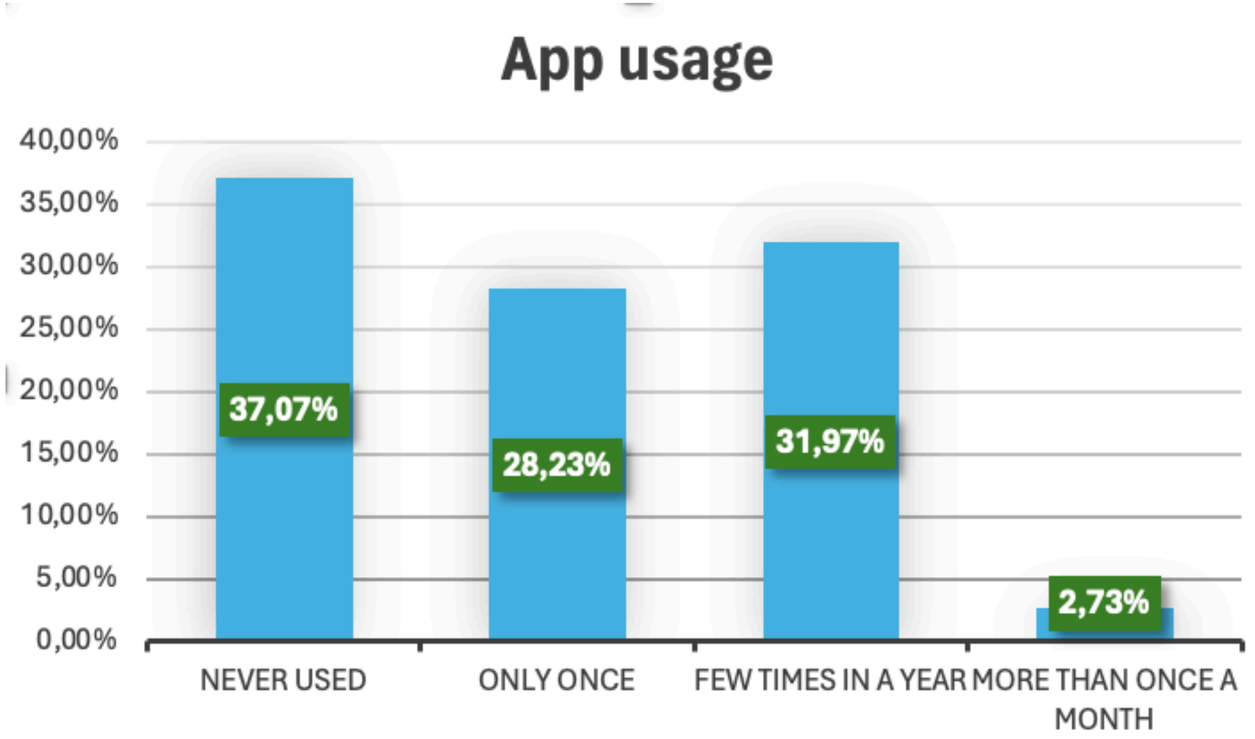




Analyzing the data from our sample, it appears that **90.47%** of the respondents are aware of the app, and **77.21%** have downloaded the application on their devices.

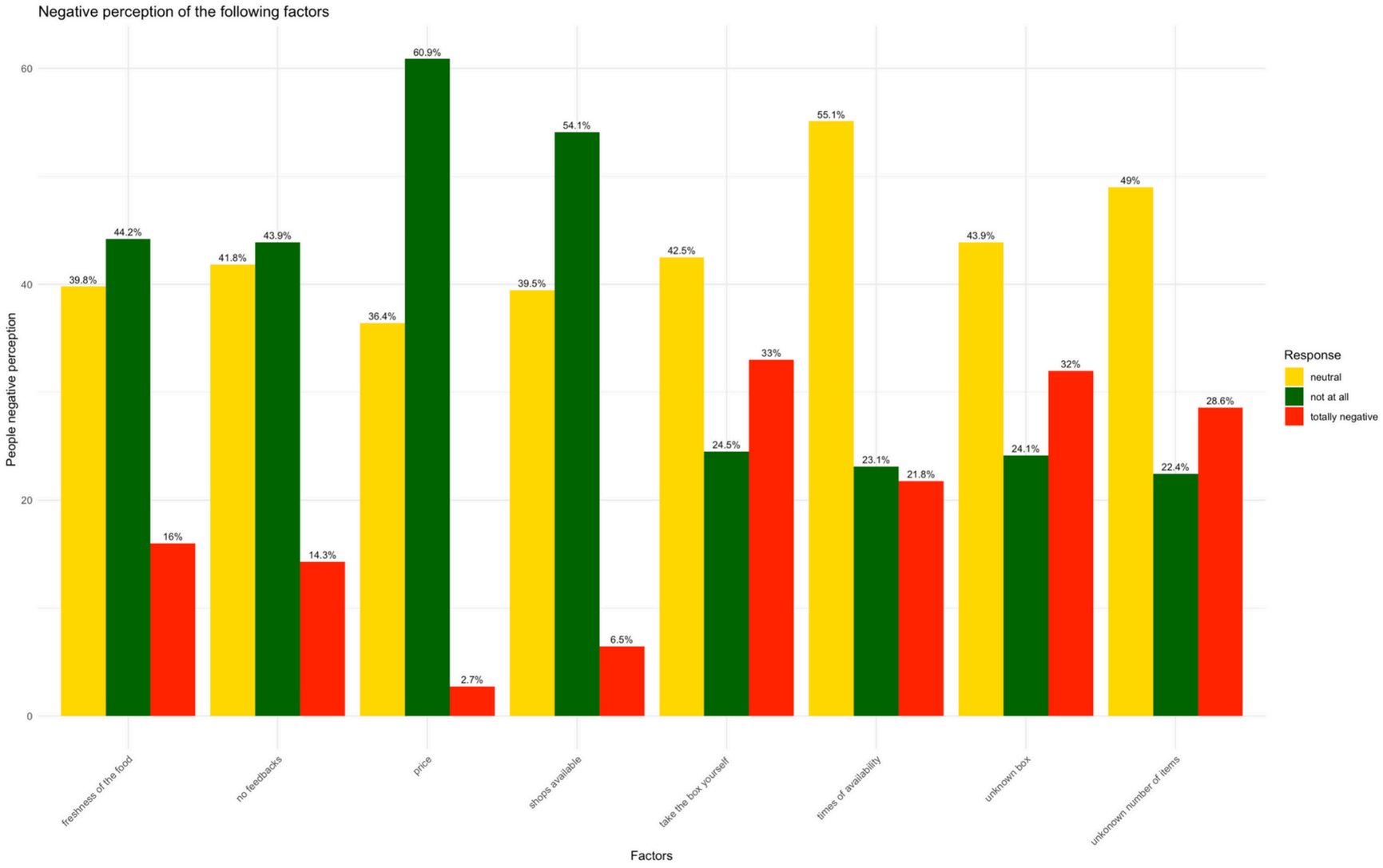
To understand the usage frequency of the Too Good To Go app, **respondents have been categorized into groups**:
1- those who have never used the app
2- those who have used it only once
3- those who use it multiple times in a year
4- those who use it at least once a month.

Results show that **37% of our sample have never used the app**, indicating that there are individuals who have downloaded it but have yet to utilize it, as **the percentage of non-downloaders is lower at 22%**. Furthermore, those who use the app at least once a month represent only 2.73% of our reference population. These insights can inform customer-centric strategies for Too Good To Go.



How often our sample poulation use To Good To Go

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Never	109	37.1	37.1	37.1
	Once	83	28.2	28.2	65.3
	Few in a year	94	32.0	32.0	97.3
	More than once a month	8	2.7	2.7	100.0
	Total	294	100.0	100.0	



In the survey, the 249 individuals were asked to **rate various factors characterizing the offering of Too Good To Go on a scale from 1 to 10 in terms of negative perception.** Specifically, respondents were asked to assess the following: the lack of knowledge regarding the contents of the box, the necessity to retrieve the box independently, pricing, the availability of stores within the app, operating hours, food freshness, the absence of reviews, and uncertainty regarding the number of products included in a box.

The bar chart alongside illustrates the **frequency distribution of scores assigned to each factor**. Scores were grouped into three categories: 0-4 (indicating "not at all"), 5-7 (representing a neutral perception), and 8-10 (indicating an extremely negative perception).

The highest recorded **negative percentage (33%)** concerns having to **pick up the** Too Good To Go **box** oneself. The highest **positive percentage (60.9%)** relates to the **price**, showing a positive perception from the respondents.

Too Good To Go Conclusions

- **High Awareness and Moderate Adoption:** The survey reveals a high level of awareness (90.47%) among respondents, with a considerable portion (77.21%) having downloaded the app. However, there is a noticeable gap between download and usage frequency, with 37% of respondents never having used the app.

- **Usage Frequency Insights:** Only a small fraction (2.73%) of respondents use the app at least once a month, indicating potential underutilization among those who have downloaded it.

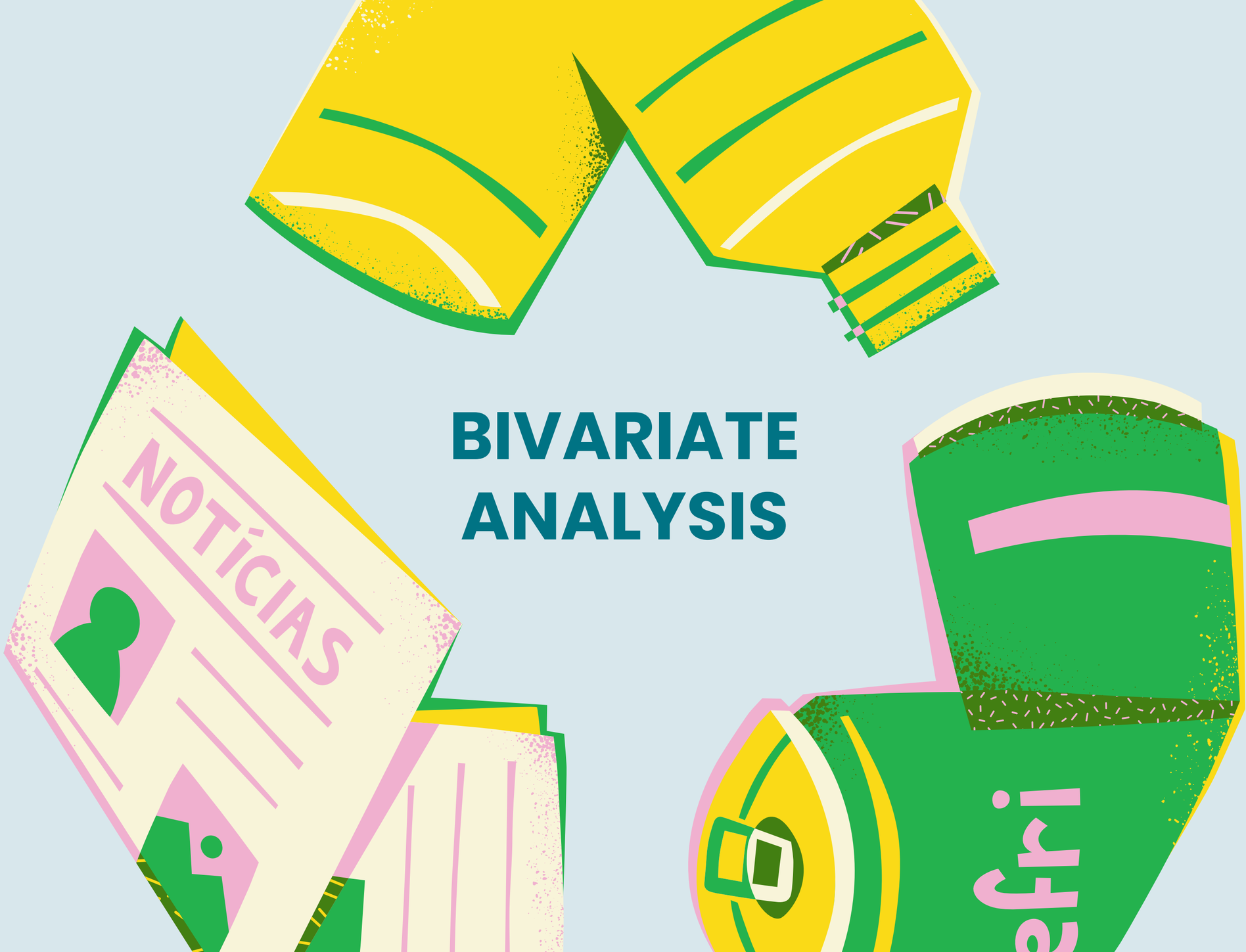
- **Positive Perceptions:** Pricing and the availability of stores within the app were perceived positively by the majority of respondents, with over 60% expressing no negative perception. Similarly, the absence of reviews garnered mixed reactions but leaned towards a neutral stance.

- **Mixed Perceptions:** Factors like lack of knowledge regarding box contents and uncertainty about the number of items included in a box received mixed responses, indicating room for improvement in communication and transparency.

- **Areas for Improvement:** The availability timeframe and the necessity to retrieve the box independently garnered relatively higher levels of negativity, suggesting areas where Too Good To Go could focus on enhancing user experience and convenience.

Strategic Insights: These insights provide valuable guidance for customer-centric strategies, emphasizing the importance of addressing usability issues, enhancing transparency, and refining communication to improve overall user experience and increase engagement with the platform.

BIVARIATE ANALYSIS



1. What are the attitudes of customers towards food waste in italian homes?

Relationships between propension to waste food and actions to avoid it

Correlations

		How committed are you in the fight against food waste?	i happen to throw away food	i happen to throw away leftovers	i forget food in the fridge, it goes rotten so i throw it	if a product expires, i immediately throw it away	if a product expires, i try to smell it and taste it before throwing it away
How committed are you in the fight against food waste?	Pearson Correlation	1	-,383**	-,314**	-,225**	-,279**	,161**
	Sig. (2-tailed)		<,001	<,001	<,001	<,001	,006
	N	293	293	293	293	293	293
i happen to throw away food	Pearson Correlation	-,383**	1	,749**	,620**	,334**	-,207**
	Sig. (2-tailed)	<,001		<,001	<,001	<,001	<,001
	N	293	293	293	293	293	293
i happen to throw away leftovers	Pearson Correlation	-,314**	,749**	1	,648**	,352**	-,266**
	Sig. (2-tailed)	<,001	<,001		<,001	<,001	<,001
	N	293	293	293	293	293	293
i forget food in the fridge, it goes rotten so i throw it	Pearson Correlation	-,225**	,620**	,648**	1	,233**	-,092
	Sig. (2-tailed)	<,001	<,001	<,001		<,001	,115
	N	293	293	293	293	293	293
if a product expires, i immediately throw it away	Pearson Correlation	-,279**	,334**	,352**	,233**	1	-,550**
	Sig. (2-tailed)	<,001	<,001	<,001	<,001		<,001
	N	293	293	293	293	293	293
if a product expires, i try to smell it and taste before throwing it away	Pearson Correlation	,161**	-,207**	-,266**	-,092	-,550**	1
	Sig. (2-tailed)	,006	<,001	<,001	,115	<,001	
	N	293	293	293	293	293	293

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

- The significant correlations show that **a greater commitment to fighting food waste is associated with a lower likelihood of throwing away food** (-0.383**), leftovers (-0.314**), and expired products without checking them (-0.279**).
- Additionally, **those who forget food in the fridge tend to waste more food** (0.620**) and leftovers (0.648**).
- People who **immediately throw away expired products** (-0.550**) **are less likely to check them first.**

From these data, it emerges that **improving the management of food in the fridge could significantly reduce food waste**. Educating people to check expired products before discarding them is crucial, as there is a strong negative correlation between immediately throwing away expired products and checking them first (-0.550**). Finally, targeted educational interventions can help reduce the behavior of throwing away food and leftovers, contributing to greater sustainability and a lower environmental impact.

Relationships between propension to waste food and downloading “Too Good To Go”

Variables analyzed:

- Have you ever downloaded the app? Yes/No
- How committed are you in fight against food waste? 1=I don’t care, 10=extremely committed

The data provided by our sample show that there is **no relationship between downloading”Too Good To Go” and being committed in the fight against food waste.**
We can see that the two mean values of the rate of committment are almost identical, whether people downloaded or not the application.

This is also confirmed by the anova test pvalue which shows that statistically there is no dependance between the two variabeles.

DOWNLOADED APP/FIGHT AGAINST FOOD WASTE	N	Mean	Std. Deviation	Std. Error
yes	227	6,74	1,811	,120
no	66	6,70	2,353	,290
Total	293	6,73	1,942	,113

ANOVA

Q11_1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	,115	1	,115	,031	,861
Within Groups	1101,120	291	3,784		
Total	1101,235	292			

Conclusion

Based on previous bivariate analysis, we saw that **the propension to waste food is related to all the possible causes described in the survey, in particular the ones that have an higher propension in wasting food are the ones that have tendency to throw away food or leftovers.** It is also important to highlight the fact that a better management of the products in the fridge would drastically improve the issue of wasting food. For what concerns the application instead we just saw that downloading “Too Good To Go” is not correlated with wasting food.

2. Which are the main drivers of customers who choose to use food waste management apps?

When do people would use or actually use Too Good To Go?

Variables analyzed:
- Have you ever downloaded the app? Yes/No
- In which occasions do you use the app? Multiple choice

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11,418[a]	5	,044
Likelihood Ratio	11,582	5	,041
Linear-by-Linear Association	5,404	1	,044
N of Valid Cases	294		,044
Cramer's V	,197		
Contingency Coefficient	,193		

Chi-squared test's p-value is 0.044, which means that there is a significative **relationship between the type of occasion for people to use too good to go and how often do they use it**.

Moreover Cramer's value is **0.197** which attests a **weak dependance** between the two variables, although it is significant.

Then looking at the Crosstabulation we can see that **downloaded "too good to go" usually use it when they don't know what to eat or when they casually notice that there is a box available around**.

The **main reasons** that would lead the people that never downloaded it to use it are the **presence of a box around** or the fact that they have an **empty fridge.**

Very few people use (or would use) "too good to go" to experiment new food.

Q14 * Q20 Crosstabulation

Count

		Q20						
		decide to order	Casually around and notice a Magic Box aviable nearby	empty fridge	feel like giving back to environment	experiment something new	other	Total
Have you ever downloaded Too Good To Go?	Yes	71	59	36	29	23	9	227
	No	10	17	17	8	13	2	67
Total		81	76	53	37	36	11	294

Grocery shopping drivers and app usage frequency

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
How_often_people_use_TooGoodToGo	convenience	12.747	3	4.249	.979	.403
	price	5.135	3	1.712	.617	.604
	Loyalty_programs	132.331	3	44.110	7.525	<.001
	Quality of product	2.974	3	.991	.607	.611
	Variety	2.418	3	.806	.304	.822
	aviability_for_different_needs	10.586	3	3.529	.406	.749
	Promotion	97.277	3	32.426	7.477	<.001
	environment	44.237	3	14.746	3.655	.013

Based on the analysis performed using an ANOVA test, we aimed to investigate the potential **relationship between grocery shopping drivers and the frequency of using the "Too Good To Go" app**. The null hypothesis of the associated F-test posits that there is no difference in the app usage frequency across different grocery shopping drivers.

η^2

Loyalty_programs	Eta-squared	.072
promotions and discounts	Eta-squared	.072
environment	Eta-squared	.036

The p-value of the associated F-test is less than 0.5 only for the factors "Loyalty programs", "discounts and promotions," and "environmental awareness." This indicates that **the frequency of app usage is statistically different for these three drivers**.

Furthermore, this dependence is confirmed by the **eta-squared coefficient**, which is **greater than 0.04** for loyalty programs and discount and promotions factors, **indicating a significant relationship**, while the eta-square of the environment attention factor is 0.36 indicating a weak dependence with the app usage frequency.

Comparison between means

The average scores for those who consider **loyalty programs and environmental awareness** as significant **grocery shopping drivers tend to increase with the frequency of using "Too Good To Go."** However, **for the driver "promotions and discounts," there is no clear upward trend**. In fact, the frequency of usage appears to decrease for those who consider promotions and discounts as a primary driver. This is the result of the mean scores across the groups.

Report

How_often_people_use_TooGoodToGo		Loyalty_programs	promotions_and_discounts	environment
Never used	Mean	4.03	6.26	6.38
	N	109	109	109
	Std. Deviation	2.529	2.591	2.120
Once	Mean	5.14	7.51	6.60
	N	83	83	83
	Std. Deviation	2.485	1.663	2.130
Few in a year	Mean	5.54	7.40	7.20
	N	94	94	94
	Std. Deviation	2.128	1.725	1.775
At least one a month	Mean	5.75	6.75	7.75
	N	8	8	8
	Std. Deviation	3.412	2.053	1.669
Total	Mean	4.87	6.99	6.74
	N	294	294	294
	Std. Deviation	2.501	2.150	2.036

Conclusion

Based on previous bivariate analyses, the key drivers for consumers who choose to use **food waste management apps** appear to include the availability of a higher number of collection **boxes in the area**, the presence of **loyalty programs,** and various **promotions and discounts**. These factors seem particularly influential among consumers who prioritize such benefits when grocery shopping. Therefore, enhancing the accessibility and visibility of collection boxes, alongside implementing attractive loyalty programs and promotional offers, could potentially boost the adoption and usage of food waste management apps.

3. What is the relationship between food waste apps and price?

Relationship between frequency of usage of Too Good To Go App and perception of the price

The **frequency of usage** of Too Good To Go are:

- I have never used it (group 1)
- I have used it only once (group 2)
- I use it a few times in a year (group 3)
- I use it more than once a month(group 4)

The price of the magic box is rated from 1 to 10 (1 having a totally positive perception, 10 having completely negative perception).

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43,884	3	14,628	4,066	,007
Within Groups	1043,300	290	3,598		
Total	1087,184	293			

			95% Confidence Interval	
		Point Estimate	Lower	Upper
price	Eta-squared	,040	,003	,085

The **p-value of 0.007** in the ANOVA table demonstrates that there are significant differences in the perception of the price of magic boxes among the various frequency-of-use groups of the Too Good To Go app: **the frequency with which users utilize the app significantly influences how they perceive the price of the magic boxes**. **Eta squared** indicates that approximately **4%** of the variance in the price perception is explained by the frequency of usage

MEANS BY CLASSES

Users who have used the app only once (Group 2) perceive the price of magic boxes as significantly higher compared to those who use it a few times a year (Group 3).
The frequent use of Too Good To Go leads users to perceive the prices of magic boxes as more affordable, suggesting a **positive relationship between usage frequency of the app and price perception**. Encouraging regular use of the app could increase user satisfaction and promote sustainability.

(I) Q15	(J) Q15	Mean Difference (I-J)	Std. Error	Sig.
1	2	-,188	,276	,905
	3	,562	,267	,154
	4	1,570	,695	,110
2	1	,188	,276	,905
	3	,750*	,286	**,045**
	4	1,758	,702	,062
3	1	-,562	,267	,154
	2	-,750*	,286	**,045**
	4	1,008	,699	,474
4	1	-1,570	,695	,110
	2	-1,758	,702	,062
	3	-1,008	,699	,474

	N	Mean	Std. Deviation	Std. Error
1	109	3,94	2,036	,195
2	83	4,13	1,744	,191
3	94	3,38	1,844	,190
4	8	2,38	2,066	,730
Total	294	3,78	1,926	,112

Relationship between frequency of usage of Too Good To Go App and willlingness to pay for a magic box in different stores

The sample has indicated its willingness to pay (from 0€ to 15€) for each of these different categories:

- supermarket
- bakery
- restaurant
- bar
- pastry shop
- greengrocer
- butcher's

		Point Estimate	95% Confidence Interval Lower	Upper
Supermarket	Eta-squared	,010	,000	,034
Bakery	Eta-squared	,031	,000	,072
Restaurant	Eta-squared	,010	,000	,034
Bar	Eta-squared	,035	,001	,078
Pastry Shop	Eta-squared	,030	,000	,070
Greengrocer	Eta-squared	,039	,003	,083
Butcher's	Eta-squared	,020	,000	,054

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Supermarket	Between Groups	24,751	3	8,250	,973	,406
	Within Groups	2459,575	290	8,481		
	Total	2484,327	293			
Bakery	Between Groups	46,264	3	15,421	3,103	,027
	Within Groups	1441,399	290	4,970		
	Total	1487,663	293			
Restaurant	Between Groups	28,776	3	9,592	,950	,417
	Within Groups	2928,955	290	10,100		
	Total	2957,731	293			
Bar	Between Groups	52,901	3	17,634	3,521	,016
	Within Groups	1452,283	290	5,008		
	Total	1505,184	293			
Pastry shop	Between Groups	83,337	3	27,779	3,029	,030
	Within Groups	2659,184	290	9,170		
	Total	2742,520	293			
Greengrocer	Between Groups	112,237	3	37,412	3,914	,009
	Within Groups	2771,821	290	9,558		
	Total	2884,058	293			
Butcher's	Between Groups	74,154	3	24,718	1,984	,117
	Within Groups	3613,642	290	12,461		
	Total	3687,796	293			

Only the specific cases for **bakery, bar, pastry shop, and greengrocer** will be analyzed since their p-values are lower than the significance level of 0.05. Therefore, for these last four categories, there is **statistical evidence that willingness to pay varies depending on the frequency of Too Good To Go usage**. However, for the other categories, there is not enough evidence to assert the same.

Means by classes of frequencies (1,2,3,4) and by categories:

Considering the mean differences, it can be understood that for purchases made in the **bakery and greengrocer, there is a significant difference** in willingness to pay between those who have never used the Too Good To Go app **(1)** and those who have only used it once**(2)**. For purchases made in **bars**, there is, instead, **a significant difference between** those who have used the app only once**(2)** and those who use it multiple times a year**(3)**. Lastly, for the **pastry shop**, **there is a significant difference** in willingness to pay **between** those who have never used**(1)** the app and those who have used it a few times a year**(3).**

- **BAKERY**

I	J	Mean Difference (I-J)	Std. Error	Sig.
1	2	,938*	,325	,022
	3	,139	,314	,971
	4	,536	,817	,913

- **PASTRY SHOP**

I	J	Mean Difference (I-J)	Std. Error	Sig.
1	2	-,153	,441	,986
	3	-1,145*	,426	,038
	4	-1,483	1,109	,540

- **BAR**

I	J	Mean Difference (I-J)	Std. Error	Sig.
2	1	-,810	,326	,065
	3	-1,019*	,337	,014
	4	-1,184	,828	,482

- **GREENGROCER**

I	J	Mean Difference (I-J)	Std. Error	Sig.
1	2	1,497*	,450	,005
	3	,902	,435	,164
	4	,163	1,132	,999

- **BAKERY**

2	83	3,72
4	8	4,13
3	94	4,52
1	109	4,66
Sig.		,438

- **BAR**

2	83	3,57
1	109	4,38
3	94	4,59
4	8	4,75
Sig.		,235

- **PASTRY SHOP**

1	109	5,64
2	83	5,80
3	94	6,79
4	8	7,13
Sig.		,301

- **GREENGROCER**

2	83	3,92
3	94	4,51
4	8	5,25
1	109	5,41
Sig.		,310

For purchases made at **bars and pastry shops**, the mean willingness to pay, respectively of **4.75€ and 7.13€**, is higher for those who use the app multiple times a month.
Therefore, for these two cases, increasing the frequency of use of the Too Good To Go app will consequently increase the willingness to pay for a magic box.

CONCLUSIONS

The statistical analysis conducted on the usage of the Too Good To Go app has revealed significant findings regarding users' perceptions of magic box prices and their willingness to pay. **Users who utilize the app more frequently each month tend to perceive magic box prices as more affordable compared to those who use it less frequently**.
Moreover, the analysis has highlighted significant differences in willingness to pay for certain product categories. For instance, **for purchases at bars and pastry shops, the average willingness to pay is higher for those who use the app more frequently compared to those who use it less frequently**, at 4.75€ and 7.13€, respectively.
Overall, the results of the analysis suggest that **increasing the frequency of Too Good To Go usage can positively influence both users' perceptions of prices and their willingness to pay**.

4. What is the balance quantity in a box?

Relationship between number of items in a box and willlingness to pay for a magic box in different stores

CORRELATION

SUPERMARKET

		Number of items in a box	Supermarket
Number of items in a box	Pearson Correlation	1	,137*
	Sig. (2-tailed)		,019
	N	294	294
Supermarket	Pearson Correlation	,137*	1
	Sig. (2-tailed)	,019	
	N	294	294

BAKERY

		Number of items in a box	Bakery
Number of items in a box	Pearson Correlation	1	,156**
	Sig. (2-tailed)		,007
	N	294	294
Bakery	Pearson Correlation	,156**	1
	Sig. (2-tailed)	,007	
	N	294	294

RESTAURANT

		Number of items in a box	Restaurant
Number of items in a box	Pearson Correlation	1	,183**
	Sig. (2-tailed)		,002
	N	294	294
Restaurant	Pearson Correlation	,183**	1
	Sig. (2-tailed)	,002	
	N	294	294

From the statistical analysis of the correlations between the number of items desired in a magic box and the willingness to pay for different types of stores, it emerges that **all correlations are significant and positive** with a p-value less than 0.05.

The analysis highlights a moderate positive correlation between how much users are willing to pay and the number of items they want to find in the magic boxes.

BAR

		Number of items in a box	Bar
Number of items in a box	Pearson Correlation	1	,207**
	Sig. (2-tailed)		<,001
	N	294	294
Bar	Pearson Correlation	,207**	1
	Sig. (2-tailed)	<,001	
	N	294	294

PASTRY SHOP

		Number of items in a box	Pastry shop
Number of items in a box	Pearson Correlation	1	,196**
	Sig. (2-tailed)		<,001
	N	294	294
Pastry shop	Pearson Correlation	,196**	1
	Sig. (2-tailed)	<,001	
	N	294	294

GREENGROCER

		Number of items in a box	Greengrocer
Number of items in a box	Pearson Correlation	1	,175**
	Sig. (2-tailed)		,003
	N	294	294
Greengrocer	Pearson Correlation	,175**	1
	Sig. (2-tailed)	,003	
	N	294	294

BUTCHER'S

		Number of items in a box	Butcher's
Number of items in a box	Pearson Correlation	1	,252**
	Sig. (2-tailed)		<,001
	N	294	294
Butcher's	Pearson Correlation	,252**	1
	Sig. (2-tailed)	<,001	
	N	294	294

Balance quantity in a box according to the type of store and the price range 1-2-3: [0-5€] [6-10€] [11-15€]

- **SUPERMARKET**

range price	N	Mean (quantity)
1,00	157	4,40
2,00	115	5,02
3,00	22	4,64

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	25,211	2	12,605	7,153	<,001
Within Groups	512,776	291	1,762		
Total	537,986	293			

For the **bakery** case there is **no significant difference** between the groups based on the quantity selected and the indicated price range to make statistical assumptions.

- **BAKERY**

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,966	2	1,983	1,081	,341
Within Groups	534,020	291	1,835		
Total	537,986	293			

- **RESTAURANT**

range price	N	Mean (quantity)
1,00	62	4,13
2,00	178	4,76
3,00	54	4,93

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	23,225	2	11,613	6,565	,002
Within Groups	514,761	291	1,769		
Total	537,986	293			

- **BAR**

range price	N	Mean (quantity)
1,00	235	4,53
2,00	53	5,19
3,00	6	5,00

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	19,363	2	9,681	5,432	,005
Within Groups	518,624	291	1,782		
Total	537,986	293			

Regarding **supermarkets, restaurants, and bars**, the ANOVA showed a p-value below 0.05, indicating **statistical significance** and demonstrating a relationship between the price range each respondent is willing to pay and the desired quantity of products.

In the case of **supermarkets and bars,** respondents expect a higher average quantity of products when **spending between €6 and €10**. For **restaurants**, respondents expect a larger quantity of food in the magic box (about 5 items) when spending **between €11 and €15.**

- **PASTRY SHOP**

price range	N	Mean (quantity)
1,00	163	4,46
2,00	106	4,90
3,00	25	4,96

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	14,677	2	7,339	4,081	,018
Within Groups	523,309	291	1,798		
Total	537,986	293			

- **GREENGROCER**

price range	N	Mean (quantity)
1,00	210	4,53
2,00	67	5,00
3,00	17	4,94

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12,717	2	6,358	3,523	,031
Within Groups	525,270	291	1,805		
Total	537,986	293			

- **BUTCHER'S**

price range	N	Mean (quantity)
1,00	85	4,21
2,00	163	4,75
3,00	46	5,15

ANOVA	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	29,679	2	14,840	8,496	<,001
Within Groups	508,307	291	1,747		
Total	537,986	293			

Regarding **pastry shops, greengrocers, and butcher's shops**, the ANOVA showed a p-value below 0.05, indicating **statistical significance** and demonstrating a relationship between the price range each respondent is willing to pay and the desired quantity of products.

In the case of **pastry shops and butcher's shops**, respondents expect a higher average quantity of products when spending **between €11 and €15**. For **greengrocers**, respondents expect a higher average quantity of food in the magic box (about 5 items) when spending **between €6 and €11.**

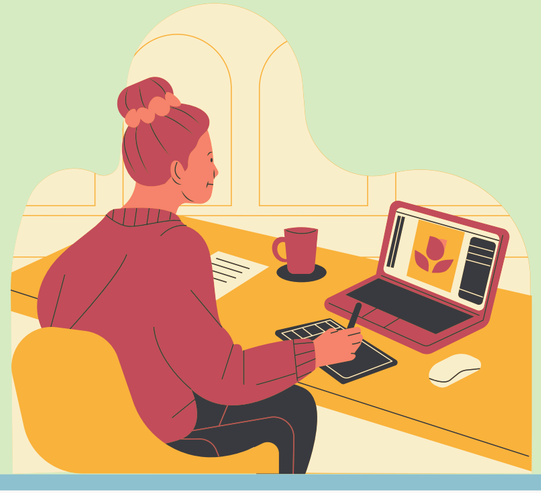
On average, all respondents, regardless of how much they spend, do not expect a quantity greater than 5 products in each store category.

The statistical analysis conducted on the correlations between the desired number of items in a magic box and the willingness to pay for different types of stores has revealed significant results. In all cases, **the correlations were found to be significant and positive**, with a p-value less than 0.05. This highlights a **moderately positive correlation between the quantity desired by users and the willingness to pay more for the magic boxes.**

- For **pastry shops, butcher's shops and restaurants** respondents expect a higher average quantity of products when spending between €11 and €15.
- For **greengrocers, bars and supermarkets**, instead, they expect an higher average quantity of food in the magic box (about 5 items) when spending between €6 and €10.

On average, all respondents, regardless of the amount spent, **do not expect a quantity greater than 5 products** in each store category.

These data highlight the importance of considering the relationship between desired quantity and willingness to pay to optimize the offering of magic boxes across different types of stores.



5. What are the features that limit the use of apps such as Too Good To Go?

Relationship between the shops available in the app and consumers' willingness to spend time shopping

Legend: Bad | Not so bad | Moderate | Good

Consumer behavior on platforms like Too Good To Go is influenced by perceived **value and uniqueness.** Categories such as **pastry shops, butcher's shops, bars, and supermarkets** are prioritized because consumers perceive high-quality or premium items there. These consumers are **willing to invest more time** to secure discounted prices. In contrast, items from **bakeries and greengrocers,** which are perceived as more commonplace and less variable in quality, d**o not receive the same level of consumer engagement**. Retailers and the platform can leverage this insight to tailor their offerings and marketing strategies, emphasizing the unique and high-value aspects of surplus items.

Correlations

		Minute are you willing to spend
supermarket	Pearson Correlation	,130
	Sig. (2-tailed)	,026
	N	294
Bakery	Pearson Correlation	,082
	Sig. (2-tailed)	,162
	N	294
Restaurant	Pearson Correlation	,115
	Sig. (2-tailed)	,048
	N	294
Bar	Pearson Correlation	,170
	Sig. (2-tailed)	,003
	N	294
Pastry shop	Pearson Correlation	,316
	Sig. (2-tailed)	<,001
	N	294
Greengrocer	Pearson Correlation	,111
	Sig. (2-tailed)	,058
	N	294
Butcher's	Pearson Correlation	,252
	Sig. (2-tailed)	<,001
	N	294

The factors that significantly influence the decision on how many minutes one is willing to spend are primarily related to visiting pastry shops, butcher's shops, bars, supermarkets, and restaurants. These correlations suggest that the more someone frequents these types of stores, the more time they are willing to spend. Pastry shops and butcher's shops, in particular, have the strongest influence, followed by bars, supermarkets, and restaurants.

Conclusion: is the time a limit?

In conclusion, consumers on Too Good To Go are **more willing to invest time for products perceived as high-quality**, such as those from pastry shops, butcher's shops, bars, supermarkets, and restaurants. Retailers and the platform should emphasize these premium aspects in their marketing strategies. By focusing on these categories, they can increase consumer engagement and satisfaction.

6. How do distance and time to reach the store affect the use of Too Good To Go?

Relationship between the willingness to spend time traveling to collect a magic box and the frequency of using Too Good To Go

To understand how distance and time to reach the store affect the use of Too Good To Go, we conducted a bivariate analysis using ANOVA.
Specifically, we examined the relationship between the **willingness to spend time traveling to collect a magic box** (Q18, qualitative) and the **frequency of using Too Good To Go** (Q15, quantitative).

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	31.860	20	1.593	2.141	.004
Within Groups	203.137	273	.744		
Total	234.997	293			

The F-value of 2.141, with a significance level **(p-value) of 0.004**, indicates that there are statistically significant differences between groups. This means the time respondents are willing to spend traveling to collect a magic box significantly affects the frequency of using Too Good To Go.

	Point Estimate	95% Confidence Interval Lower	Upper
Eta-squared	.136	.015	.150

An Eta-squared value of 0.136 means that 13.6% of the variance in the frequency of using Too Good To Go is explained by the time respondents are willing to spend traveling to collect a magic box.

The confidence interval for Eta-squared ranges from 0.015 to 0.150, which does not include zero. This indicates that the **effect is statistically significant.**

According to conventional benchmarks, an Eta-squared of 0.136 indicates large effect size.

Conclusion

These findings suggest that **respondents who are willing to spend more time traveling to collect a magic box are more likely to use Too Good To Go frequently**

CLUSTER ANALYSIS

Demand segmentation

Analytical base table

To **segment respondents into clusters** and detect potential targets for Too Good to Go, we decided to take into consideration **21 variables** because they reflect, from the demand side, the importance of eco-sustainability, store choice drivers, waste behavior, and perceptions of Too Good To Go. They are related to:

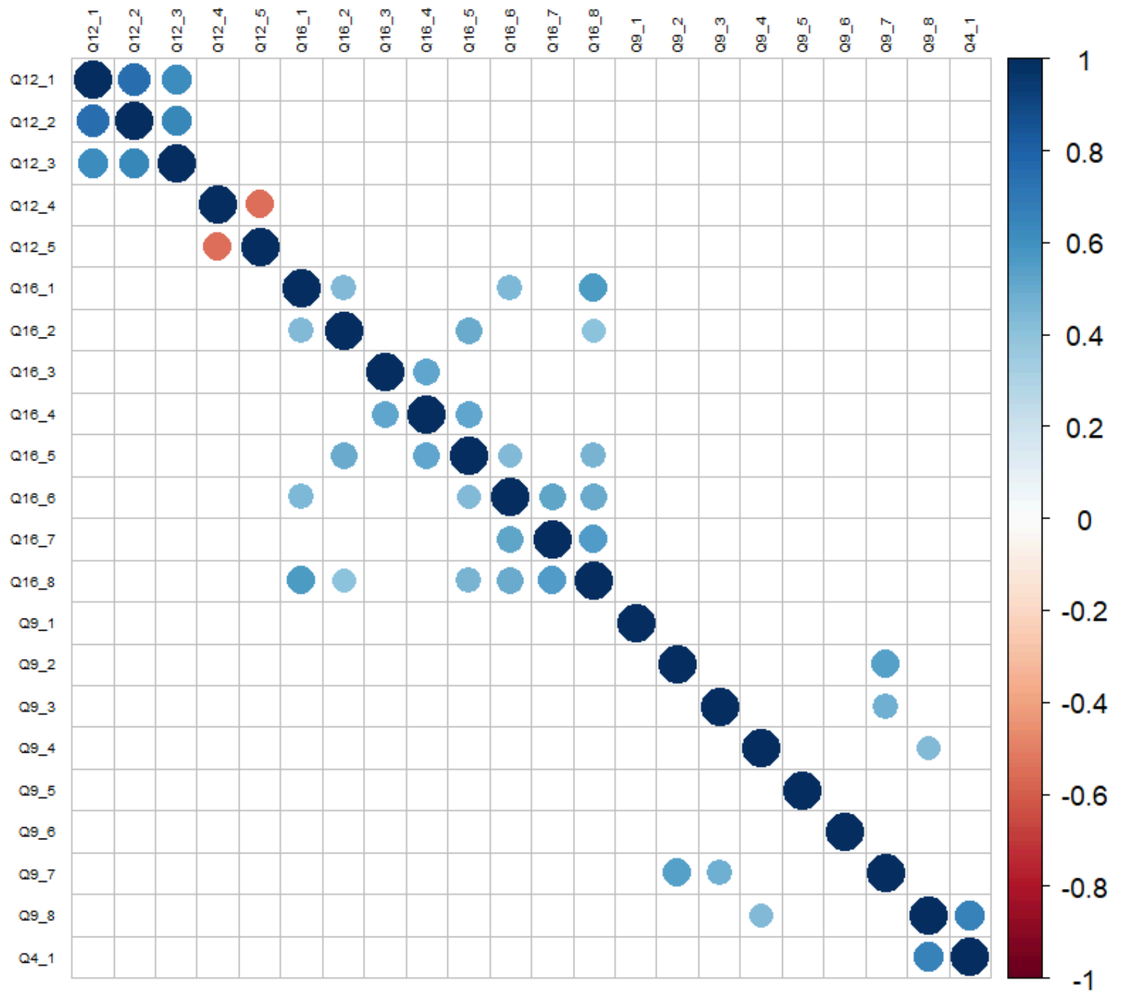
- **Q4: How much is important for you that a product is eco-sustainable?** (1= not important at all, 10= extremely important)
- **Q9: When you go grocery shopping, how much do the following factors drive your store choice?** (1=not at all, 10= totally). This question is composed by 8 variables according to: convenience, price, loyalty programs, quality of products, variety of assortment, availability of products for people with special needs, promotions and discounts and the environment.
- **Q12: How much do you agree with the following statements?** (1=totally disagree, 10=totally agree). This question is composed by 5 variables: throw away food, throw away leftovers, throw food forgotten in the fridge, throw away immediately expires products and try to test expires products before throwing away.
- **Q16: How negatively do you perceive the following factors when using Too Good To Go?** (1=not at all, 5=neutral, 10= totally negative). This question is composed by 7 variables: unkonwn content of the box, pickup myself the magic box, price of the box, available shops on the platform, times of the day in which boxes are available, food not fresh as usually and no reviews from other users.

The selection of these variables was also influenced by the six research questions we previously analyzed through bivariate analyses, ensuring a comprehensive approach to understanding respondent behaviors and attitudes.

Multicollinearity issues

The number of selected variables is high, and they exhibit **multicollinearity**, as indicated by Pearson correlations with a coefficient greater than |0.4|, which could compromise the accuracy of the study's results.

Variable1	Variable2	Correlation
Q12_2	Q12_1	0.7449534
Q12_3	Q12_1	0.6221553
Q12_3	Q12_2	0.6439342
Q12_5	Q12_4	-0.5463044
Q16_2	Q16_1	0.4387105
Q16_6	Q16_1	0.4414922
Q16_8	Q16_1	0.5697071
Q16_5	Q16_2	0.4951632
Q16_8	Q16_2	0.4057950
Q16_4	Q16_3	0.5107726
Q16_5	Q16_4	0.5160860
Q16_6	Q16_5	0.4327775
Q16_8	Q16_5	0.4515531
Q16_7	Q16_6	0.5221024
Q16_8	Q16_6	0.4989716
Q16_8	Q16_7	0.5567790
Q9_7	Q9_2	0.5437593
Q9_7	Q9_3	0.4871688
Q9_8	Q9_4	0.4351333
Q4_1	Q9_8	0.6520187

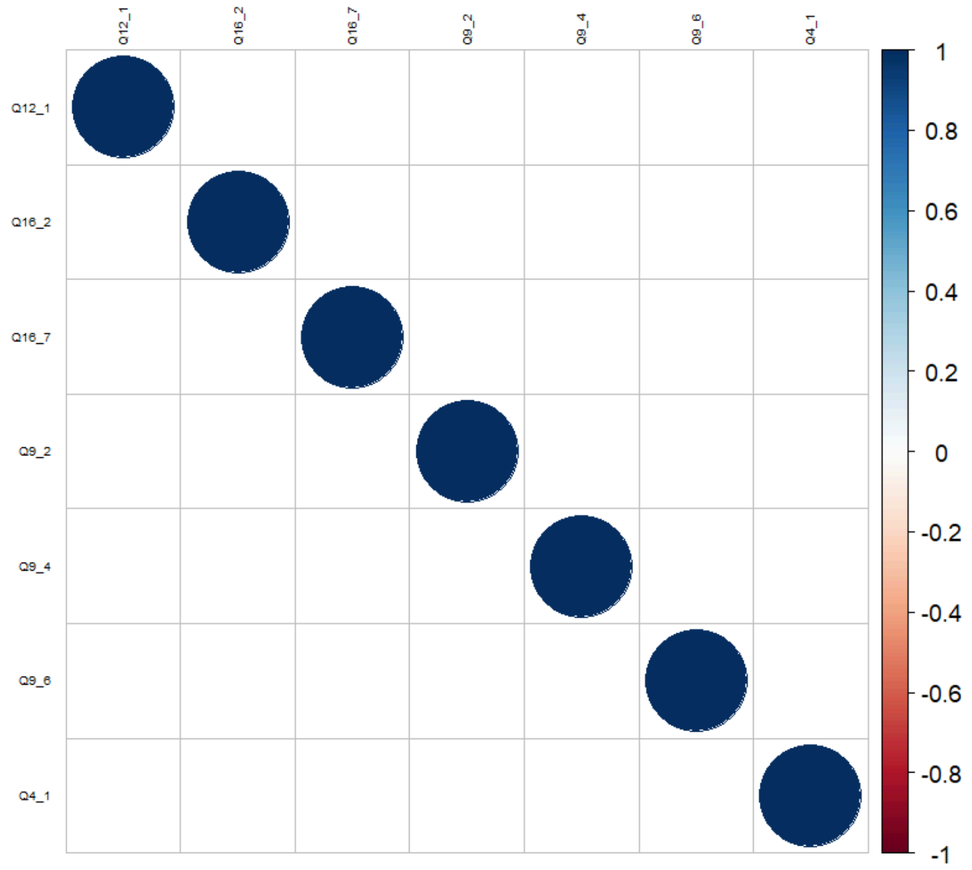


Selected variables for the demand segmentation

Variables with correlations exceeding 0.4 were examined and, if not necessary for the study, removed to ensure the integrity of the target segmentation results.

The variables chosen for the demand segmentation are:

- Q12_1: **I happen to throw away food** (rated from 1=totally disagree to 10=totally agree)
- Q16_2: **I have to pick up the magic box by myself** (negative perception from 1=not at all to 10=totally negative)
- Q16_7: **There are no reviews from other users** (negative perception from 1=not at all to 10=totally negative)
- Q9_2: **Price importance** (rated from 1 to 10)
- Q9_4: **Quality of products** (rated from 1 to 10)
- Q9_6: **Availability of products for people with special needs** (celiac, allergies, etc.) (rated from 1 to 10)
- Q4_1: **How important is it for you that a product is eco-sustainable?** (1=not important at all to 10=extremely important)



These variables were chosen for demand segmentation because they **capture key aspects of consumer behavior and preferences**, including attitudes towards food waste, perceptions of service features, importance of price and quality, availability for special needs, and eco-sustainability concerns.

K-means cluster analysis

To determine the optimal clustering of the population in our sample, we performed a k-means cluster analysis using the standardized variables selected after analyzing multicollinearity.
We divided the population into 3, 4, and 5 clusters. In the case of 3 clusters, one cluster was formed with only 3 observations (28, 124, and 189), while in the scenarios with 4 and 5 clusters, a cluster was formed with only 1 observation (28), a possible outliers.

Number of Cases in each Cluster

Cluster	1	84.000
	2	3.000
	3	207.000
Valid		294.000
Missing		.000

Number of Cases in each Cluster

Cluster	1	102.000
	2	1.000
	3	134.000
	4	57.000
Valid		294.000
Missing		.000

Number of Cases in each Cluster

Cluster	1	41.000
	2	54.000
	3	101.000
	4	97.000
	5	1.000
Valid		294.000
Missing		.000

Considering that the clustering with 3 clusters also showed poor distribution of observations among the clusters, we decided to treat the 28th observation as an outlier. We then re-standardized the variables and repeated the cluster analysis.

Number of Cases in each Cluster

Cluster	1	79.000
	2	149.000
	3	65.000
Valid		293.000
Missing		.000

Number of Cases in each Cluster

Cluster	1	85.000
	2	86.000
	3	36.000
	4	36.000
	5	50.000
Valid		293.000
Missing		.000

Number of Cases in each Cluster

Cluster	1	33.000
	2	45.000
	3	99.000
	4	116.000
Valid		293.000
Missing		.000

The distribution of observations among the clusters was as follows:
- For the 3-cluster division: 26.9%, 50.8%, and 22.8%
- For the 5-cluster division: 29%, 29.3%, 12.3%, 12.3%, and 17.1%
- For the 4-cluster division: 11.13%, 15.4%, 33.8%, and 39.5%

We considered the 5-cluster division to be the most "equitably distributed" since the other groupings had extremely uneven frequencies in some clusters.

However

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
price as a choice factor in grocery shopping	1.591	4	.992	288	1.605	.173
I happen to throw away food	39.757	4	.462	288	86.109	<.001
I have to pick up the magic box (negative pereption)	28.686	4	.615	288	46.609	<.001
no feedbacks (negative perception)	25.526	4	.659	288	38.714	<.001
quality of products as choice factor in grocery shopping	19.899	4	.738	288	26.981	<.001
Availability of products for people with special needs (i.e. celiac, allergies, vegan, etc.)	39.938	4	.459	288	86.976	<.001
eco-sustenible products (importance)	28.563	4	.617	288	46.280	<.001

As indicated by the ANOVA table, the p-value of the F-test associated with the variable "price" exceeds the threshold of 0.01. Therefore, the variable is statistically non-significant, indicating that it does not significantly contribute to the differentiation between clusters.

Finally

Number of Cases in each Cluster

Cluster	1	49.000
	2	59.000
	3	88.000
	4	97.000
Valid		293.000
Missing		.000

After reperforming the cluster analysis with 3, 4, and 5 clusters, we opted for the 4-cluster solution because it exhibited more evenly distributed observations among the clusters: 16.7%, 20.3%, 30%, and 33%.

ANOVA

	Cluster		Error			
	Mean Square	df	Mean Square	df	F	Sig.
I happen to throw away food (statement agrement)	21.557	3	.787	289	27.405	<.001
I have to pick up the magic box by myself (negative perception)	25.312	3	.748	289	33.856	<.001
negative perception about the absence of feedbacks on the App	37.586	3	.620	289	60.601	<.001
Quality of products as choice factor in grocery shopping	19.561	3	.807	289	24.229	<.001
Availability of products for people with special needs (i.e. celiac, allergies, vegan, etc.) as choice factor in grocery shopping	56.623	3	.423	289	133.985	<.001
Eco-sustenible product (importance)	40.760	3	.587	289	69.405	<.001

Final Cluster Centers

	Cluster			
	Non-Sustainable Food Wasters: Non-Target Customer Segment	Eco-consciuous and Eco-friendly customers	Potential occasional customers	Comfort-Seeking Individuals with a Focus on Quality: potential customers to be convinced
I happen to throw away food (statment agrement)	.94502	-.41629	.10256	-.31722
I have to pick up the magic box by myself (negative perception)	.46476	-.86132	.47293	-.13993
negative perception about the absence of feedbacks on the App	-.02211	-1.00240	.77460	-.08185
Quality of products as choice factor in grocery shopping	-.63383	-.44389	.06956	.52707
Availability of products for people with special needs (i.e. celiac, allergies, vegan, etc.) as choice factor in grocery shopping	.28570	-.72955	-.72278	.95515
Eco-sustenible product (importance)	-1.38165	.15833	.08582	.52379

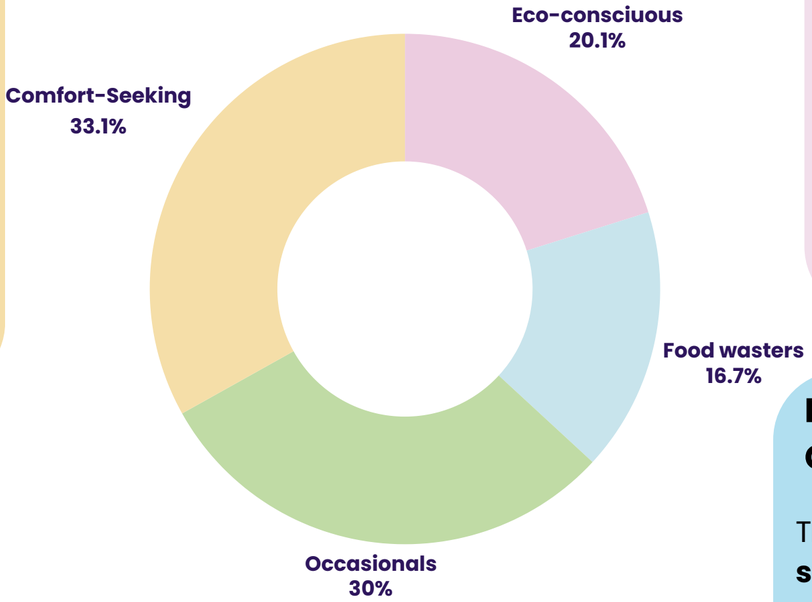
The "Final Cluster Centers" table provided by SPSS after performing a k-means cluster analysis represents the final centroids of each identified cluster. These centroids denote the average values of the input variables used to define the clusters.

We have highlighted extreme positive values with green color and extreme negative values with red. Light green indicates positive values that stand out from the mean (0) by between 0.20 and 0.5 and identify moderate-positive score ,while light red indicates negative values between -0.20 and -0.5 identifying negative-moderate score. These values have been standardized, so the mean is 0.

Demand segmentation

COMFORT-SEEKING INDIVIDUALS with a Focus on Quality: potential customers to be convinced

They represent a group of users who need to be persuaded to use the application. Although they have a **negative tendency towards food waste**, they are motivated to purchase to avoid waste, while placing a strong e**mphasis on product quality**. For them, the **presence of eco-sustainable products** is crucial to improve environmental aspects, and the availability of feedback within the app is essential for making informed choices. Additionally, the **availability of products for special needs** is very important to provide a comprehensive service. They are **slightly reluctant about picking up the product themselves**, an issue that could be addressed by implementing additional services.



ECO-CONSCIUOUS AND ECO-FRIENDLY CUSTOMERS

They have a strong interest in **reducing food waste**, despite their **moderate perception of eco-sustainable products**. They are part of the application's target market as they strive to **minimize waste and respect the environment**. However, they have a **negative perception of picking up the "magic box" themselves** and the absence of feedback within the app, as they want to make careful product choices **without placing too much importance on quality**. Their interest in products for users with special needs is not predominant.

POTENTIAL OCCASIONAL CUSTOMERS

They have a **slight tendency towards food waste** and **use the application sporadically**, primarily in situations of extreme need. They have a **negative perception of having to pick up the "magic box"** themselves and the absence of feedback within the app, as they wish to make a careful choice. This is reflected in their **moderate consideration of product quality**, which they would **prefer to be eco-sustainable**. They do not show interest in the needs of special users.

NON-SUSTAINABLE FOOD-WASTERS: Non-Target Customer Segment

They have a **positive perception of food waste** and **do not support environmental initiatives** or the various factors contributing to sustainability. **They show no interest in food quality** and are **not in favor of picking up the "magic box"** themselves, preferring home delivery instead. This attitude negatively impacts the conditions of delivery riders and the environment. For this group, **the presence of feedback** within the app **is important**, and they are interested in the **availability of products for users with special needs.**

Relationship between cluster and the gender of users of To Good To GO

Row-wise Analysis

Males:

- 19.1% belong to the "Non-Target customers" cluster.
- 21.3% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 36.8% belong to the "Potential occasional customers" cluster.
- 22.8% belong to the "Potential customers to be convinced" cluster.

Females:

- 14.4% belong to the "Non-Target customers" cluster.
- 18.3% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 24.8% belong to the "Potential occasional customers" cluster.
- 42.5% belong to the "Potential customers to be convinced" cluster.

Non-binary:

- The only Non-Binary person belongs to the "Eco-conscious and Eco-friendly customers" cluster.

Non specified:

- 33.3% belong to the "Non-Target customers" cluster.
- None belongs to the "Eco-conscious and Eco-friendly customers" cluster.
- 33.3% belong to the "Potential occasional customers" cluster.
- 33.3% belong to the "Potential customers to be convinced" cluster.

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Column-wise Analysis

Non-Target customers:

53.1% are males.
44.9% are females.
2% didn't specify their gender

Eco-conscious and Eco-friendly customers:

49.2% are males
47.5% are females
1.7% is made by the non-binary person
1.7% didn't specify their gender

Potential occasional customers:

56.8% are males
43.2% are females

Potential customers to be convinced:

32% are males
67% are females
1% didn'specify their gender

Gender * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Non-Sustainable Food Wasters: Non-Target Customer Segment	Eco-consciuous and Eco-friendly customers	Potential occasional customers	Potential customers to be convinced	Total
Gender	Male	Count	26	29	50	31	136
		% within Gender	19,1%	21,3%	36,8%	22,8%	100,0%
		% within Cluster Number of Case	53,1%	49,2%	56,8%	32,0%	46,4%
		% of Total	8,9%	9,9%	17,1%	10,6%	46,4%
	Female	Count	22	28	38	65	153
		% within Gender	14,4%	18,3%	24,8%	42,5%	100,0%
		% within Cluster Number of Case	44,9%	47,5%	43,2%	67,0%	52,2%
		% of Total	7,5%	9,6%	13,0%	22,2%	52,2%
	Non-binary	Count	0	1	0	0	1
		% within Gender	0,0%	100,0%	0,0%	0,0%	100,0%
		% within Cluster Number of Case	0,0%	1,7%	0,0%	0,0%	0,3%
		% of Total	0,0%	0,3%	0,0%	0,0%	0,3%
	Not specified	Count	1	1	0	1	3
		% within Gender	33,3%	33,3%	0,0%	33,3%	100,0%
		% within Cluster Number of Case	2,0%	1,7%	0,0%	1,0%	1,0%
		% of Total	0,3%	0,3%	0,0%	0,3%	1,0%
Total		Count	49	59	88	97	293
		% within Gender	16,7%	20,1%	30,0%	33,1%	100,0%
		% within Cluster Number of Case	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	16,7%	20,1%	30,0%	33,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18,802[a]	9	,027
Likelihood Ratio	18,950	9	,026
Linear-by-Linear Association	3,219	1	,073
N of Valid Cases	293		

Partial conclusions

The contingency table analysis shows interesting associations between gender and user clusters. **Males are most frequently "Potential occasional customers"**, whereas **females are predominantly "Potential customers to be convinced.**"The **"Eco-conscious and Eco-friendly customers**" cluster shows the highest gender diversity, including the **non-binary individual**. The **"Non-Target customers" cluster has a notable proportion of individuals who did not specify their gender**, unlike the other clusters. Overall, the data reflects different customer cluster distributions across gender categories, highlighting potential gender-based preferences or tendencies in customer behavior. The **Chi-square test confirms a statistically significant dependence between the clusters and the gender**. So efforts to make actual clients the potential ones can be made by providing more informations: we can use the insights to enhance the user experience across different frequency segments. For example, implementing features or promotions that encourage more frequent use.

Relationship between cluster and the age of users of To Good To GO

Row-wise Analysis

Millennials:

- 16% belong to the "Non-Target customers" cluster.
- 24.8% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 33.6% belong to the "Potential occasional customers" cluster.
- 25.6% belong to the "Potential customers to be convinced" cluster.

Gen Y:

- 14.9% belong to the "Non-Target customers" cluster.
- 9% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 19.4% belong to the "Potential occasional customers" cluster.
- 56.7% belong to the "Potential customers to be convinced" cluster.

Gen X:

- 18% belong to the "Non-Target customers" cluster.
- 20.2% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 34.8% belong to the "Potential occasional customers" cluster.
- 27% belong to the "Potential customers to be convinced" cluster.

Boomers:

- 25% belong to the "Non-Target customers" cluster.
- 33.3% belongs to the "Eco-conscious and Eco-friendly customers" cluster.
- 16.7% belong to the "Potential occasional customers" cluster.
- 25% belong to the "Potential customers to be convinced" cluster.

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Column-wise Analysis

Non-Target customers:

40.8% are Millennials.
20.4% are part of Gen Y.
32.7% are part of Gen X
6.1% are boomers.

Eco-conscious and Eco-friendly customers:

52.5% are Millennials.
10.2% are part of Gen Y.
30.5% are part of Gen X
6.8% are boomers.

Potential occasional customers:

47.7% are Millennials.
14.8% are part of Gen Y.
35.2% are part of Gen X
2.3% are boomers.

Potential customers to be convinced:

33% are Millennials.
39.2% are part of Gen Y.
24.7% are part of Gen X
3.1% are boomers.

AgeF * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Non-Sustainable Food Wasters: Non-Target Customer Segment	Eco-consciuous and Eco-friendly customers	Potential occasional customers	Potential customers to be convinced	Total
AgeF	Millennials	Count	20	31	42	32	125
		% within AgeF	16,0%	24,8%	33,6%	25,6%	100,0%
		% within Cluster Number of Case	40,8%	52,5%	47,7%	33,0%	42,7%
		% of Total	6,8%	10,6%	14,3%	10,9%	42,7%
	Gen Y	Count	10	6	13	38	67
		% within AgeF	14,9%	9,0%	19,4%	56,7%	100,0%
		% within Cluster Number of Case	20,4%	10,2%	14,8%	39,2%	22,9%
		% of Total	3,4%	2,0%	4,4%	13,0%	22,9%
	Gen X	Count	16	18	31	24	89
		% within AgeF	18,0%	20,2%	34,8%	27,0%	100,0%
		% within Cluster Number of Case	32,7%	30,5%	35,2%	24,7%	30,4%
		% of Total	5,5%	6,1%	10,6%	8,2%	30,4%
	Boomers	Count	3	4	2	3	12
		% within AgeF	25,0%	33,3%	16,7%	25,0%	100,0%
		% within Cluster Number of Case	6,1%	6,8%	2,3%	3,1%	4,1%
		% of Total	1,0%	1,4%	0,7%	1,0%	4,1%
Total		Count	49	59	88	97	293
		% within AgeF	16,7%	20,1%	30,0%	33,1%	100,0%
		% within Cluster Number of Case	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	16,7%	20,1%	30,0%	33,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26,399[a]	9	,002
Likelihood Ratio	25,888	9	,002
Linear-by-Linear Association	,039	1	,843
N of Valid Cases	293		

Descriptives

Q23

Cluster membership	N	Mean	Std. Deviation
Food waster	49	36,88	14,272
Eco-conscious	59	35,53	16,079
Occasional	88	33,97	14,013
Comfort-seeking	97	35,07	11,601
Total	293	35,13	13,731

Partial conclusions

The contingency table analysis highlights **different customer behaviors and tendencies across generations**, which can inform targeted marketing strategies and customer engagement approaches. **Millennials tend to be "Potential occasional customers" and "Eco-conscious and Eco-friendly customers"**, indicating a mix of occasional engagement and environmentally conscious behavior
Gen Y shows a strong tendency to be "Potential customers to be convinced", suggesting they may require more effort or incentives to convert.
Gen X has a significant presence in "Potential occasional customers" and "Potential customers to be convinced", similar to Millennials but with a higher inclination towards occasional purchases.
Boomers are notably "Eco-conscious and Eco-friendly customers", highlighting a tendency towards environmentally friendly behaviors within this age group.
The **Chi-square test confirms a statistically significant dependence between the clusters and the age**
. We can allocate resources more effectively by focusing on areas that have the most significant impact on user satisfaction and retention

Relationship between the cluster analyzed and the academic title

Row-wise Analysis

Lower Secondary School
- 16.7% belong to the "Non-Sustainable Food Wasters" cluster.
- 16.7% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 16.7% belong to the "Potential Occasional Customers" cluster.
- 50.0% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Upper Secondary School
- 28.3% belong to the "Non-Sustainable Food Wasters" cluster.
- 32.1% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 17.0% belong to the "Potential Occasional Customers" cluster.
- 22.6% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Bachelor's Degree
- 17.5% belong to the "Non-Sustainable Food Wasters" cluster.
- 15.8% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 29.8% belong to the "Potential Occasional Customers" cluster.
- 36.8% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Master's Degree
- 11.4% belong to the "Non-Sustainable Food Wasters" cluster.
- 19.0% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 40.0% belong to the "Potential Occasional Customers" cluster.
- 29.5% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

High Academic Titles
- 6.7% belong to the "Non-Sustainable Food Wasters" cluster.
- 20.0% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 13.3% belong to the "Potential Occasional Customers" cluster.
- 60.0% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Column-wise Analysis

Non-Sustainable Food Wasters: Non-target Customer Segment
- 2.0% have a lower secondary school education.
- 30.6% have an upper secondary school education.
- 40.8% have a bachelor's degree.
- 24.5% have a master's degree.
- 2.0% have high academic titles.

Eco-conscious and Eco-friendly Customers
- 1.7% have a lower secondary school education.
- 28.8% have an upper secondary school education.
- 30.5% have a bachelor's degree.
- 33.9% have a master's degree.
- 5.1% have high academic titles.

Potential Occasional Customers
- 1.1% have a lower secondary school education.
- 10.2% have an upper secondary school education.
- 38.6% have a bachelor's degree.
- 47.7% have a master's degree.
- 2.3% have high academic titles.

Comfort-Seeking Individuals with a Focus on Quality: Potential Customers to be Convinced
- 3.1% have a lower secondary school education.
- 12.4% have an upper secondary school education.
- 43.3% have a bachelor's degree.
- 32.0% have a master's degree.
- 9.3% have high academic titles

Academic title * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Non sustainabe food wasters: Non target customer segment	Eco-conscious and eco-friendly customers	Potential occasional customers	comfort-seeing individuals with a focus on quality: potential customers to be conviced	Total
Academic title	Lower secondary school	Count	1	1	1	3	6
		% within Q27	16,7%	16,7%	16,7%	50,0%	100,0%
		% within Cluster Number of Case	2,0%	1,7%	1,1%	3,1%	2,0%
		% of Total	0,3%	0,3%	0,3%	1,0%	2,0%
	Upper secondary school	Count	15	17	9	12	53
		% within Q27	28,3%	32,1%	17,0%	22,6%	100,0%
		% within Cluster Number of Case	30,6%	28,8%	10,2%	12,4%	18,1%
		% of Total	5,1%	5,8%	3,1%	4,1%	18,1%
	bachelor's degree	Count	20	18	34	42	114
		% within Q27	17,5%	15,8%	29,8%	36,8%	100,0%
		% within Cluster Number of Case	40,8%	30,5%	38,6%	43,3%	38,9%
		% of Total	6,8%	6,1%	11,6%	14,3%	38,9%
	Master's degree	Count	12	20	42	31	105
		% within Q27	11,4%	19,0%	40,0%	29,5%	100,0%
		% within Cluster Number of Case	24,5%	33,9%	47,7%	32,0%	35,8%
		% of Total	4,1%	6,8%	14,3%	10,6%	35,8%
	High academic titles	Count	1	3	2	9	15
		% within Q27	6,7%	20,0%	13,3%	60,0%	100,0%
		% within Cluster Number of Case	2,0%	5,1%	2,3%	9,3%	5,1%
		% of Total	0,3%	1,0%	0,7%	3,1%	5,1%
Total		Count	49	59	88	97	293
		% within Q27	16,7%	20,1%	30,0%	33,1%	100,0%
		% within Cluster Number of Case	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	16,7%	20,1%	30,0%	33,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26,547[a]	12	,009
Likelihood Ratio	25,992	12	,011
Linear-by-Linear Association	7,500	1	,006
N of Valid Cases	293		

a. 8 cells (40,0%) have expected count less than 5. The minimum expected count is 1,00.

	N	Mean	Std. Deviation
Food Wasters	49	2,94	,852
Eco-conscious	59	3,12	,948
Occasionals	88	3,40	,751
Comfort-seeking	97	3,32	,919
Total	293	3,24	,878

Partial conclusions

The contingency table analysis reveals significant **associations between academic titles and user clusters**. Notably, the **"Comfort-Seeking Individuals with a Focus on Quality" show a higher tendency to be from a bachelor's degree background** compared to other clusters. In contrast, the **"Non-Sustainable Food Wasters" and "Eco-conscious and Eco-friendly Customers" predominantly have an upper secondary school education.** The **"Potential Occasional Customers" exhibit a balanced distribution across different academic titles**, indicating diverse engagement with the app.
The **Chi-square test confirms a statistically significant** dependence between the clusters and academic titles, underscoring the importance of tailored marketing strategies to increase app engagement. For instance, targeted efforts to convert "Non-Sustainable Food Wasters" and "Eco-conscious and Eco-friendly Customers" into regular users could focus on addressing their specific concerns, such as providing more information about the app's quality and sustainability impacts.

Relationship between the cluster analyzed and the occupational status

Row-wise Analysis

Students:
- 30.6% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 37.3% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 36.4% belong to the "Potential Occasional Customers" cluster.
- 26.8% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Working Students:
- 10.2% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 8.5% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 11.4% belong to the "Potential Occasional Customers" cluster.
- 6.2% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Employees:
- 30.6% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 28.8% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 39.8% belong to the "Potential Occasional Customers" cluster.
- 45.4% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Self-employed Workers:
- 20.4% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 16.9% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 9.1% belong to the "Potential Occasional Customers" cluster.
- 17.5% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Housewives/Husehusbands:
- 6.1% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 3.4% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 2.3% belong to the "Potential Occasional Customers" cluster.
- 2.1% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Unemployed:
- 2.0% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 5.1% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 1.1% belong to the "Potential Occasional Customers" cluster.
- 2.1% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Column-wise Analysis

Non-Sustainable Food Wasters: Non-target Customer Segment
- 15.8% are students.
- 19.2% are working students.
- 13.5% are employees.
- 22.2% are self-employed workers.
- 33.3% are housewives/husehusbands.
- 14.3% are unemployed.

Eco-conscious and Eco-friendly Customers
- 23.2% are students.
- 19.2% are working students.
- 15.3% are employees.
- 22.2% are self-employed workers.
- 22.2% are housewives/husehusbands.
- 42.9% are unemployed.

Potential Occasional Customers
- 33.7% are students.
- 38.5% are working students.
- 31.5% are employees.
- 17.8% are self-employed workers.
- 22.2% are housewives/husehusbands.
- 14.3% are unemployed.

Comfort-Seeking Individuals with a Focus on Quality: Potential Customers to be Convinced
- 27.4% are students.
- 23.1% are working students.
- 39.6% are employees.
- 37.8% are self-employed workers.
- 22.2% are housewives/husehusbands.
- 28.6% are unemployed

Occupational status * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Non-sustainable food waster: Non-target customer segment	Eco-conscious and Eco-friendly customers	Potential occasional customers	Comfort seeking individuals with a focus on quality: potential customers to be conviced	Total
Occupational status	Student	Count	15	22	32	26	95
		% within Q26	15,8%	23,2%	33,7%	27,4%	100,0%
		% within Cluster Number of Case	30,6%	37,3%	36,4%	26,8%	32,4%
		% of Total	5,1%	7,5%	10,9%	8,9%	32,4%
	Working student	Count	5	5	10	6	26
		% within Q26	19,2%	19,2%	38,5%	23,1%	100,0%
		% within Cluster Number of Case	10,2%	8,5%	11,4%	6,2%	8,9%
		% of Total	1,7%	1,7%	3,4%	2,0%	8,9%
	employee	Count	15	17	35	44	111
		% within Q26	13,5%	15,3%	31,5%	39,6%	100,0%
		% within Cluster Number of Case	30,6%	28,8%	39,8%	45,4%	37,9%
		% of Total	5,1%	5,8%	11,9%	15,0%	37,9%
	Self-employed worker	Count	10	10	8	17	45
		% within Q26	22,2%	22,2%	17,8%	37,8%	100,0%
		% within Cluster Number of Case	20,4%	16,9%	9,1%	17,5%	15,4%
		% of Total	3,4%	3,4%	2,7%	5,8%	15,4%
	Housewife/ Husehusband	Count	3	2	2	2	9
		% within Q26	33,3%	22,2%	22,2%	22,2%	100,0%
		% within Cluster Number of Case	6,1%	3,4%	2,3%	2,1%	3,1%
		% of Total	1,0%	0,7%	0,7%	0,7%	3,1%
	Unemployed	Count	1	3	1	2	7
		% within Q26	14,3%	42,9%	14,3%	28,6%	100,0%
		% within Cluster Number of Case	2,0%	5,1%	1,1%	2,1%	2,4%
		% of Total	0,3%	1,0%	0,3%	0,7%	2,4%
Total		Count	49	59	88	97	293
		% within Q26	16,7%	20,1%	30,0%	33,1%	100,0%
		% within Cluster Number of Case	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	16,7%	20,1%	30,0%	33,1%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	14,747[a]	15	,470
Likelihood Ratio	14,611	15	,480
Linear-by-Linear Association	,000	1	,999
N of Valid Cases	293		

a. 9 cells (37,5%) have expected count less than 5. The minimum expected count is 1,17.

Partial conclusions

The contingency table analysis reveals **no significant associations between occupational status and the user clusters identified**. This lack of statistical significance suggests that **occupational status does not substantially influence the cluster membership of individuals.** Therefore, the observed distribution of clusters across different occupational statuses might be due to random variation rather than an inherent relationship.

Given the absence of a statistically significant dependency, it is essential for future marketing strategies to consider additional variables or conduct further research to identify factors that might significantly influence customer segmentation and engagement with the app.

User Segmentation and App Usage Frequency for 'Too Good To Go'

Row-wise Analysis

Never used the app:
- 20.4% belong to the "Non-Sustainable Food Wasters" cluster.
- 25.9% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 26.9% belong to the "Potential Occasional Customers" cluster.
- 26.9% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Used the app once:
- 20.5% belong to the "Non-Sustainable Food Wasters" cluster.
- 9.6% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 37.3% belong to the "Potential Occasional Customers" cluster.
- 32.5% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Used the app a few times in a year:
- 8.5% belong to the "Non-Sustainable Food Wasters" cluster.
- 22.3% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 27.7% belong to the "Potential Occasional Customers" cluster.
- 41.5% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Use the app at least once per month:
- 25% in each cluster.

Column-wise Analysis

Non-Sustainable Food Wasters:
- 44.9% never used the app.
- 20.5% used it once.
- 16.3% used it a few times in a year.
- 4.1% use it at least once per month.

Eco-conscious and Eco-friendly Customers:
- 47.5% never used the app.
- 13.6% used it once.
- 35.6% used it a few times in a year.
- 3.4% use it at least once per month.

Potential Occasional Customers:
- 33% never used the app.
- 35.2% used it once.
- 29.5% used it a few times in a year.
- 2.3% use it at least once per month.

Comfort-Seeking Individuals with a Focus on Quality:
- 29.9% never used the app.
- 27.8% used it once.
- 40.2% used it a few times in a year.
- 2.1% use it at least once per month.

How_often_people_use_TooGoodToGo * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Non-Sustainable Food Wasters: Non-Target Customer Segmen	Eco-consciuous and Eco-friendly customers	potential occasional customers	Comfort-Seeking Individuals with a Focus on Quality: potential customers to be convinced	Total
How_often_people_use_TooGoodToGo	never used	Count	22	28	29	29	108
		% within How_often_people_use_TooGoodToGo	20.4%	25.9%	26.9%	26.9%	100.0%
		% within Cluster Number of Case	44.9%	47.5%	33.0%	29.9%	36.9%
		% of Total	7.5%	9.6%	9.9%	9.9%	36.9%
	once	Count	17	8	31	27	83
		% within How_often_people_use_TooGoodToGo	20.5%	9.6%	37.3%	32.5%	100.0%
		% within Cluster Number of Case	34.7%	13.6%	35.2%	27.8%	28.3%
		% of Total	5.8%	2.7%	10.6%	9.2%	28.3%
	few in a year	Count	8	21	26	39	94
		% within How_often_people_use_TooGoodToGo	8.5%	22.3%	27.7%	41.5%	100.0%
		% within Cluster Number of Case	16.3%	35.6%	29.5%	40.2%	32.1%
		% of Total	2.7%	7.2%	8.9%	13.3%	32.1%
	at least one a month	Count	2	2	2	2	8
		% within How_often_people_use_TooGoodToGo	25.0%	25.0%	25.0%	25.0%	100.0%
		% within Cluster Number of Case	4.1%	3.4%	2.3%	2.1%	2.7%
		% of Total	0.7%	0.7%	0.7%	0.7%	2.7%
Total		Count	49	59	88	97	293
		% within How_often_people_use_TooGoodToGo	16.7%	20.1%	30.0%	33.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.7%	20.1%	30.0%	33.1%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.866[a]	9	.037
Likelihood Ratio	19.358	9	.022
Linear-by-Linear Association	5.141	1	.023
N of Valid Cases	293		

Descriptives

How_often_people_use_TooGoodToGo

	N	Mean	Std. Deviation
Food Wasters	49	1,80	,866
Eco-conscious	59	1,95	,990
Occasionals	88	2,01	,851
Comfort-seeking	97	2,14	,878
Total	293	2,01	,895

Partial conclusions

The contingency table analysis reveals **significant associations between the user clusters and their usage frequency of the "Too Good To Go" app**. Notably, the **"Comfort-Seeking Individuals with a Focus on Quality" show a higher tendency to use the app frequently** within a year compared to other clusters. In contrast, the **"Eco-conscious and Eco-friendly Customers" and "Non-Sustainable Food Wasters" predominantly have never used the app.** The **"Potential Occasional Customers" exhibit a balanced distribution across different usage frequencies**, indicating sporadic but notable engagement with the app.

The **Chi-square test confirms a statistically significant dependence between the clusters and app usage frequency**, underscoring the importance of tailored marketing strategies to increase app engagement. For instance, targeted efforts to convert "Non-Sustainable Food Wasters" and "Eco-conscious and Eco-friendly Customers" into regular users could focus on addressing their specific concerns, such as providing more information about product quality and sustainability impacts.

Relationship between cluster and the occasions for which they use To Good To GO

			Cluster Number of Case				
			Non-Target customers	Eco-conscious and Eco-friendly customers	Potential occasional customers	Potential customers to be convinced	Total
Q20	Don't know what to eat	Count	12	13	21	35	81
		% within Q20	14.8%	16.0%	25.9%	43.2%	100.0%
		% within Cluster Number of Case	24.5%	22.0%	23.9%	36.1%	27.6%
		% of Total	4.1%	4.4%	7.2%	11.9%	27.6%
	Casually near a To Good To Go point of sale	Count	11	18	22	24	75
		% within Q20	14.7%	24.0%	29.3%	32.0%	100.0%
		% within Cluster Number of Case	22.4%	30.5%	25.0%	24.7%	25.6%
		% of Total	3.8%	6.1%	7.5%	8.2%	25.6%
	Empty fridge	Count	7	10	28	8	53
		% within Q20	13.2%	18.9%	52.8%	15.1%	100.0%
		% within Cluster Number of Case	14.3%	16.9%	31.8%	8.2%	18.1%
		% of Total	2.4%	3.4%	9.6%	2.7%	18.1%
	To give back to the environment	Count	9	6	7	15	37
		% within Q20	24.3%	16.2%	18.9%	40.5%	100.0%
		% within Cluster Number of Case	18.4%	10.2%	8.0%	15.5%	12.6%
		% of Total	3.1%	2.0%	2.4%	5.1%	12.6%
	To experiment	Count	9	8	7	12	36
		% within Q20	25.0%	22.2%	19.4%	33.3%	100.0%
		% within Cluster Number of Case	18.4%	13.6%	8.0%	12.4%	12.3%
		% of Total	3.1%	2.7%	2.4%	4.1%	12.3%
	Other reasons	Count	1	4	3	3	11
		% within Q20	9.1%	36.4%	27.3%	27.3%	100.0%
		% within Cluster Number of Case	2.0%	6.8%	3.4%	3.1%	3.8%
		% of Total	0.3%	1.4%	1.0%	1.0%	3.8%
Total		Count	49	59	88	97	293
		% within Q20	16.7%	20.1%	30.0%	33.1%	100.0%
		% within Cluster Number of Case	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.7%	20.1%	30.0%	33.1%	100.0%

Row-wise Analysis

Don't know what to eat:
- 14.8% belong to the "Non-Target customers" cluster.
- 16.0% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 25.9% belong to the "Potential occasional customers" cluster.
- 43.2% belong to the "Potential customers to be convinced" cluster.

Casually near a To Good To Go point of sale:
- 14.7% belong to the "Non-Target customers" cluster.
- 24.0% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 29.3% belong to the "Potential occasional customers" cluster.
- 32.0% belong to the "Potential customers to be convinced" cluster.

Empty fridge:
- 13.2% belong to the "Non-Target customers" cluster.
- 18.9% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 52.8% belong to the "Potential occasional customers" cluster.
- 15.1% belong to the "Potential customers to be convinced" cluster.

To give back to the environment:
- 24.3% belong to the "Non-Target customers" cluster.
- 16.2% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 18.9% belong to the "Potential occasional customers" cluster.
- 40.5% belong to the "Potential customers to be convinced" cluster.

To experiment:
- 25.0% belong to the "Non-Target customers" cluster.
- 22.2% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 19.4% belong to the "Potential occasional customers" cluster.
- 33.3% belong to the "Potential customers to be convinced" cluster.

Other reasons:
- 9.1% belong to the "Non-Target customers" cluster.
- 36.4% belong to the "Eco-conscious and Eco-friendly customers" cluster.
- 27.3% belong to the "Potential occasional customers" cluster.
- 27.3% belong to the "Potential customers to be convinced" cluster.

Column-wise Analysis

Non-Target customers:
24.5% don't know what to eat.
22.4% are casually near a To Good To Go point of sale.
14.3% have an empty fridge.
18.4% want to give back to the environment.
18.4% want to experiment.
2.0% have other reasons.

Eco-conscious and Eco-friendly customers:
22.0% don't know what to eat.
30.5% are casually near a To Good To Go point of sale.
16.9% have an empty fridge.
10.2% want to give back to the environment.
13.6% want to experiment.
6.8% have other reasons.

Potential occasional customers:
23.9% don't know what to eat.
25.0% are casually near a To Good To Go point of sale.
31.8% have an empty fridge.
8.0% want to give back to the environment.
8.0% want to experiment.
3.4% have other reasons.

Confort-seeking individuals: Potential customers to be convinced:
36.1% don't know what to eat.
24.7% are casually near a To Good To Go point of sale.
8.2% have an empty fridge.
15.5% want to give back to the environment.
12.4% want to experiment.
3.1% have other reasons.

Partial conclusions

The contingency table analysis reveals **significant associations between reasons for using the service and customer clusters**. **"Potential Customers to be Convinced" are primarily motivated by uncertainty in food choices and environmental concerns,** comprising 43.2% when unsure what to eat. **"Potential Occasional Customers" are driven by practical needs,** such as 52.8% when facing an empty fridge. **"Eco-conscious and Eco-friendly Customers" show strong engagement near a To Good To Go point,** with 30.5% casually near these locations. "**Non-Target Customers" exhibit less distinct patterns but are significantly influenced by experimentation,** representing 25.0% with experimental motivations.

The **chi-square test result of 27.95 with a significance of 0.022 indicates strong statistical evidence** of a significant association between customer clusters and reasons for using Too Good To Go. This suggests that the reasons for using the service are not randomly distributed among different customer clusters, highlighting that motivations significantly influence customer cluster membership.

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	27.945[a]	15	.022
Likelihood Ratio	27.288	15	.026
Linear-by-Linear Association	2.740	1	.098
N of Valid Cases	293		

Descriptives

Q20	N	Mean	Std. Deviation
Food Wasters	49	2,90	1,531
Eco-conscious	59	2,83	1,566
Occasionals	88	2,61	1,334
Comfort-seeking	97	2,53	1,555
Total	293	2,68	1,490

Customer Clusters and Willingness to Spend Time Collecting Magic Boxes

Row-wise Analysis:

- **1-2 minutes:**
  - Cluster 1 (Non-Sustainable Food Wasters): 22.2%
  - Cluster 2 (Eco-conscious Customers): 33.3%
  - Cluster 3 (Potential Occasional Customers): 33.3%
  - Cluster 4 (Comfort-Seeking Individuals): 11.1%
  - Interpretation: The majority of those willing to spend only 1-2 minutes to collect the magic box are from Clusters 2 and 3, indicating a moderate interest in quick pickups among eco-conscious and occasional users, while those in Cluster 4 are less likely to spend such a short time.
- **3-5 minutes:**
  - Cluster 1: 27.9%
  - Cluster 2: 26.5%
  - Cluster 3: 23.5%
  - Cluster 4: 22.1%
  - Interpretation: The willingness to spend 3-5 minutes is more evenly distributed across all clusters, indicating no strong preference among any specific cluster.
- **6-10 minutes:**
  - Cluster 1: 15.1%
  - Cluster 2: 12.3%
  - Cluster 3: 39.6%
  - Cluster 4: 33.0%
  - Interpretation: Clusters 3 and 4 show a higher willingness to spend 6-10 minutes, suggesting that occasional and comfort-seeking customers are more inclined towards moderate pickup times.
- **11-15 minutes:**
  - Cluster 1: 12.9%
  - Cluster 2: 17.7%
  - Cluster 3: 28.8%
  - Cluster 4: 43.5%
  - Interpretation: Cluster 4 dominates the 11-15 minutes category, indicating that comfort-seeking individuals are willing to invest slightly more time for higher quality or eco-sustainable products.
- **16-20 minutes**:
  - Cluster 1: 7.1%
  - Cluster 2: 35.7%
  - Cluster 3: 28.6%
  - Cluster 4: 28.6%
  - Interpretation: Cluster 2 shows a significant increase, with eco-conscious customers willing to spend more time, likely due to their commitment to sustainability.
- **20-30 minutes:**
  - Cluster 1: 11.8%
  - Cluster 2: 17.6%
  - Cluster 3: 11.8%
  - Cluster 4: 58.8%
  - Interpretation: A considerable portion of Cluster 4 is willing to spend 20-30 minutes, reflecting their preference for quality and eco-friendly products despite the time investment.
- **30+ minutes:**
  - Cluster 1: 0%
  - Cluster 2: 33.3%
  - Cluster 3: 33.3%
  - Cluster 4: 33.3%
  - Interpretation: All willing participants for 30+ minutes are evenly spread across Clusters 2, 3, and 4, showing a commitment from these groups to invest significant time if necessary.

Column-wise Analysis:

- **Non-target:**
  - 1-2 minutes: 4.1%
  - 3-5 minutes: 38.8%
  - 6-10 minutes: 32.7%
  - 11-15 minutes: 16.3%
  - 16-20 minutes: 4.1%
  - 20-30 minutes: 4.1%
  - 30+ minutes: 0%
  - Interpretation: Non-Sustainable Food Wasters prefer shorter pickup times, with a majority willing to spend up to 10 minutes, reflecting their general lack of commitment to sustainability.
- **Eco-consciuous:**
  - 1-2 minutes: 5.1%
  - 3-5 minutes: 30.5%
  - 6-10 minutes: 22%
  - 11-15 minutes: 18.6%
  - 16-20 minutes: 16.9%
  - 20-30 minutes: 5.1%
  - 30+ minutes: 1.7%
  - Interpretation: Eco-conscious customers show a balanced willingness across all time categories, with a significant portion willing to invest more time (16-20 minutes) for eco-sustainable products.
- **Potential occasional customer:**
  - 1-2 minutes: 3.4%
  - 3-5 minutes: 18.2%
  - 6-10 minutes: 47.7%
  - 11-15 minutes: 18.3%
  - 16-20 minutes: 9.1%
  - 20-30 minutes: 2.3%
  - 30+ minutes: 1.1%
  - Interpretation: Potential Occasional Customers are predominantly inclined towards a 6-10 minute collection time, indicating a moderate commitment but with occasional use.
- **Comfort-seeking:**
  - 1-2 minutes: 1%
  - 3-5 minutes: 15.5%
  - 6-10 minutes: 36.1%
  - 11-15 minutes: 27.8%
  - 16-20 minutes: 8.2%
  - 20-30 minutes: 10.3%
  - 30+ minutes: 1%
  - Interpretation: Comfort-Seeking Individuals are willing to invest more time (up to 15 minutes) to collect the magic box, emphasizing their focus on quality and eco-friendliness.

			Non-Sustainable Food Wasters: Non-Target Customer Segment	Eco-consciuous and Eco-friendly customers	Potential occasional customers	potential customers to be convinced	Total
Up to how many minutes are you willing to spend to go and collect the magic box at the store?	1-2 minutes	Count	2	3	3	1	9
		% within V93	22.2%	33.3%	33.3%	11.1%	100.0%
		% within Cluster_da_4_Definitivo	4.1%	5.1%	3.4%	1.0%	3.1%
		% of Total	0.7%	1.0%	1.0%	0.3%	3.1%
	3-5 minutes	Count	19	18	16	15	68
		% within V93	27.9%	26.5%	23.5%	22.1%	100.0%
		% within Cluster_da_4_Definitivo	38.8%	30.5%	18.2%	15.5%	23.2%
		% of Total	6.5%	6.1%	5.5%	5.1%	23.2%
	6-10 minutes	Count	16	13	42	35	106
		% within V93	15.1%	12.3%	39.6%	33.0%	100.0%
		% within Cluster_da_4_Definitivo	32.7%	22.0%	47.7%	36.1%	36.2%
		% of Total	5.5%	4.4%	14.3%	11.9%	36.2%
	11-15 minutes	Count	8	11	16	27	62
		% within V93	12.9%	17.7%	25.8%	43.5%	100.0%
		% within Cluster_da_4_Definitivo	16.3%	18.6%	18.2%	27.8%	21.2%
		% of Total	2.7%	3.8%	5.5%	9.2%	21.2%
	16-20 minutes	Count	2	10	8	8	28
		% within V93	7.1%	35.7%	28.6%	28.6%	100.0%
		% within Cluster_da_4_Definitivo	4.1%	16.9%	9.1%	8.2%	9.6%
		% of Total	0.7%	3.4%	2.7%	2.7%	9.6%
	20-30 minutes	Count	2	3	2	10	17
		% within V93	11.8%	17.6%	11.8%	58.8%	100.0%
		% within Cluster_da_4_Definitivo	4.1%	5.1%	2.3%	10.3%	5.8%
		% of Total	0.7%	1.0%	0.7%	3.4%	5.8%
	more than 30 minutes	Count	0	1	1	1	3
		% within V93	0.0%	33.3%	33.3%	33.3%	100.0%
		% within Cluster_da_4_Definitivo	0.0%	1.7%	1.1%	1.0%	1.0%
		% of Total	0.0%	0.3%	0.3%	0.3%	1.0%
Total		Count	49	59	88	97	293
		% within V93	16.7%	20.1%	30.0%	33.1%	100.0%
		% within Cluster_da_4_Definitivo	100.0%	100.0%	100.0%	100.0%	100.0%
		% of Total	16.7%	20.1%	30.0%	33.1%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	33.494[a]	18	.015
Likelihood Ratio	33.577	18	.014
Linear-by-Linear Association	9.251	1	.002
N of Valid Cases	293		

Partial conclusions

The contingency table results reveal a **statistically significant dependency between the willingness to spend time collecting the magic box and the customer clusters. Non-Sustainable Food Wasters prefer shorter pickup times,** indicating a lack of commitment to sustainability. **Eco-conscious customers and Comfort-Seeking Individuals show a balanced willingness to invest more time,** reflecting their higher commitment to sustainability and quality. **Potential Occasional Customers tend to prefer moderate pickup times**, suggesting occasional but thoughtful engagement. These insights can inform targeted strategies to improve user engagement and satisfaction across different customer segments.

Customer Clusters and Willingness to Spend more for eco-sustainable products

Q5 * Cluster Number of Case Crosstabulation

			Cluster Number of Case				
			Food Wasters	Eco conscious	Occasionals	Comfort seeking	Total
Willingness to spend more for eco-sustainable products	Yes	Count	17	40	50	91	198
		% within Q5	8,6%	20,2%	25,3%	46,0%	100,0%
		% within Cluster Number of Case	34,7%	67,8%	56,8%	93,8%	67,6%
		% of Total	5,8%	13,7%	17,1%	31,1%	67,6%
	No	Count	32	19	38	6	95
		% within Q5	33,7%	20,0%	40,0%	6,3%	100,0%
		% within Cluster Number of Case	65,3%	32,2%	43,2%	6,2%	32,4%
		% of Total	10,9%	6,5%	13,0%	2,0%	32,4%
Total		Count	49	59	88	97	293
		% within Q5	16,7%	20,1%	30,0%	33,1%	100,0%
		% within Cluster Number of Case	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	16,7%	20,1%	30,0%	33,1%	100,0%

Row-wise Analysis

YES:

- 8.6% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 20.2% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 25.3% belong to the "Potential Occasional Customers" cluster.
- 46% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

NO:

- 33.7% belong to the "Non-Sustainable Food Wasters: Non-target Customer Segment" cluster.
- 20% belong to the "Eco-conscious and Eco-friendly Customers" cluster.
- 40% belong to the "Potential Occasional Customers" cluster.
- 6.3% belong to the "Comfort-Seeking Individuals with a Focus on Quality" cluster.

Column-wise Analysis

Non-Sustainable Food Wasters: Non-target Customer Segment

- 34.7% say YES
- 65.3% say NO

Eco-conscious and Eco-friendly Customers

- 67.8% say YES
- 32.2% say NO

Potential Occasional Customers

- 56.8% say YES
- 43.2% say NO

Comfort-Seeking Individuals with a Focus on Quality: Potential Customers to be Convinced

- 67.6% say YES
- 32.4% say NO

Partial conclusions

The contingency table results reveal a **statistically significant dependency between the willingness to spend more for eco-sustainable products and the customer clusters. Non-Sustainable Food Wasters prefer not to spend more for eco-sustainable products,** indicating a lack of commitment to sustainability. **Eco-conscious customers and Comfort-Seeking Individuals show a balanced willingness to invest more money,** reflecting their higher commitment to sustainability and quality. **Potential Occasional Customers tend to prefer moderate willingness to spend more**, suggesting occasional but thoughtful engagement. These insights can inform targeted strategies to improve user engagement and satisfaction across different customer segments.

Descriptives

Q5

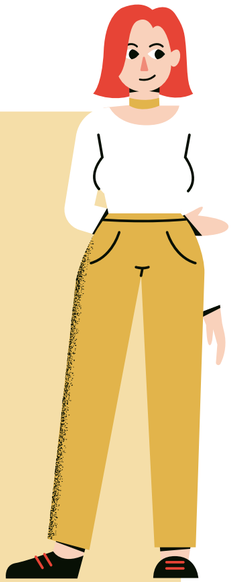
	N	Mean	Std. Deviation	Std. Error
Food Waster	49	1,65	,481	,069
Eco-conscious	59	1,32	,471	,061
Occasional	88	1,43	,498	,053
Comfort seeking	97	1,06	,242	,025
Total	293	1,32	,469	,027

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	59,308[a]	3	<,001
Likelihood Ratio	66,410	3	<,001
Linear-by-Linear Association	44,338	1	<,001
N of Valid Cases	293		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 15,89.

Cluster 1 - Comfort-Seeking individuals with a focus on quality: potential customers to be convinced



- **33% of the sample**
- **Gender:** mainly female (67%)
- **Age:** 39.2% are part of gen Y (35 years old on average)
- **Scholars:** most of them have a Bachelor's Degree or a Master's degree (75.3%)
- **Active users:** many of them (40.2%) use the app few times in a year
- **Spontaneous or indecisive diners:** they use the app when they don't know what to eat or they are casually near a Too Good to Go point of sale (60.8%)
- **Not lazy people**: 83.4% of them are willing to spend more than 5 minute to pick up a magic box
- **Ethical customer:** 67.6% of them are willing to spend more for eco-sustainable products

Cluster 2 - Potential occasional customers

- **30% of the sample**
- **Gender:** 56.8% males and 43.2% females
- **Age:** 47.7% are Millenials (33 years old on average)
- **Scholars:** most of them have a Master's degree or a Bachelor's degree (86.3%)
- **Infrequent users:** most of them have used it once or never (68.2%)
- **Opportunistic customers:** they use the app when they have an empty fridge or they are near a Too Good To Go point of sale (56.8%)
- **Dedicated Magic Box seekers:** 78.5% of them are willing to spend more than 5 minutes for a magic box
- **Majority Eco-Spenders:** 56.8% of them are willing to spend more for eco-sustainable products

Cluster 3 - Eco-consciuous and Eco-friendly customers

- **20.3% of the sample**
- **Gender:** 49.2% are males, 47.5% are females, 1.7% is made by the non-binary person and 1.7% didn't specify their gender
- **Age:** 52.5% are Millenials (on average 36 years old)
- **Individuals with Higher Degrees:** Most of them have a Master's Degree or a Bachelor's Degree (64.4%)
- **Varied App Users:** many of them have never used the app (47.5%), but 35.6% use the app few times in a year
- **Spontaneous or indecisive diners:** they use the app when they don't know what to eat or they are casually near a To Good To Go point of sale (52.5%)
- **Dedicated Magic Box seekers:** 64.3% of them are willing to spend more than 5 minutes for a magic box
- **Ethical customer**: 67.8% of them are willing to spend more for eco-sustainable products

Cluster 4 - Non-Sustainable Food Wasters: Non-Target Customer Segment

- **16.7% of the sample**
- **Gender:** 53.1% are males, 44.9% are females, 2% didn’t specify their gender
- **Age:** 40.8% are Millenials (on average 37 years old)
- **Educated Individuals :** most of them have a Bachelor’s degree (71.4%) have a Bachelor’s degree or an upper secondary school education
- **Infrequent users:** most of them have used it once or never (65.4%)
- **Occasions in which they use the app:** The few who use the application do so because they don't know what to eat, are casually near a Too Good To Go point of sale, have an empty fridge, want to give back to the environment or want to experiment
- **Proximity Buyers:** only 57.2% of them are willing to spend more than 5 minutes for a magic box; 42.8% of the Non-Target customer buy only if a point of sale is less than 5 minutes away
- **Non-eco-sustainable spenders:** only 34.7% of them are willing to spend more for eco-sustainable products

MANAGERIAL IMPLICATIONS

How is composed the To GoodTo Go market?

- Despite 62.9% of the analyzed sample having used the app, only a small percentage of these users engage with it more than once a month. This indicates low customer retention, resulting in sporadic usage of the app.

- In addition to a segment of the population (20.3%) that can be considered regular customers of Too Good To Go, 63% of the sample has emerged as potential customers. They tend to use the app when they are near a collection point or out of urgent necessity.

This segment of the population requires additional incentives to use the app more frequently: some suggestions are available from marketing mix analysis.

MARKETING MIX

Product

- Emphasis on quality is crucial, as consumers are more willing to invest time in acquiring products they perceive as high-quality.
- Marketing strategies should highlight premium offerings from pastry shops, butcher's shops, bars, supermarkets, and restaurants.
- These products are available in already operating stores, then it is essential for these businesses to prioritize the quality of their offerings. Providing simple and quick options is the key to attracting those who, uncertain about what to eat, still desire high-quality food.

Price

- Price alignment: Stores have set prices within customer's average spending limits, not exceeding 15 euros per box.
- Quantity-price adjustment: Currently lacking, adjusting box prices based on the number of items inside could enhance perceived value. Ensure pricing reflects the type and quality of items included in each box.
- Target quantity: Aim for an average of 5 items per box to meet customer expectations and enhance perceived value.

Place

- Expand the number of partner stores to increase the availability of Magic Boxes, focusing on areas with high demand.
- Explore the possibility of introducing delivery services for users with limited mobility or those living far from collection points, enhancing the accessibility and inclusivity of the service.
- Convenience is a critical factor as 42.8% of the non-target customers purchase only if a point of sale is less than 5 minutes away.

Promotion

- Implement loyalty programs to reward users who regularly use the app. For example, offer discounts or bonuses after a certain number of purchases.
- Launch awareness campaigns highlighting the importance of reducing food waste and the positive impact of using the app.
- Promotional efforts should focus on closing the gap between awareness and active usage. This includes improving communication and transparency regarding box contents and the number of items included.

LIMITATIONS

- **SAMPLE AND METHOD**: The analysis highlights that the collected data may not accurately represent the general population of individuals aged 18 to 70 living in Northern Italy. This could be due to non-representative sampling issues related to characteristics such as education, occupation, and household composition. This could affect the generalizability of the findings to the entire target population.

- **COMPETITIVE LANDSCAPE:** Currently, there is intense competition in the restaurant and food sector, including fast food options and corporate or university meal plans. Due to the convenience provided by these alternatives, the adoption of Too Good To Go may take a back seat.

- **FURTHER ANALYSIS IS NEEDED:** Too Good To Go needs further analysis and detailed planning to expand its market reach and enhance user engagement. This includes understanding competitor dynamics, optimizing operational logistics, and conducting financial analysis to ensure sustainable growth. These steps are essential for refining its offerings and strategies in promoting sustainable consumption practices effectively.