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**THE IMPACT OF SHELF VISIBILITY ON SALES OF  
BREWERY PRODUCTS**

Bachelor's thesis

International Business Administration, Marketing

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I hereby declare that I have compiled the paper independently and all works, important standpoints and data by other authors has been properly referenced and the same paper has not been previously presented for grading.

The document length is 6970 words from the introduction to the end of conclusion.

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## **ABSTRACT**

This research study was conducted to investigate how the shelf positioning and overall shelf visibility of brewery products affects the sales of those products. The research took place in two different grocery stores in Helsinki (Finland) in which different brands' visibility in a cold cabinet was altered, by manipulating the number of facings and vertical positions. The sales of these products were observed for one week before and after the changes. Increasing the number of facings of a brand did not affect the sales of that product when the vertical position remained the same. A decrease in the number of facings had a varying impact on sales. A change in the vertical position alone had contradictory effects on sales. The most significant impact on sales was achieved by making notable changes in number of facings and in vertical position at the same time.

Keywords: In-store Decision Making, Visual Attention, Retail, Point of Purchase, Consumer Behavior

## INTRODUCTION

Brewery companies in Finland are making rearrangements of drinks departments in grocery stores. What this means, is that products and shelves are being relocated inside the store. Some products might be left out from the assortment and new products will be added. Already existing products are usually relocated and they might get either larger or smaller shelf space. Also, they might be placed into completely different location inside the store or shelf. There is variability how notable these changes made in the store are, but usually these rearrangements give a whole new look to the drinks department of the store.

By brewery products in this study, are meant drinks that are produced by brewery companies, which may include beers, ciders, sodas, mineral waters etc. The main reason why these rearrangements are made is to increase sales of brewery products in that specific store. There might be attempts to gain higher sales for some specific products, by locating them in places that are assumed to be better for increasing sales. Retailers generally believe, that the exposure to product displays influences unit sales, so it can be manipulated for example by placing products at the eye level, at high traffic locations or with many facings. However, not much results of empirical analysis has been reported and it has not been rigorously investigated, whether these changes actually result in higher sales, especially in case of brewery products.

The aim of this study is to investigate how changes in shelf position and in the number of facings affect the sales of brewery products in a retail environment. To limit the research, this study focuses on two specific changes in product placement: 1. The vertical positioning of the product on a shelf and 2. The number of facings a product has. These two aspects were chosen for this research, because they have the largest impact on the products visibility on the shelf and they are within the reach of this study. Therefore, the research questions composed for this study are as follows:

*RQ1. How does the vertical positioning of the product affect the sales of that product?*

*RQ2. How does the number of shelf facings of the product affect the sales of that product?*

To answer these research questions, this study will examine the sales of two cold cabinets inside two individual grocery stores for one week before any changes and one week after manipulating the number of facings and vertical positions of products. In this research, the main focus will be on sales of those products, that are either being lifted up or down inside the cabinet, and those that gain either larger or smaller number of product facings.

The expected results are based on theory and on changes that are usually made in these kind of rearrangements. According to (Russel & Urban 2010), the vertical position of a product is expected to affect sales. Also, a previous study has found that increasing the number of facings for packaged products and a higher shelf position was positively related to visual attention and choice (Chandon et al., 2009). Therefore, this research expects, that changing the vertical position of a product will have an impact on the sales of that product. For the number of facings, this research expects, that changing the number of facings of a product will have an impact on the sales of that product. Based on these, the hypotheses conducted for this paper are as follows:

*H<sub>0</sub>: A change in the number of facings does not affect the sales of that product.*

*H<sub>1</sub>: A change in the number of facings does affect the sales of that product.*

*H<sub>0</sub>: A change in the vertical position of a product does not affect the sales of that product.*

*H<sub>1</sub>: A change in the vertical position of a product does affect the sales of that product.*

In the following chapters this paper will present information and findings gathered from previous studies and use that information as a theoretical framework for this research. These theories will be presented and explained carefully and discussed how they can be used for this research. After that comes the methodology part, where the empirical part of this research will be explained in further depth. Finally, before the summary, there will be analysis and discussion of the gathered results as well as comparison of the results with previous studies and suggestions for possible future research.

## **1. CONSUMER CHOICE PROCESS ON POINT OF PURCHASE**

Decision-making consists of likings that rely on the personal utilities of expected outcomes that are weighted by their probabilities (Angie, Connelly, Waples & Kligyte, 2011). Instead of having clear organized preferences, individuals tend to assemble their preferences when they are put in a situation that requires choice and the decision is greatly influenced by the context and the nature of the decision (Angie et al., 2011). For example, a consumer choosing between bottles of soft drinks, his/her decision is affected by everything of the surrounding information at the moment of choice, in this case, in a retail environment. These external factors that influence decision include, for example, brand, package design, price, visual perception, the decision making process etc. (Li, Jervis & Drake, 2015).

Most commonly, the consumer choice process is seen as a multi-stage process (Andrews & Srinivasan, 1995). Even though there is some notable alteration in the number of intended stages, the least common denominator is the perception that consumers use screening and evaluation between alternatives, before they proceed to the choice stage (Bettman, Luce & Payne, 1998). In the preliminary screening phase, consumers collect information from their surroundings concerning the available options, and start to eliminate options that are not appropriate (Andrews & Srinivasan, 1995).

After the consumer's screening phase comes the consideration phase. In this consideration phase, the consumer actively evaluates the consideration set, which is a subset of the available alternatives (Bettman, Luce & Payne, 1998). The consumer narrows down the options evaluated in the consideration set, which leads to what is often called as the choice set of the consumer (Russo & Leclerc, 1994). This process is being repeated until only one, the final product remains. Although, often times, consumers make several consecutive choices successively, instead of going through just one single choice process, which is especially common for example in trips to a grocery store. Previous studies have shown (Wästlund et al., 2015), that when consumer makes a series of active choices, it leads to the depletion of consumer's resources, which makes the consumer more sensitive to certain product features, such as emotional. This can also lead to more impulsive

purchases, since resource depletion is proved to increase relying to intuitive thinking (Pocheptsova, Amir, Dhar & Baumeister, 2009). In the supermarket environment, this could mean choosing the product that is easily available, for example in the middle of the shelf.

According to Russo and Leclerc (1994), the consumer choice process is commonly viewed as a set of evaluating, comparing and eliminating options, that results in a final remaining option. However, this process does not mean that the consumer in fact looks at all the supply that is being available (Russo & Leclerc, 1994). Therefore, the products that are not seen by the consumer are not being sold. The more products seen by the consumer, increase the possibility of them being included in the consumer's consideration set. According to a research made by Chandon, Hutchinson, Bradlow and Young (2009), any product has an approximately 70 percent possibility of being noted. Therefore, increasing the amount of available options, makes it more complicated for the consumer to arrive into a decision and choosing the final product.

Consumers arrive into a purchase situation mixing desires and beliefs (Angie et al., 2011). Understanding product's perception by pricing/packaging information and sensory features is important, but it's also important to understand the consumer's decision making process (Li, Jarvis & Drake, 2015). In a retail environment, consumers participate usually in two types of buying situations; low-involvement and high-involvement purchases (Kalnikaite, Bird & Rogers, 2013). Low-involvement purchases include purchases, where the consumer is already familiar with the product and buys that product regularly or in more consistent basis. This kind of product could be, for example, a favorite brand of beer or soft drink. When a consumer is well familiar with the product or brand, he/she requires less information and time for processing and making a purchase decision (Kalnikaite, Bird & Rogers, 2013). A high-involvement purchase is usually something, that is purchased for a one-time situation or first time product, that can usually be quite expensive or high value, which makes decision making process deeper, before arriving to a purchase decision (Kalnikaite, Bird & Rogers, 2013). This kind of product could be, for example, a car, or in a retail environment, a bottle of wine for a special occasion.



## **1.1. Visual Attention and Purchase Intention**

Purchase decisions on what we buy in-store are based largely on visual attention (Gidlöf, Anikin, Lingonblad & Wallin 2017). Visual attention is the process where we choose a specific piece or a subset from all of the other information that is being available to process further, which makes it an important element of the purchasing process. In a retail environment, by visual attention, is meant what catches the eye of the consumer while navigating a store or looking at a shelf. It is one of the first steps in the consumer's purchasing process (Olson, 1972). A buyer making a decision increasingly shifts his or her attention before arriving to the point of choosing a product. This is called as the "gaze-cascade effect" which points out that visual attention has an important role in consumer's decision making process (Gidlöf, Anikin, Lingonblad & Wallin 2017). Products that are not seen by the consumer are usually not being sold. This makes it an essential task for retailer to catch the attention of the consumer in order for him or her to proceed to make a purchase (Olson, 1972).

When looking at a shelf or a cold cabinet in a grocery store, products (in this case cans and bottles) are placed next to each other with a varying number of facings on different height levels. It usually varies how many facings one product has and on which height level the product is placed. Visual attention is captured by external factors. If a product covers a larger area of the consumer's visual field, it is more likely to catch his or her attention (Chandon, Hutchinson, Bradlow & Young 2009). According to a study, consumers can process horizontal displays better than vertical displays (Deng, Kahn, Unnava & Lee 2016). This explains why in the supermarket environment we can see shelves that are loaded with a large number of facings for certain products. Also, some parts of the shelves tend to be more attractive to consumers than others. Studies have found, that consumers tend to pay more attention at the center of a display, so placing a product at the center of a shelf with several facings would increase the amount of visual attention paid to that product (Atalay, Bodur & Rasolofoarison 2012).

As a summary, consumers' decisions on what they buy are affected by several external factors. These include: the number of facings the product has on a shelf, the placement of the product on

the shelf and the saliency of the product. All of these aspects are considered likely to increase the visual attention paid to a product.

## **1.2. Previous Research on Visual Attention and Purchase Intention**

There have been several studies made in the past about visual attention and how it can affect consumers' purchase intention. In many of these previous studies, they've found some relationships between consumers' visual attention and purchase intention. However, in the process of searching articles for the purpose of this particular research, no previous studies were found that would have been tested with brewery products. In this chapter, this paper will introduce some previous research about the subject and present findings that were gathered from these previous studies.

In a research made in 2009 by Chandon, Huthcinson, Bradlow and Young, the objective was to examine whether in-store shelf management works and does it draw attention to the brand? The research took place in shopping centers in eight cities in the United States and involved 384 adult shoppers ranging from ages 24-69. The research used eye-tracking method, where the participants were shown two images of supermarket shelves, in which they had manipulated the number of facings and the horizontal and vertical position of the brands in the shelf. Participants were then asked to tell which product they would buy or consider to buy. The products used in this research were bar soaps and pain relievers, mainly because of their similarity in the package design.

The main findings in this research, was that the number of facings in the shelf strongly influenced visual attention and therefore also brand evaluation. Interestingly, the findings suggested that low-market-share brands were much more responsive to facing increases when compared to high-market-share brands. Doubling the number of facings of a low-market-share brand increased choice by 67% (from 3% to 5%) and with a high-market-share brand the increase in choice was only 10%. This suggests, that increasing the number of facings is could be especially useful for smaller brands that have a lower market share. Similarly, the research found that the shelf positioning of brands has a strong influence on visual attention. Placing brands on the top shelf increased their noting by 17% and choice by 20% when compared to placing them on the lowest shelf. Also, brands positioned on the horizontal center of the shelf gained an increase of 22% in noting and 17% in choice, when relocated from the ends of the shelf.

The researchers were not quite able to explain why some improvements in visual attention, for example those gained by increasing the number of facings, improved consumers' choice and consideration. But they do give a possible explanation based on previous research by Raghurir and Velenzuela (2008), which is based on consumers' out-of-store factors, such as beliefs. Raghurir and Velenzuela (2008) found that consumers tend to believe that cheaper brands are usually placed on the bottom shelves and more expensive brands are placed on the top shelves of a retail store. Therefore, the authors simply explained that their results might have been caused by their participants preferencing more premium bar soaps and pain relievers.

A similar type of research was executed in Sweden by Gidlöf, Anikin, Lingonblad & Wallin (2017) using real life in-store experiment, that took place in two different supermarkets. The study involved 50 participants (mean age = 21.0, 16 female) that were equipped with eye-tracking glasses during their "ordinary" shopping trip through a supermarket. They were asked to buy one food item from pasta, cereal and yoghurt product categories. This particular study found also, that increasing the number of facings has the largest impact on consumers' visual attention (Gidlöf et al., 2017), which is in line with (Chandon et al., 2009) findings. This can be explained by the fact that increasing the number of facings on the shelf also increases the area covered in the visual field by a product (Gidlöf et al., 2017). In the same research (Gidlöf et al., 2017), the findings similarly pointed out, that the placement of the product on the shelf had a large impact on visual attention. Products placed on the middle shelves gained more visual attention compared to those products placed on the lower or upper shelves. However, even though products placed on the middle shelf gained more visual attention, they were less likely to be bought by the participants than those products that were placed on the lower or upper shelves. Although, this could also be possibly explained by the findings of Raghurir and Velenzuela (2008), that relies on consumers' brand preferences and beliefs. Which makes sense, since this research was conducted in the city of Lund (Sweden), in which at least one of the two supermarkets used for the research was heavily patronized by students (Gidlöf et al., 2017).

## **2. OFF-TRADE MARKET IN THE BREWERY INDUSTRY**

Brewery products in Finland are usually divided into five different major categories: beers, ciders, long drinks, soft drinks and mineral waters. The consumption of brewery products in Finland in 2017, totaled 761.9 million liters, where the largest share was beer, 49% (380 million liters) and the second largest was soft drinks, 32% (240.6 million liters). Off-trade markets in the brewery industry in Finland include all retailers that are selling brewery products. These are, for example supermarkets, hypermarkets, kiosks and other types of convenience stores. According to statistics published by The Federation of the Brewing and Soft Drinks Industry, the sales of brewery products in Finland is strongly focused on off-trade sales. The share of off-trade sales in 2017 of all sales of brewery products totaled 84,5% and the share of restaurant sales was only 13,8%. These statistics only included the numbers of companies that are members of The Federation of the Brewing and Soft Drinks Industry in Finland, that includes six largest breweries operating in Finland, which are: Oy Hartwall Ab, Momentin Group Oy, Olvi Oyj, Red Bull Finland Oy, Saimaa Brewing Company and Oy Sinebrychoff Ab. The sales of breweries that are not members of The Federation of the Brewing and Soft Drinks Industry were not included in these statistics (Panimoliitto 2017).

Retailers are concerned with multiple legislation issues regarding to selling brewery products in retail stores. In the off-trade markets in Finland, retailers are allowed to only sell brewery products that consists up to 5,5% of alcohol. That requires retailers to apply for a permission to sell products that consists alcohol. Inside the retail store there must be other products to be sold besides alcohol and the sales of alcohol products must not exceed the sales of other products significantly. Products that consists of alcohol must be placed distinctly apart from other drinks. Promotion of alcohol products in retail stores is allowed within certain limits and the visual display of these products must be appropriate and moderate (Valvira 2018). The member companies of The Federation of the Brewing and Soft Drinks Industry are committed to follow responsible promotion of alcohol products (Panimoliitto 2018).

### **3. MATERIALS AND METHODS**

For the empirical part of this research, this study took place on two individual grocery stores located in Helsinki (Finland). The Store 1 is located in a suburban area of Helsinki, distinctly apart from the city center (5,5 km). The customer base in Store 1 is quite evenly mixed, therefore it was not heavily patronized by any specific demographic group. The other grocery store that was chosen for this research is a bit smaller in terms of size. The Store 2 is located a little bit closer to the city center of Helsinki, but still relatively far away from it (4,4 km). Customers are much more segmented in Store 2 when compared to Store 1. In Store 2, a significant part of the customer base consisted of people that are working in that area, that includes a significant number of construction workers. Therefore, on weekdays, Store 2 is more rushed during typical working hours (from 9 to 17), whereas the most active hours in Store 1 are usually focused on afternoons and weekends. Both of these stores belonged to the same chain, but however, they could not be classified as identical in terms of size and customers.

In these supermarkets, this research focused on two different cold cabinets (one per each store) inside the stores, that contained a several number of different brands of beer. For the first part of this research, this paper observed the sales of these two cold cabinets of each store for one week. In this part, the cabinets remained untouched, so the positioning and number of facings for each brand remained as they were before. The stores were visited two times per week. During these visits, the amount of each product inside these cabinets was counted and also reloaded if necessary. After one week of observation, the total sales of each product in both of the cold cabinets was calculated separately by hand.

For the next part, this research manipulated the number of facings and vertical positioning of brands in both of the cold cabinets. The amount of changes made was kept as low as possible, in order to avoid any additional factors that could have an impact on the sales, for example, changing the whole layout would affect the overall clarity of that cabinet. In Store 1, the maximum capacity of cans and bottles that could fit into the cabinet was 480 units (five shelves, 96 units per shelf) and the amount of different brands inside that cabinet was 14. The most significant changes made

in Store 1 (Figures 1 & 2), were concerning brands *A*, *B* and *C*. Other minor changes were forced to do on some other brands, in order to execute the changes for brands *A*, *B* and *C*. All the other brands remained untouched, except for brand *O*, which was removed from the cabinet. These changes were made to support the research questions and to test the hypotheses that were conducted for this research. (Figure 3) and (Figure 4) represent the cabinet layouts in Store 2 before and after the changes, respectively.

Store 1												
1.	(K)	(K)	(K)	(K)	(L)	(L)	(L)	(M)	(M)	(N)	(N)	(N)
2.	(C)	(C)	(C)	(C)	(C)	(C)	(F)	(F)	(F)	(G)	(G)	(G)
3.	(H)	(H)	(H)	(I)	(I)	(I)	(I)	(I)	(J)	(J)	(J)	(J)
4.	(A)	(A)	(A)	(A)	(A)	(A)	(D)	(D)	(D)	(D)	(D)	(D)
5.	(B)	(B)	(B)	(B)	(B)	(B)	(O)	(O)	(E)	(E)	(E)	(E)

Figure 1. Store 1 cabinet layout before the changes

Source: Compiled by the author

Store 1*												
1.	(K)	(K)	(K)	(K)	(L)	(L)	(L)	(M)	(M)	(N)	(N)	(N)
2.	(B)	(B)	(B)	(B)	(B)	(B)	(F)	(F)	(F)	(G)	(G)	(G)
3.	(H)	(H)	(H)	(H)	(I)	(I)	(I)	(I)	(J)	(J)	(J)	(J)
4.	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
5.	(C)	(C)	(C)	(C)	(C)	(C)	(D)	(D)	(D)	(E)	(E)	(E)

Figure 2. Store 1 cabinet layout after the changes

Source: Compiled by the author

The changes made in Store 1:

*Brand A: The number of facings increased from 6 to 12.*

*Brand B: Vertical positioning changed by 3 shelves, from lowest to second highest.*

*Brand C: Vertical positioning changed by 3 shelves, from second highest to lowest.*

*Brand D: The number of facings decreased from 6 to 3, vertical positioning down by one shelf.*

Store 2												
1.	(G)	(G)	(G)	(G)	(G)	(O)	(O)	(O)	(R)	(R)	(R)	(R)
2.	(F)	(F)	(F)	(F)	(F)	(F)	(K)	(K)	(K)	(K)	(K)	(K)
3.	(C)	(C)	(C)	(C)	(C)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
4.	(C)	(C)	(C)	(C)	(C)	(I)	(I)	(I)	(H)	(H)	(H)	(H)
5.	(M)	(M)	(M)	(M)	(B)	(B)	(D)	(D)	(D)	(J)	(J)	(J)
6.	(E)	(E)	(E)	(E)	(P)	(P)	(P)	(P)	(O)	(O)	(O)	(O)
6.	(E)	(E)	(E)	(E)	(P)	(P)	(P)	(P)	(O)	(O)	(O)	(O)

Figure 3. Store 2 cabinet layout before the changes

Source: Compiled by the author



Store 2*												
1.	(G)	(G)	(G)	(G)	(G)	(O)	(O)	(O)	(R)	(R)	(R)	(R)
2.	(F)	(F)	(F)	(F)	(F)	(F)	(B)	(B)	(B)	(B)	(B)	(B)
3.	(C)	(C)	(C)	(C)	(C)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
4.	(C)	(C)	(C)	(C)	(C)	(I)	(I)	(I)	(H)	(H)	(H)	(H)
5.	(M)	(M)	(K)	(K)	(K)	(K)	(D)	(D)	(D)	(J)	(J)	(J)
6.	(E)	(E)	(E)	(E)	(P)	(P)	(P)	(P)	(O)	(O)	(O)	(O)
6.	(E)	(E)	(E)	(E)	(P)	(P)	(P)	(P)	(O)	(O)	(O)	(O)

Figure 4. Store 2 cabinet layout after the changes

Source: Compiled by the author

The changes made in Store 2:

*Brand B: Vertical positioning changed by 3 shelves, from second lowest to second highest. Number of facings increased from 2 to 6.*

*Brand K: Vertical positioning changed by 3 shelves, from second highest to second lowest. Number of facings decreased from 6 to 4.*

*Brand M: The number of facings decreased from 4 to 2.*

The changes made in Store 2 (Figure 3) and (Figure 4) were similar to those made in Store 1, except there was no attempt to significantly increase the number of facings of a single brand, due to the limitations of that cabinet. Also, the cabinet in Store 2 was slightly different when compared to the cabinet in Store 1. The maximum capacity for units in Store 2 was 614, where the lowest level was able to hold up to 144 units and the rest of the shelves carried up to 94 units per shelf. The amount of different brands that were included in the study in Store 2 was 14. Brands *P* and *O*

were excluded from the study. The most significant changes were concerning brands *B*, *K* and *M*. All the necessary information regarding the changes made in the number of facings, vertical position and sales of each brand in both stores (see Appendix 1).

Due to a small sample size, the results were presented primarily in a descriptive manner and only correlations were then used to test if any of the observed differences reached statistical significance. Non-transformed values were used. Number of facings were treated as integers. Vertical positions, i.e. cabinet shelves, were used as nominal categories, which were transformed to three ordinal classes based on their contribution to sales during the first week of the study. As independent variables, sales of individual brands were used. Unit (can, bottle) price in euros, number of facings and vertical position classes were used. Stata MP/15.1 software was used in the statistical analysis (StataCorp, TX, USA, [www.stata.com](http://www.stata.com)).

## 4. RESULTS

Because the sales data was collected from two stores only, the results are presented for each of them separately. The total amount of individual product items sold in the first week in Store 1 was 128 and in Store 2 the total amount was 101. The respective sales for the second week were 157 and 108. The amount of different brands that contributed to the sales in both stores was 12. Both stores had two brands not available in the other store. Few brands were excluded from the measures, due to their disparity with other products in the category.

Product price correlated with the number of items sold only in Store 2 ( $r = -0.62$ ,  $p 0.013$  for week 1,  $r = -0.62$ ,  $p 0.018$  for week 2), but not in Store 1 ( $r = -0.18$ ,  $p 0.54$  for week 1,  $r = -0.38$ ,  $p 0.18$  for week 2), respectively. As seen in figures (Appendix 2) and (Appendix 3), the discount prices biased the sales. For the first part of the study (Week 1), the number of facings did not correlate with price ( $r = -0.11$ ;  $r = 0.06$  for stores 1 and 2, respectively). Although, the reorganizing of facings affected the association, but only in Store 1 ( $r = -0.53$ ,  $p 0.05$ ;  $r = 0.19$  for Store 1 and 2, respectively). This was due to an increase in the number of facings for brand *A* that was already on sale in Store 1. The number of product facings was associated with the number of items sold in Store 1 (Appendix 4) and (Appendix 5), but not in Store 2. The correlation between facings and sales in Store 1 was 0.52 ( $p 0.058$ ) for Week 1 and 0.62 ( $p 0.019$ ) for Week 2, respectively. The correlation coefficients in Store 2 for Week 1 and 2 were 0.35 and -0.27, respectively. Figures representing Store 1 (Appendix 4) and (Appendix 5) shows, that the correlation coefficient was driven by the doubling of facings of brand *A*, which was sold at a discount price all the time. Without the discounted brand *A*, no more associations were between the number of facings and sales in Store 1. Also, no statistical associations were found between vertical position and sales as such, or when the cabinet shelves were categorised in three groups, where group *A* corresponds to shelves 2 and 3, group *B* to shelf 1 and group *C* to shelves 4 and below. However, a change in the vertical position did have an impact on sales of single brands.

The following figures (Figure 5), (Figure 6), (Figure 7) and (Figure 8) represent the absolute and relative changes in the sales of each brand. The brands on the x-axis are arranged in an increasing order of absolute change in sales (Week 2 sales - Week 1 sales). The formula for the relative change was: (absolute change / week 1 sales). Bars shown in red represent Store 1 values and Store 2 values are shown in black. Designations *R* and *F* stand for ‘‘Rows’’ and ‘‘Facings’’, where the numbers represent the value of change between the two weeks. For example, in Store 1 (red), in Week 2 brand *DI* was moved for one row downwards and the number of facings was decreased by 3, when compared to Week 1. In Store 1, brand *HI* was out of stock during Week 1.

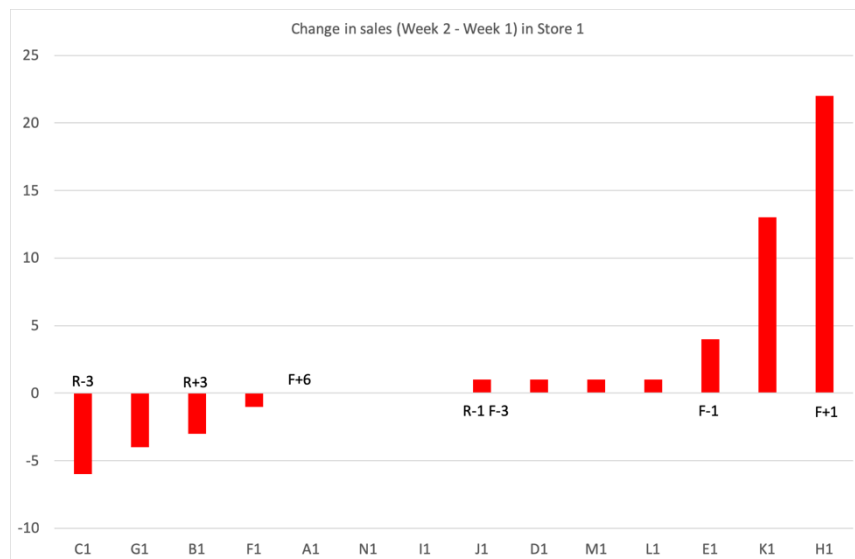


Figure 5. The absolute change in sales in Store 1

Source: Compiled by the author

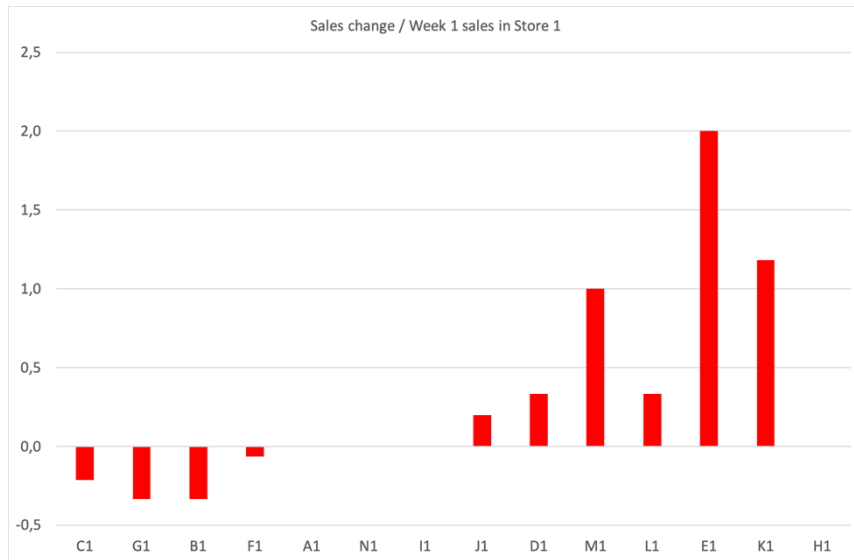


Figure 6. The relative change in sales in Store 1

Source: Compiled by the author

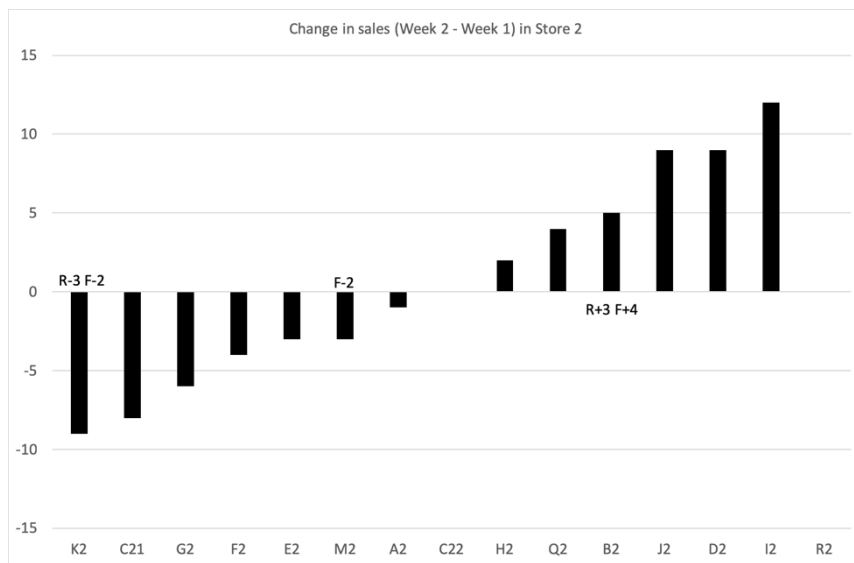


Figure 7. The absolute change in sales in Store 2

Source: Compiled by the author

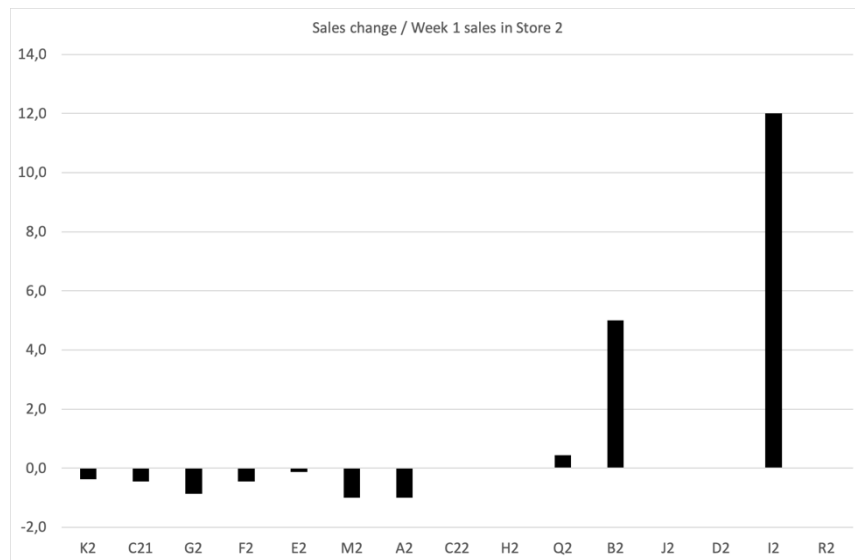


Figure 8. The relative change in sales in Store 2

Source: Compiled by the author

Generally, the absolute and relative changes in sales were small or moderate. Also, it can be seen that the changes had different effects on the results in the two stores. The largest increase in the number of facings was made on brand *A1*, where the number of facings was doubled (from 6 to 12), did not have any impact on sales. The sales of brand *E1* increased, even though the number of facings was decreased. Brands *B1* and *C1* both decreased their sales while their vertical position was changed conversely. In Store 2, the sales of brand *K2* decreased by 38% (from 24 to 15), when the number of facings was reduced and it was moved down to a lower shelf. On the other hand, the sales of brand *B2* increased by six times (from 1 to 6) when it was moved up by 3 rows (from 5. to 2.) and the number of facings was increased by four. Brand *I2* had the largest increase in sales among any other brand, even though it's position and the number of facings remained untouched.

## 5. DISCUSSION

This research was made to test how a change in brewery products' shelf visibility affects the sales of those products. More specifically, the aim was to examine how a change in the number of facings and in vertical positioning affects the sales of brewery products, that are being sold from a cold cabinet inside a grocery store. The results collected from this study cannot provide a simple answer to the research questions. Based on these results, it could be said that decreasing the number of facings affects the sales of that product, but these results alone do not indicate whether the impact would be positive or negative. Also, the statement in  $H_1$ , that changing the number of facings would have an impact on the sales cannot be proven correct, at least while the vertical position remains the same. Therefore,  $H_0$  remains. A change in a vertical position had an impact on sales, where moving a brand downwards inside a cabinet resulted in lower sales of that product. A change in both vertical position and in the number of facings, when done at the same time, had the most significant impact on sales.

Brand *B* in Store 2 showed high responsiveness to the increase in number of facings and a shift upwards in vertical position. Before the change, this brand was located at the second lowest shelf and then lifted up by 3 shelves, so that it was located at the second highest shelf, which is right below the eye-level. The reason for the significant increase in sales of brand *B2* could be explained by the increase in amount of visual attention that this brand gained from this change. Since, according to (Chandon et al., 2009) a higher number of facings and shelf position in the top or center is positively related to visual attention. Also, previous studies (Behe et al., 2013, Behe et al., 2015) suggests, that visual attention is positively related to purchase intention. This theory could also be used to explain the decrease in sales of brand *K2*, which switched positions conversely with brand *B2*, that resulted in a significant decrease of that brand's visibility on the shelf. Another interesting notice was detected concerning brand *C2*, that was located on two separate shelves. This brand was purchased significantly more from the upper shelf, than from the lower shelf. The total sales of this brand (*C2*) from the upper shelf in weeks 1 and 2 were 18 and 12, respectively, whereas the total sales from the lower shelf in weeks 1 and 2 were only 4 and 2,

respectively. This suggests that vertical position does have an impact on the sales, at least in case where one brand is placed on multiple shelf levels. This finding is also in line with previous research by (Gidlöf et al., 2017) where the findings similarly pointed out, that the placement of the product on a vertical level on a shelf had a large impact on visual attention. Where products that were placed on the middle shelves gained more visual attention than those that were placed on the lower or upper shelves.

Interestingly, the significant increase in the number of facings with brand *A* in Store 1, did not result in any increase of sales. In fact, it did not have any impact on sales. Even though, increasing the number of facings should according to (Chandon et al., 2009) increase the area covered by consumers' visual field and therefore also the amount of visual attention paid to a product, which should be positively related to purchase intention (Behe et al., 2013, Behe et al., 2015). An explanation for this could be, that increasing the number of facings also increases the number of sales, but only to a certain extent (Dréze, Hoch & Purk 1994). In this case, the number of facings for brand *A1* was doubled from 6 to 12, that is, even before the changes, the largest number of facings given to any brand in this study. Therefore, increasing the number of facings for a product that is already highly visible, may not be the right strategy to increase the sales of that particular product. On the other hand, increasing the number of facings for a less visible product, could have a positive impact on its sales, as seen with brand *B2* in this study. These results are in line with findings collected from previous studies. Results gathered from a research by (Chandon et al., 2009) suggests, that low-market-share brands are much more responsive to an increase in the number of facings when compared to a high-market-share brand. This could be another reason to explain why doubling the number of facings for brand *A1* had no impact on its sales, since that brand was already the highest selling brand in Store 1. Similarly, brand *B2*, which was definitely a low selling brand in Store 2, gained a significant increase in sales when the number of facings was tripled (from 2 to 6).

Even though price was not in the focus of this study, it cannot be ignored that it had an impact on the results of this study. The cheapest brands in both stores were selling much better when compared to the average sales of other brands in both stores. This was especially the case in Store 1, where brand *A1* was significantly cheaper than any other brand in that store. The sales of brand *A* in Store 1 were 30 units per week, which was more than any other brand that took part in this study. This is also probably the only reason that could explain why the sales of brand *B1* were so low, even after the shift up in vertical position, since it was the most expensive product in that



store. The impact of price was similar in Store 2 as well. The cheapest brand *E* was the highest selling brand in Store 2, even though it was out-of-stock for a few days during the research. Therefore, the cheapest brands definitely took away some customers from other brands in this study. However, it seems like the price only had a significant impact on sales when it was clearly lower than other brands in the store. Small differences in price did not seem to have much of an influence on sales in either of the stores.

Strengths of this research were that this was an observational study, where customers' behaviour was not influenced by any kind of inquiry. Also, this research was made in a real life prospective manner, where actual changes were made to the observed targets. Due to the short-time period and small amount of data that was collected from this study, the results may have been affected by a countless amount of other factors that were not possible to exclude from this study. In order to get actually meaningful and reliable results, it would require either proper statistical modelling and standardizing of multiple different factors. For example, such discrepancy in sales of brand *I2* is most likely to be caused by a single customer who happens to buy multiple units of that product during one shopping trip or some other random event. The reason why brand *A* was selling so much more in Store 1 when compared to Store 2 can be explained by the discounted price in Store 1. This most likely also took customers away from other brands in Store 1, since the price was so much lower when compared to other brands in that store. Also, the individual differences between the two stores, for instance customer bases have had their own impact on the results. Worth mentioning is also that the cold cabinets were not identical in the two stores, where the lowest shelves in Store 2 were actually much lower when compared to Store 1 and the overall clarity of the cabinet layouts was much better in Store 1 than in Store 2. Also, the location of the cabinets inside the two stores was different, which could have affected the results, but that is due to differences in the store layouts.

## CONCLUSION

This research was made to examine how brewery products' visibility on a shelf affects the sales of those products. More specifically, the objective was to find out how does the number of product facings and the vertical positioning affect the sales of brewery products in retail store environment. The theoretical part of this paper covered the most important aspects regarding consumer behavior in retail store environment, that were relevant towards the topic of this research. These theories were then used to conduct hypotheses and expected results. The empirical part of this research took place in two grocery stores in Helsinki (Finland). In these stores, the number of facings and vertical positions of brands located in cold cabinets were manipulated, in a way that supported the hypotheses and research questions of this research. The results collected from this research could not provide enough convincing results on how does the increase in number of facings or change in vertical position affect the sales of brewery products. This makes it difficult to draw meaningful conclusions. Increasing the number of product facings alone did not have an impact on sales, where a decrease in the number of facings had negative affect on sales with single brands. Therefore,  $H_0$  regarding the number of facings remained. A change in the vertical position alone had contradictory effects on sales, where it did have an impact on sales with some brands and with other brands it did not. Therefore,  $H_0$  regarding the vertical position also remained. However, depending on occasion, it seems likely that it is possible to affect the sales of a single product, by making enough notable changes both in the vertical position and in the number of facings, simultaneously.

For future research, this paper would suggest similar type of research, that would have a longer time period, larger sales, more observed stores and identical shelves/cabinets in all stores. It would also be important to take into account or try to control the large number of internal and external factors that might have an impact on the results. Other interesting topics for future research would be to investigate, how does the positioning of the cabinet inside the store affect the sales of that cabinet or how does the overall clarity of the cabinet i.e. how more systematically organized shelves sell than those that are more disorganized.

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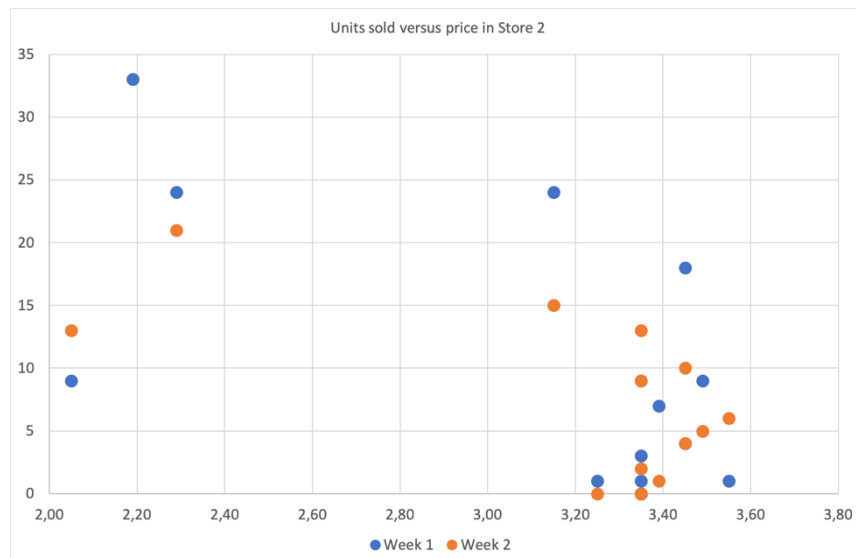
# APPENDICES

## Appendix 1. Changes Made and Sales Data from Both Weeks in Both Stores

Brand	Store	Price €	Shelf Before	Shelf After	Change in rows	Facings Before	Facings After	Change in facings	Sales Before	Sales After	Change in Sales
A	1	1,99	4	4	0	6	12	6	30	30	0
B	1	3,49	5	2	3	6	6	0	9	6	3
C	1	3,39	2	5	-3	6	6	0	28	22	6
D	1	3,25	4	5	-1	6	3	-3	3	4	-1
E	1	2,59	5	5	0	4	3	-1	2	6	-4
F	1	3,39	2	2	0	3	3	0	16	15	1
G	1	3,39	2	2	0	3	3	0	12	8	4
H	1	2,79	3	3	0	3	4	1	0	22	-22
I	1	3,29	3	3	0	5	4	-1	5	5	0
J	1	2,79	3	3	0	4	4	0	5	6	-1
K	1	3,25	1	1	0	4	4	0	11	24	-13
L	1	3,29	1	1	0	3	3	0	3	4	-1
M	1	3,29	1	1	0	2	2	0	1	2	-1
N	1	2,79	1	1	0	3	3	0	3	3	0
A	2	3,25	3	3	0	7	7	0	1	0	1
B	2	3,55	5	2	3	2	6	4	1	6	-5
C	2	3,45	3	3	0	5	5	0	18	12	6
C	2	3,45	4	4	0	5	5	0	4	2	2
D	2	3,35	5	5	0	3	3	0	0	9	-9
E	2	2,29	6	6	0	4	4	0	24	21	3
F	2	3,49	2	2	0	6	6	0	9	5	4
G	2	3,39	1	1	0	5	5	0	7	1	6
H	2	3,35	4	4	0	4	4	0	0	2	-2
I	2	3,35	4	4	0	3	3	0	1	13	-12
J	2	3,35	5	5	0	3	3	0	0	9	-9
K	2	3,15	2	5	-3	6	4	-2	24	15	9
M	2	3,35	5	5	0	4	2	-2	3	0	3

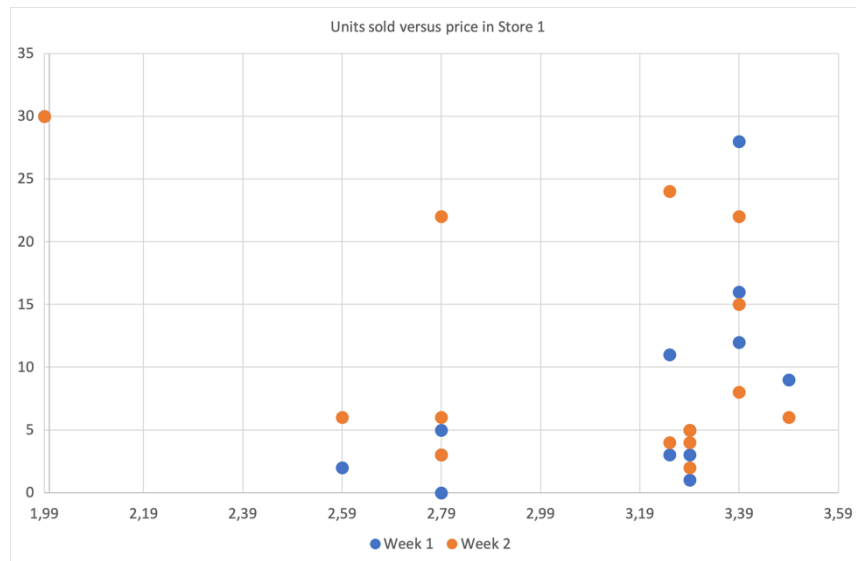
Source: Compiled by the author

## Appendix 2. Store 2 Correlation Between Price and Number of Units Sold



Source: Compiled by the author

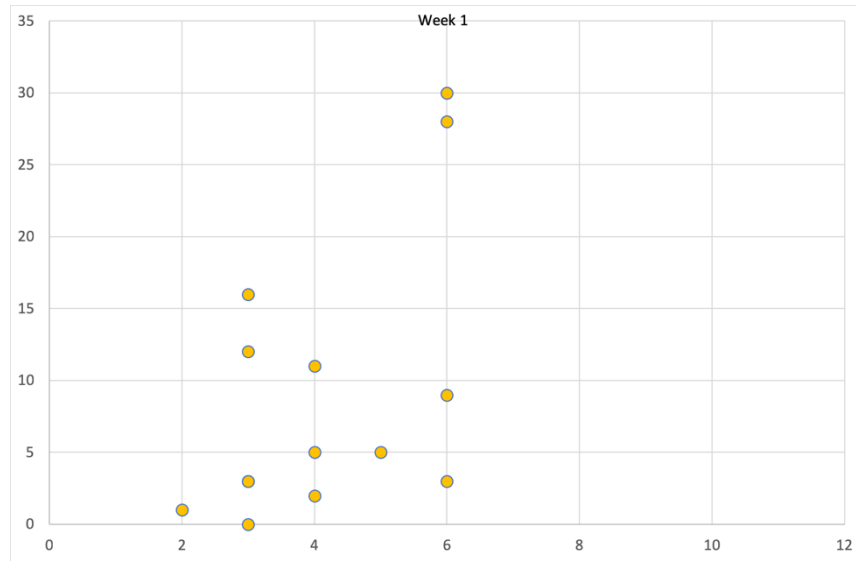
### Appendix 3. Store 1 Correlation Between Price and Number of Units Sold



Source: Compiled by the author using Stata MP/15.1 software

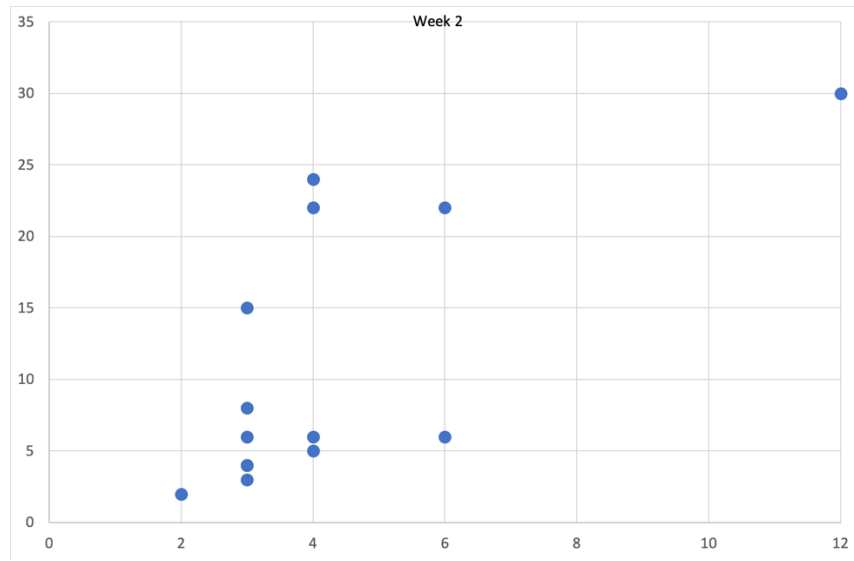


## Appendix 4. Store 1 Correlation Between Facings and Units Sold Week 1



Source: Compiled by the author

## Appendix 5. Store 1 Correlation Between Facings and Units Sold Week 2



Source: Compiled by the author