WU Vienna

4965 Marketing and Retail

Marketing-mix strategy for e-grocery

based on market analysis with R

by Daniel Lilek, Dominik Haas, Petar Petrov and Zhivka Dangarska

7/15/2018

Contents

List of Figures

Management summary

This paper provides a marketing-mix strategy, which is based on a real-live data from a survey about e-grocery in Austria (excluding Vienna). It is aimed at entrepreneurs in this rather new market niche, who prefer to rely on careful statistical analysis to identify the most promising market segments and pricing strategy. Proving their point, by the means of common statistical methods, the authors propose a wiser, less risky business choice and give a more realistic prognosis. This way one should be able not only to distinguish themselves from other providers, who may base their marketing approach on past observations, educated guesses and professional experience, but also gain a better market position by being the first to introduce an innovational marketing strategy in the business of e-grocery retailing.

The results of the study describe a still very underdeveloped e-grocery market with a lot of potential, but difficult to enter, since online retailers need to compete with the physical ones, which have basically covered most of the demand for groceries in general. This could be addressed by engaging in partnerships and corroboration with the most popular grocery stores, so as to better understand the customer and win them over to the online channel.

The analysis, done by the authors proves an existing high interest into e-grocery shopping among the people in the age between 30 and 50. This group of people has distinguished itself from the elderly generation also on the basis of more experience with online shopping in general. Combined with the finding that these people are have less free time, but still spare some of it on grocery shopping on a regular basis, makes them the most suitable customer segment to target. However, future oriented entrepreneurs realize that a smart internet-based solution has the power to change the mindset of people, if it provides unique problem solution. Thus, the segment, which declared to have a zero interest in e-grocery could also be attracted, if one succeeds to fulfill their need for independence.

All findings of the study pointed to a reasonable product pricing strategy, combined with promotions on the basis of the services, provided. For example, by innovating the ordering scheme, and improving the delivery schedules while keeping the delivery fees low, one could attract customers, allowing them to focus on other aspects of their lives. Offering a trial period may also be considered as a start, for building a customer base.

As for the targeted region in Austria – it turned out that people who life in Lower and Upper Austria, Salzburg, Styria, Tyrol and Vorarlberg would rather be interested in e-grocery shopping.

Introduction

In order to provide retailers of groceries a meaningful and promising marketing strategy for addressing the online market the authors of this paper analyzed data from a survey, conducted with nearly 540 people all over Austria (excluding Vienna) on the subject of e-grocery shopping.

This paper continues with a description of the source data and the methodology used to analyze it, followed by an argumentation of the observations made. The concluding chapter discusses the authors' suggestion for a successful marketing-mix strategy, while mentioning some the limitations and possibilities for future application of the findings.

Methodology and Findings

For the purpose of this paper the authors conducted a univariate and bivariate descriptive statistics over the survey-data, while providing simple visualizations such as boxplots and barcharts to support the discussion. Then the analyses goes further with a hierarchical clustering on the basis of the ward.D2 method, using variables that deal with attitude towards shopping of groceries online. Consequently, assumptions about the more attractive customer segments were made.

Preparing the Data set

The first step towards a good and meaningful data analysis was to examine the raw data and prepare it for further use. The original dataset was studied carefully by the authors, cleansed from non-useful data (e.g. such as interviewer) and checked for inconsistencies and particularities. The next step was to recode the data and merge related variables into one categorical or ordinal variable. For example, the variable *Frequency of grocery shopping* was composed out of the seven related attributes, which could be ordered from 1 "*I never purchase groceries*" until 7 "*More than once in a week*". The same way the variable *Gender* was composed out of its two categories – "*male*" and "*female*". A decision was made to group the ZIP codes into states, in order to allow for further analysis of the regions with the highest market potential, if needed. Further data processing involved removing some extreme outliers, such as all entries greater than 50 in the variable *Amount of people groceries are bought for.* The data preparation, as well as the following analysis was conducted in R.

Descriptive analysis

This section presents the results of the descriptive statistics of selected variables from the dataset.

An overview of the general attitude of the survey participants towards online grocery shopping was considered an important starting point, which may help understand and interpret the further findings. It was encouraging to find out that 522 out of the 538 people, who took part in the survey, have heard prior this study about the possibility of buying groceries online, and more than half of the participants inform themselves about or have interest in e-grocery shopping. Not only that, but 345 of the participants declared that they already buy groceries online, and only 14 were unsatisfied with their last purchase. This alone is a signal that the market has potential for further development, when adequately addressed. Nonetheless only 203 indicated plans to buy groceries online within the next 2 months – a number, which is actually not that low, considering the overall

count of the participants. These statistics show so far that the market exists, but it is still underdeveloped, which is why a deeper market analysis is even more interesting.

Next, the general grocery shopping habits of the interviewed people were analyzed.

As it might have been suspected, most participants do their grocery shopping on a regular basis – more than once a week or weekly, as shown in Figure 1 below. This is good to remember, when deciding on a marketing-mix strategy on a further stage, as higher frequency of shopping may indicate higher demand. But which products are exactly the once that are bought most frequently? The answer to this question may be found in Figure 2. It turns out that fresh fruits and vegetables, as well as bread and pastries, and dairy products are almost equally often demanded by all participants – on average seventy percent of the purchases contain these types of goods, whereas products such as convenience food or tinned food are purchased considerably rarer - on average only present in twenty or thirty percent of the purchases. Another point, derived from the plot is that thirty to eighty percent of the people's purchases have meat and processed meat. Frozen food and beverages find place in the shopping basket in forty percent of the purchases. Depending on which type of product a retailer decides to focus, it is advisable to consider its availability, in order to best satisfy the customer's needs. For example, if flour or sugar are out of stock for a couple of days, this will most probably not be such a problem, whereas if it happens that there are no fresh vegetables left, the customer will simply buy them somewhere else.

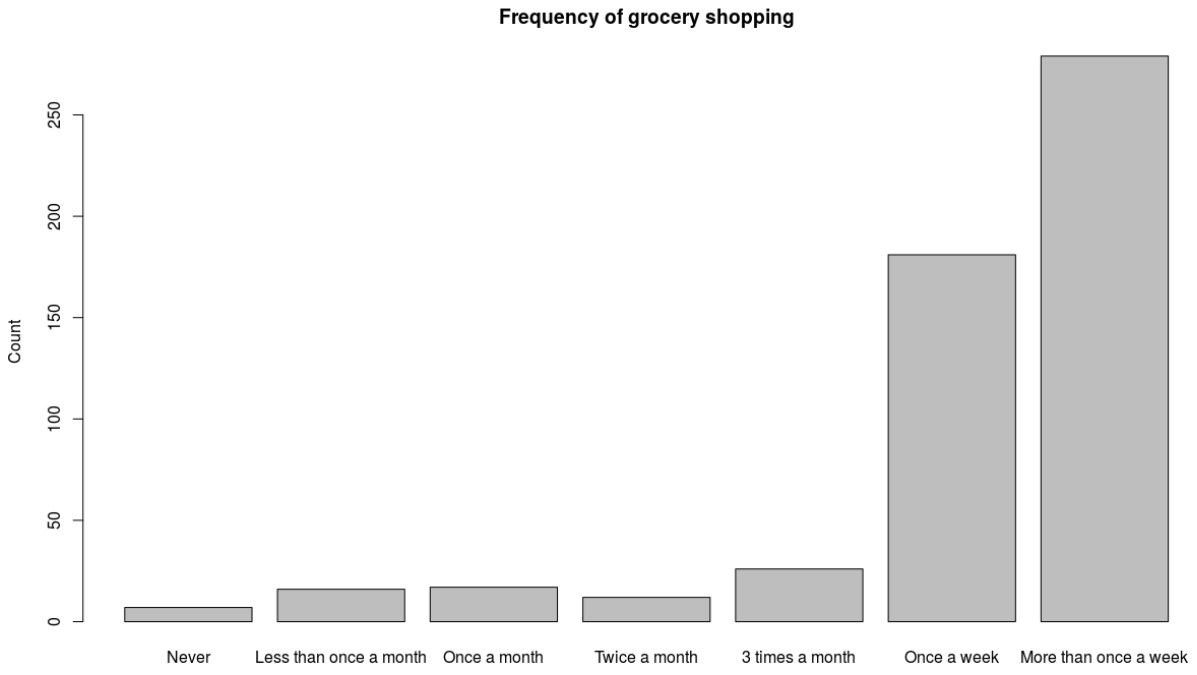


Figure 1 – Frequency of grocery shopping

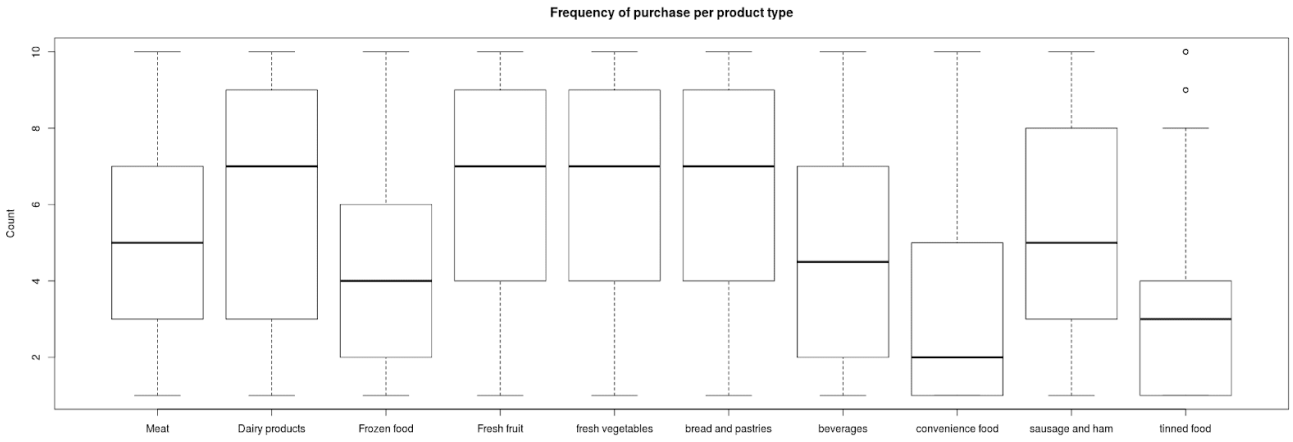


Figure 2- Frequency of purchase per product type

Here it is also important to consider people's tolerance levels regarding possible inconvenience, coming with the online shopping. Those are mostly related to the fact that e-shopping services, by contrast from physical shopping, cannot be provided in real time. Based on the participants' overall online shopping experience, they have indicated that the delivery fee is of high importance for them. This is already a logistic question that a potential e-grocery entrepreneur should take into account when developing his/her business strategy. Further important features are the day of delivery, which was found to be equally important, as the remaining shelf life. Surprisingly the least important feature is the delay of delivery, which suggests that customers may not bother if the ordered goods aren't delivered on time. Figure 3 helps to better illustrate these observations.

Another interesting finding of this study is that 437 out of the 538 participants declare that they would rather be at home at the time of delivery. Whiles this is something easy to be comprehended – it represents a further constraint in the time slot for delivery, which the retailer must not neglect. It sounds logical that if one is not there to receive the goods, maybe a family member will be, however the study says that the majority of people shop for one or two people in the household, which doesn't leave much space in this context either.

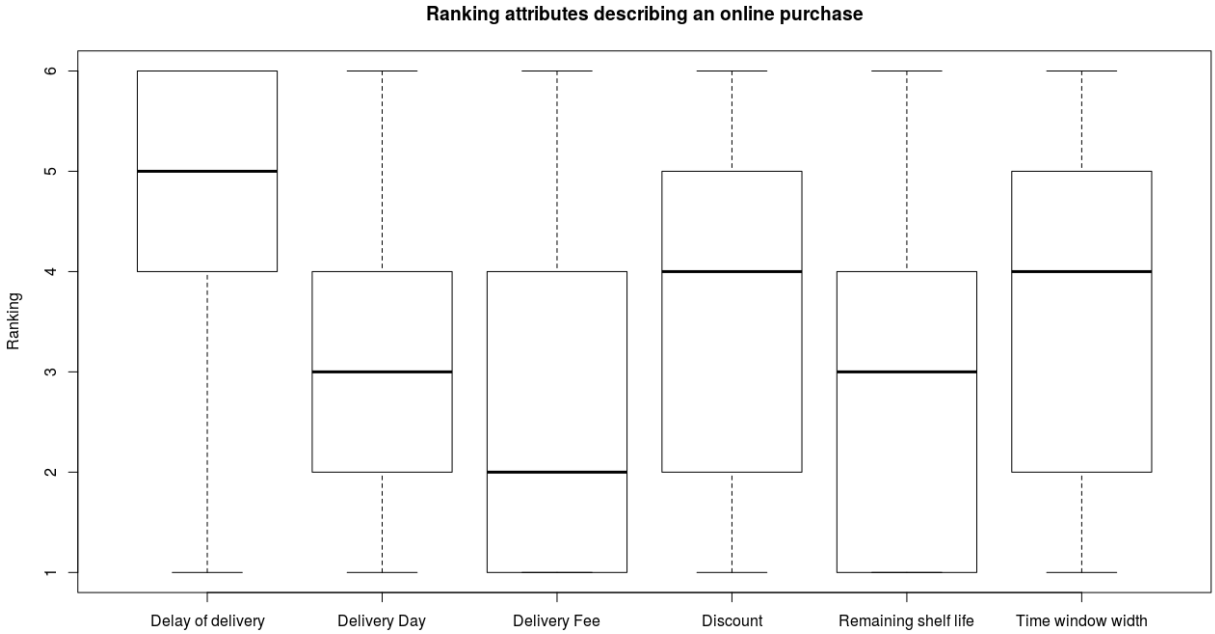


Figure 3- Ranking attributes describing an online purchase

When it comes to the right pricing strategy, naturally the budget, available to people for groceries is not to be neglected. The boxplot in Figure 4 reveals that the interviewees are willing to spend up to 500 Euro for groceries per week, but the mean amount is 76 and the median amount is 60 Euro. Furthermore, Figure 5 indicates that people who experience financial difficulties are less willingness to buy groceries online within the next two months. There are of course some exceptions, but based on the conducted analysis, it is safe to say that a high-end market positioning will not lead to a success. Further, the authors tested whether the interest in purchasing groceries online depend on the location. It seems that people in Lower and Upper Austria, Salzburg, Styria, Tyrol and Vorarlberg are more interested than people in Burgenland, Carinthia, East-Tyrol and Vienna (Figure 6).

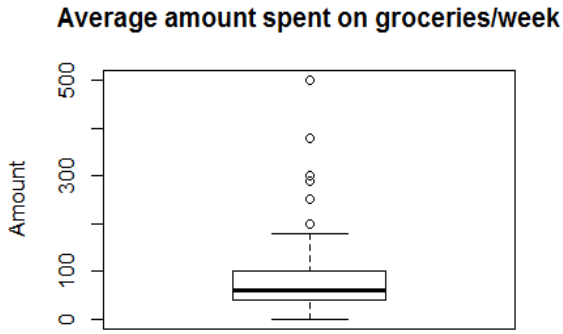


Figure 4 - Weekly spendings on groceries

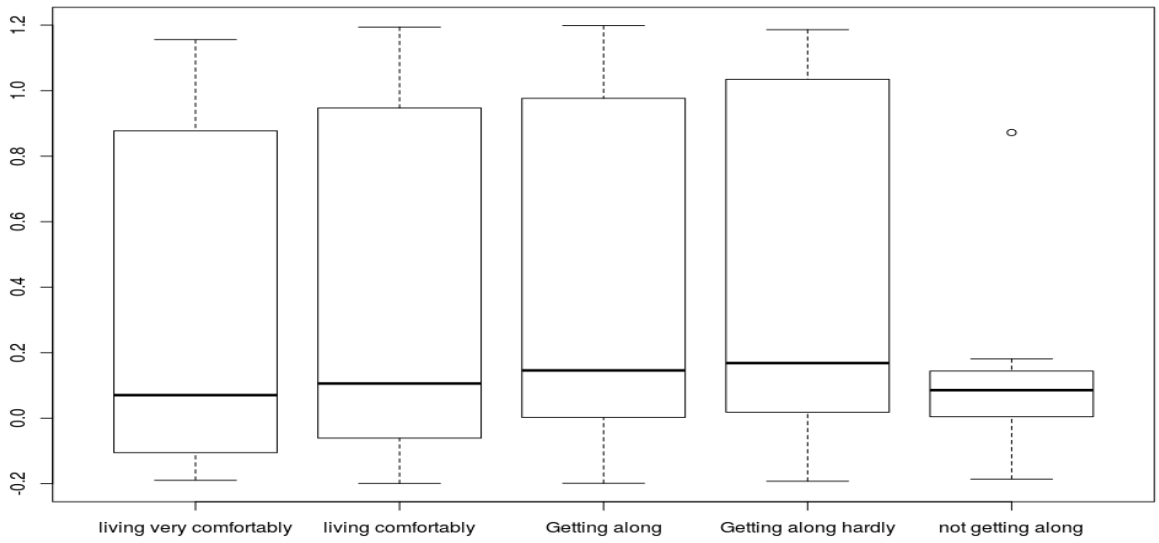


Figure 5 - Figure Willingness to buy groceries online within the next two months, according to the current financial situation

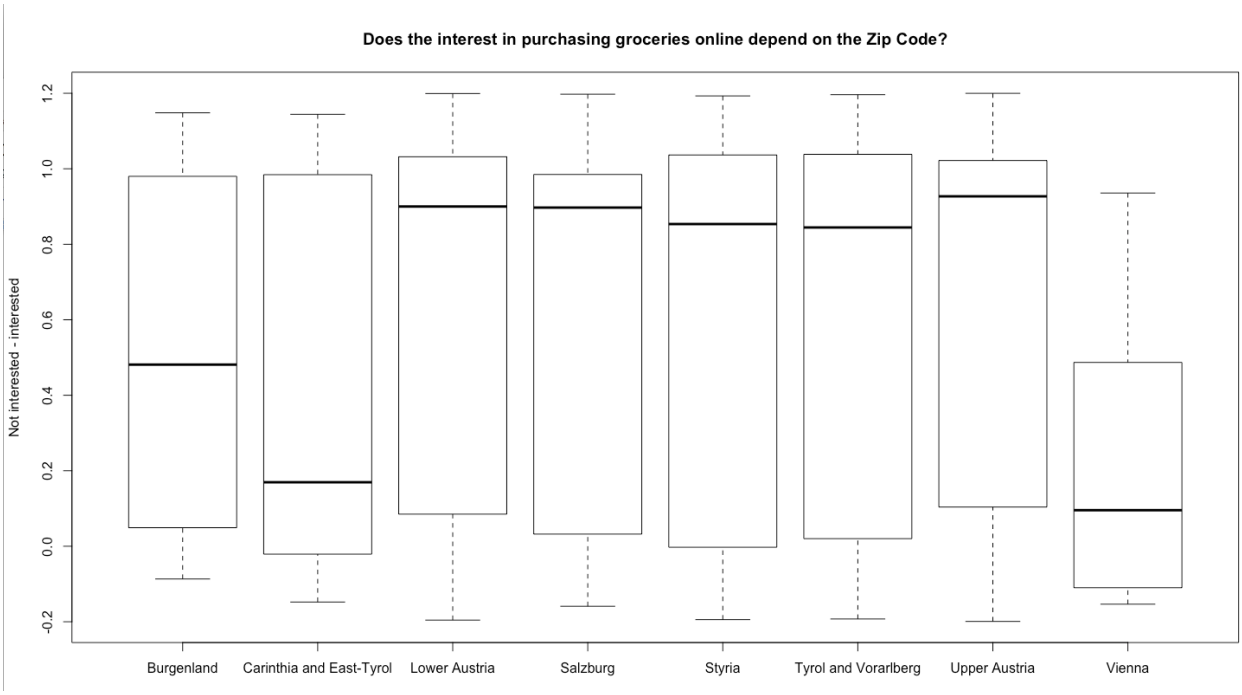


Figure 6 - People's interest in e-grocery, according to the state they live in

Figure 7 illustrates how much time people need to reach the closest location where they can buy groceries. It is visible on the histogram that less than 50 people out of the 538 study participants need to travel 21 minutes or more in order to buy their groceries. This is again an alarm to carefully consider stock availability schedules, as it would be relatively easy for the customers to substitute an e-purchase with a physical one. Another way of interpreting this diagram, is that, if counting

the group above 10 minutes, there is still a good number of people, who may prefer to order online, instead of traveling to the next physical grocery store.

Figure 7 - Required time to the next grocery store (in min)

In this regard, it may be of interest to know if people prefer one store more than the other. The boxplot in Figure 8 gives some overview on that matter. Setting the focus on the median, it becomes apparent that Hofer is the best-ranked store among the questioned people, followed by Spar/Eurospar and Billa. Sutterlüty is the least popular store. This finding may too play a role, when identifying the best marketing-mix strategy.

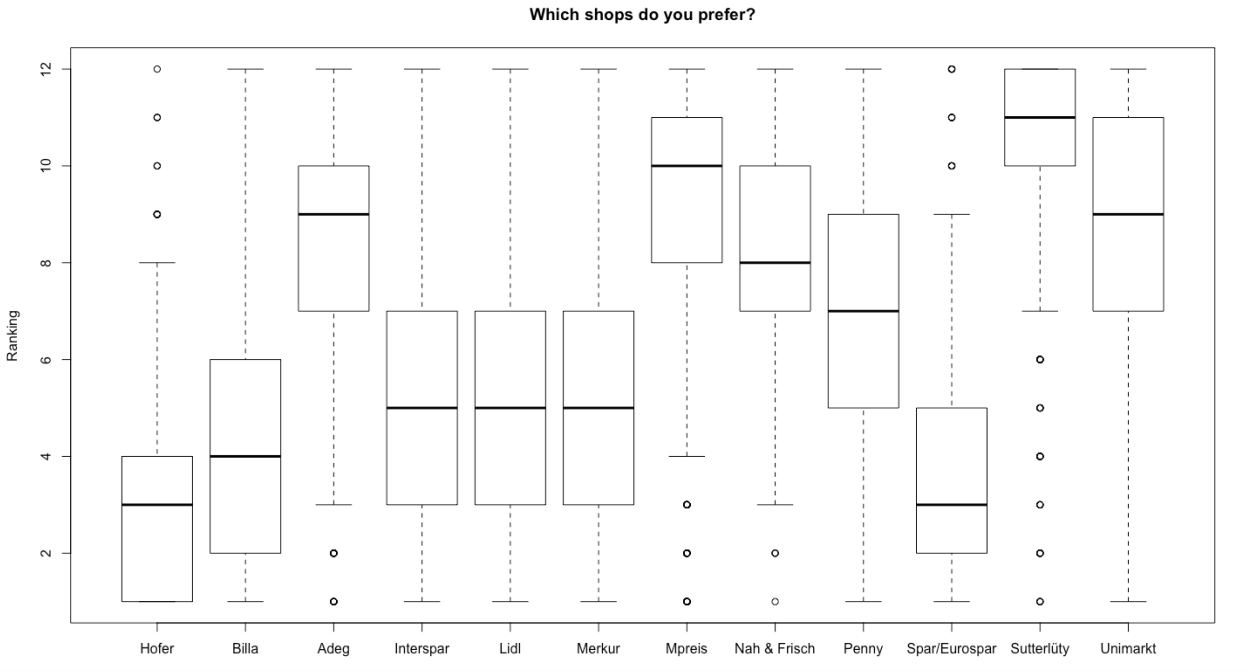


Figure 8 - Most preferred convenience stores

Segmentation

The above statistics provided an inside of different particularities, related to the market potential of e-grocery shopping in Austria. Realizing the mare existence of opportunities is however not enough and thus further analysis is needed. In order to be able to narrow down the outcomes of this research to specific market segments, the authors of this paper applied several statistical techniques, described further in this section.

First the following 6 variables were chosen to be considered as base variables for segmentation of the observations in meaningful clusters:

1. I have learned before this survey about the possibility of shopping grocery products online
2. I am interested in purchasing groceries online
3. I already informed myself about shopping groceries online (e.g., visited the webshop of a vendor)
4. I am planning to shop groceries online within the next two months
5. I already purchased groceries online.
6. I am satisfied with my online purchases of groceries

These were identified to be of highest importance (i.e. satisfaction, interest, prior experience with the option) for building customer groups. Subsequently clusters were created, by the means of the hierarchical clustering method. As a result, three clusters with pretty close number of participants in each one could be distinguished from the rest, using the elbow criterion:

1	2	3
183	167	188

As a next step, the distribution of different variables in the clusters was observed, in an attempt to further define the different customer groups that emerged. Further in this section only the most important and obvious differences between the clusters are included to illustrate the customer behavior in each of the groups. The authors believe that those are also the ones, which can then be used as a basis for choosing the best marketing strategy.

Age

First the age distribution in the different clusters was analyzed. The boxplot in Figure 9 proves that the age is slightly different in the three clusters: cluster number one is made out of the youngest people, cluster number two – slightly older and cluster number three contains the oldest group of people. Here it is important to note however, that both group one and group two represent the middle-aged population (30-50), which typically also has the highest purchasing power. To test this hypothesis, the distribution of following three demographic variables was analyzed.

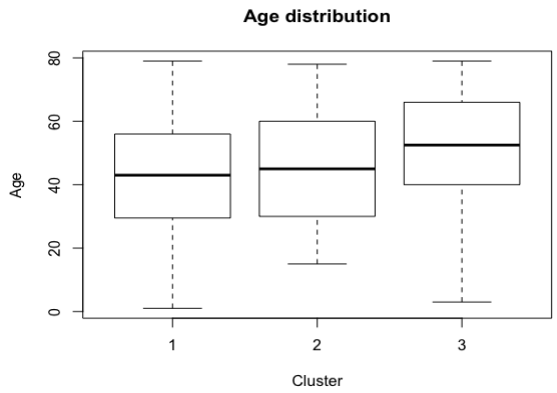


Figure 9 - Age distrigution in the clusters

Financial situation, Employment status, Spare time

Looking at the graphics in Figures 10 to 12, helps to better understand the particularities of the different segments and allows for a statistically supported profiling. The authors suggest the following interpretation:

The financial situation of groups one and two is almost equal, but cluster number 3's is slightly better. This may be related to the age, as usually the older people are better paid, based on the high number of work experience. In addition, the age indicates more time to acquire savings. In Figure 11, where 1 indicates much spare time, and 5 means that it is none-existent, one can see that the people in the different clusters have described their spare time almost identically. Nonetheless there is a marginal difference in cluster number 2, which is made out of the middle-aged persons, who are currently busy with building careers and growing their kids. As indicated in the previous section, timing is especially important when it comes to online shopping. Figure 12 depicts the employment status of the respondents, revealing that the third cluster contains the highest amount of retired people (value 5). In light of that observation and of the latest demographic variable, analyzed on a cluster-level, the authors allow themselves to deduct that for an e-grocery to succeed, the delivery service needs to have the highest quality, if the segment with less spare time is to be targeted.

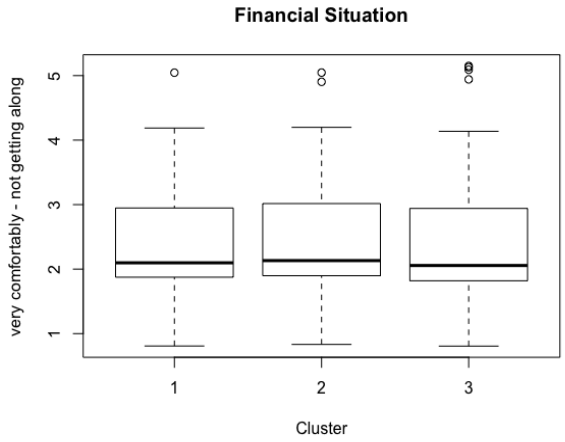


Figure 10 - Financial situation

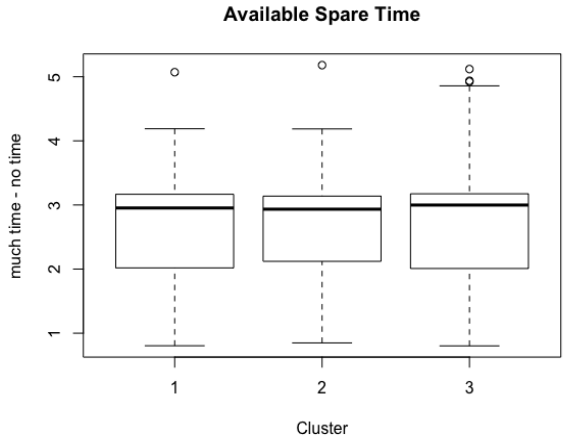


Figure 11 - Spare Time

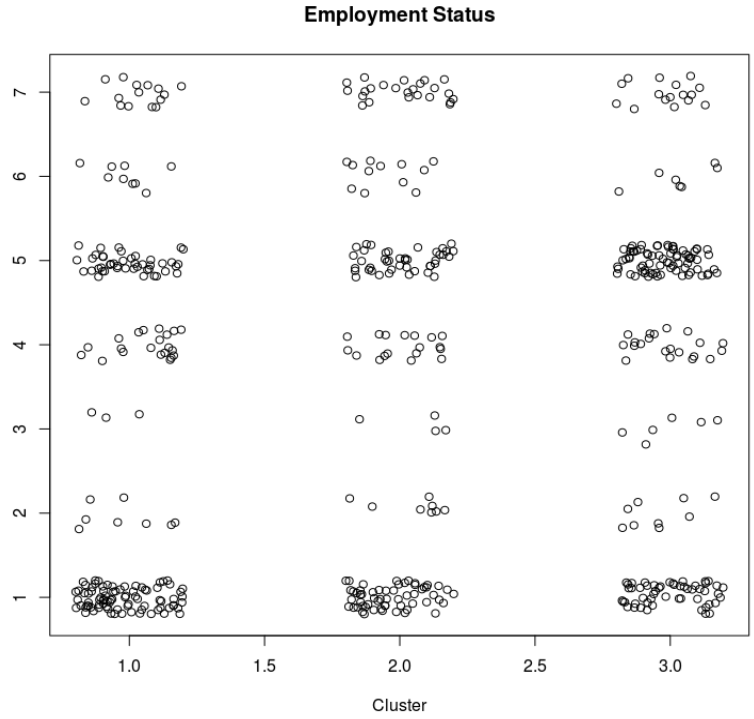


Figure 12 - Employment Status

Purchasing Habits and Lifestyle

Going back to the question of how to best address the market situation, the distribution between the three segments of the variables, indicating genuine shopping attitude, is quite interesting. Figure 13, clearly shows that the older people are not really interested into purchasing online and prefer shopping the “traditional” way. The other 2 groups though are quite interested, whereas

group number 2 (the middle aged) are even more interested than the younger ones. Figure 14 uncovers that the majority of the people from cluster number one have already purchased online, by contrast, the other two clusters, have almost never tried this service yet. The differences on the amount spent on groceries for each cluster are not really big, according to Figure 15. However, the hypothesis made earlier that segments one and two have a higher purchasing power, compared to number three, can be confirmed, when it comes to groceries, as on average they both spend more. A closer look into Figures 16 and 13 reveilles a correlation that could also be expected - the groups that are generally interested in online grocery purchasing are also the ones planning to do so in the next couple of months.

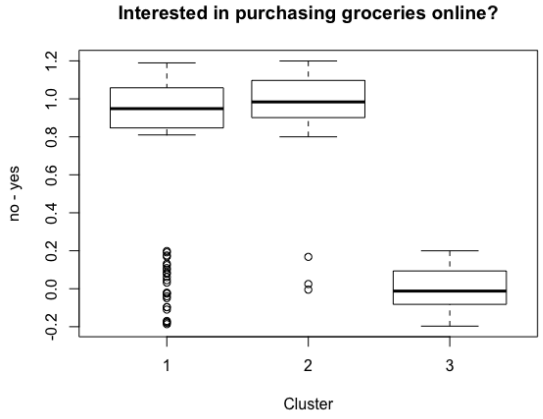


Figure 13 - Interest in e-grocery

Figure 14 - Prior experience with online grocery shopping

Figure 15 - Amount spent on groceries

Figure 16 - Plan to purchase groceries online in the next 2 months

Only by looking at the last four plots, one can easily see that segment three should not be granted a primary focus in the marketing-mix strategy of an e-grocery retailer, since it represents the people with the least interest in the service and genuinely don't spend much on groceries. This is why the authors focused their further analysis on the first two segments.

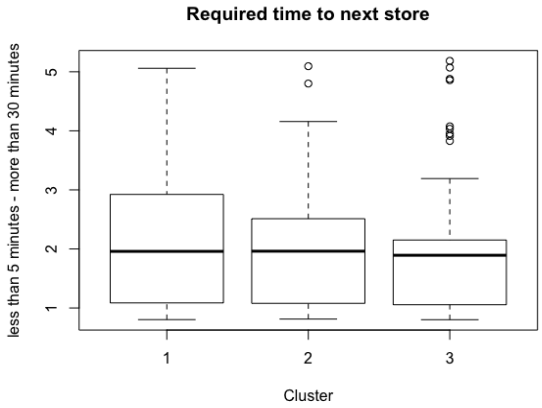


Figure 17 - Time to nearest shop

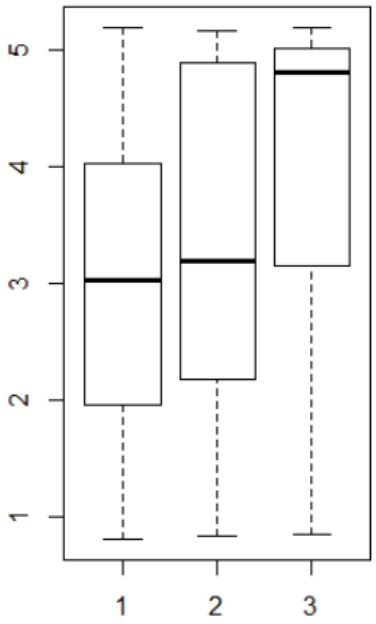
Figure 18 - Reach by foot

Figure 19 - Frequency of online shopping in general

It was already indicated in the descriptive statistics section that most of the people are living quite close to a shop. The authors assumed that there might be a market segment, comprised by the people, living further, however from Figure 17 it becomes apparent that this hypothesis should be rejected. Since time to the nearest shop doesn't help to distinguish the people from clusters one and two, the next step was to analyze the way they reach it. This time Figure 18 shows a more diverse distribution - cluster number two tends to go by foot to the nearest shop, in comparison to people in cluster one. This may be a good sign on the one hand, because they are limited in the amount of groceries they can take home, without having a car – a good reason to buy the remaining products online. On Figure 19 the difference in frequency of online shopping in general between clusters one and two is obvious – the youngest people more often engage in online shopping, but it is fair to say that cluster two is not lagging far behind. Figures 16 and 17 further approve that cluster number three is not really attractive.

E-grocery Services

As a final attempt to further distinguish the identified segments, the authors tested the distribution of the positive and negative attitude towards the idea of grocery shopping on the internet and related services. Figure 20 represents the use a food delivery service and Figure 21 depicts the use e-grocery services in the different segments. It is to be noted that this time the scale is reversed (1 stands for the highest and 5 for the lowest value). It is visible that in all three criteria, cluster number one is slightly better than cluster number two, but in general both clusters demonstrate active interest online shopping of groceries. The people from the third cluster, as repeatedly confirmed - do not engage in online purchasing.



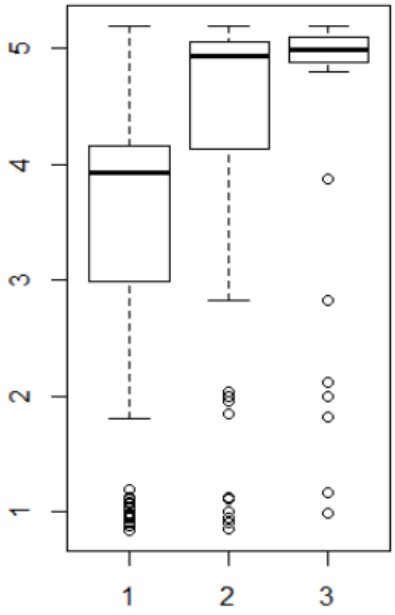


Figure 20 - Food delivery online *Figure 21 - Groceries online*

To wrap it up, clusters number one and two might be potential segments for our marketing activities. However, it might be preferred to select cluster number two, because cluster number one has already ordered online and will probably continue to do so in the future. It might be a good idea to attract a new customer group and this opportunity will be granted with cluster number 2. This segment has great potential, spent a reasonable amount of money on groceries, plans to buy groceries within the next two months and has the experience of online purchases in general, so they won't be afraid to order.

Marketing-mix

In theory and in practice there exists more than one method for determining the best marketing-mix strategy for ensuring a scalable success from the ground up. The most popular ones include the 4Ps, the 7Ps and the 4Cs marketing models. For the purpose of this paper, the authors chose the 7Ps approach, as it expands on top of the other two and is best applicable for services.

Product

Grocery comprises of a wide range of products, bought usually in convenience stores next door. The above analyses showed that people buy fresh fruits and vegetables, as well as bread and dairy on a regular basis. As those are the goods, where highest demand is indicated, one would suppose that focusing on those is a good idea. However, as physical food chains, which offer a wide variety of those product types, proved to be relatively widespread and easily accessible for most of the people, market positioning here should be considered carefully. The authors find it advisable for entrepreneurs to focus on really rare and exotic fruits, veggies, cheeses or pastries, which are not so easy to find. Alternatively, one could make sure that the online delivery adds more value – like on time daily delivery, partnering with the favorite store or producer, promotions. When it comes to tinned food, convenience food or frozen food – the demand is not that high, but is steady, moreover the market is easier to satisfy and products may be stored in bulk. The results from the study indicated that people would use e-grocery services for their company, so one could exploit this opportunity to compensate the lower demand of convenience products in the private households. As for meat and processed meat, a common strategy as the one for fresh fruits may be adopted.

Price

An important finding of this study is that people don't tend to spend much on groceries in general – regardless of their age, employment rate or affinity to online-shopping. Thus, it is advisable to keep the price-value ratio of the products themselves within reasonable boundaries. Furthermore, as respondents consider delivery fees as rather important one should make sure to keep this cost low to avoid losing possible customers. In addition, pricing of supplementing services, like scheduled delivery, automated reordering and the like, could also play a role, however due to the limitations of this study, this is only an assumption.

Place

The place in the marketing-mix model regards to the distribution channel, which in the case of e-grocery shopping is already predetermined – internet. However, one should not forget to cater to the users of mobile devices, as they are the most commonly used means to enter the internet these days. Then it comes the physical place, our statistical test showed that people from Lower and Upper Austria, Salzburg, Styria, Tyrol and Vorarlberg show the highest interest in e-grocery shopping.

Promotion

When considering a promotion strategy an e-grocery provider should use its main distribution channel, the internet, to communicate the offered services, e.g. via ads on specific websites used by the determined customer segment. Furthermore, it might be able to use the producers of the

goods to reach possible customers. In these ads the provider might pointed out that the offered goods are fresh and show high level of remaining shelf life. Additionally, maybe a good option would be to promote on the basis of the service provisioning itself (e.g. offering the possibility of choosing the delivery day, trial offers, and consumer programs)

People

This “P” concerns employees, management, company culture and customer service. As the above research has shown, people from customer segments 2 are rather young, and have previous experience with online-shopping in general. In this regard it may be a good idea for the management to approach established online retailers from other markets to gain specific know-how and train the employees in order to meet customer expectations. In addition, a strong preference towards the brands Hofer, EuroSpar/Spar and Billa was identified among survey participants. Having this in mind, it is advisable to acquire more details to understand the reasons for those preferences and try to incorporate some of them into the own corporate culture. Alternatively, a partnership with the market leaders of the physical stores may cause a network effect, winning a whole customer segment right from the start.

Process

For services, this is where the biggest potential lies. By the means of process innovation, one could provide unique service to the customer and quickly gain market power. This means to think about possible issues that a customer may have and try to provide them a better solution.

In the course of the above analysis, a market segment (Cluster 2) was identified - middle aged people, with little spare time, who often go to the grocery shop by foot many times per week. This segment was identified, as one that has a genuine interest in e-grocery, which means that with the right approach they may be won as a customer segment.

For example, these people may be interested in a (semi)automated process of placing orders on a regular basis or by stock out, complemented with a daily delivery of seasonal vegetables, fruits and bread. As repeatedly indicated, special care should be taken to develop the needed logistics to ensure on – time daily delivery within the most preferred time frame, in order to satisfy the needs of this customer segment. It is to be noted however that this study did not cover the purposes of the grocery shopping. If future research reveals that people, who go on a daily basis to buy their groceries, actually enjoy doing it, this would demand a different strategy from that, aimed at people shopping out of pure necessity.

Also, one could try to address issues of segments, where there is no apparent market at first glance and prepare for the future.

As the conducted analysis has shown - elderly people are not interested in online shopping as a whole. Although this is not a surprising observation, it is not a desired one, since this groups also consists of the wealthier people. On the other hand, when it comes to groceries, the tide may turn for simply human reasons - with age, people are more easily tired and the exercise of carrying the heavy groceries home each day gets more and more unpleasant. Moreover, asking younger relatives, friends or neighbors for help is not always an option, because they are also those with less spare time. In those cases, e-groceries may come in handy. Besides the process of ordering their own food could create a sense of confidence, and satisfy the need of many elderly people to feel independent and capable to take care of themselves.

Physical environment

This criterion addresses all that is needed for an online retailer of groceries to be able to provide the target market with the desired services at the desired quality. An entrepreneur should aim at constructing the business and managing its resources (know-how, technology, facilities, human power) in such a way that all other factors of the marketing-mix are met. A wise provider should continue to meet them, as long as the brand name becomes an instant positive association with the concept of e-grocery shopping. This is why it is important to consider studies like this one and follow the market development up close.