

İzmir İktisat Dergisi

İzmir Journal of Economics

ISSN:1308-8173 Recieved: 09.02.2022 E-ISSN: 1308-8505 Accepted: 20.08.2022

Year: 2022 Published Online: 09.09.2022 RESEARCH ARTICLE Vol: 37 No: 4 Pages: 1094-1118 Doi: 10.24988/ije.1070830

Churn Customer Management in Retail Industry: A Case Study

Gülmüş BÖRÜHAN KARACA¹

Abstract

Retail industry is amongst the emerging industries globally, and has attracted increasing attention from practitioners and academicians. The retail environment is changing rapidly and characterized by huge competition from both domestic and foreign companies. Most of the companies produce identical goods and try to sell them at competitive prices. In this regard, finding new customers and make them a loyal one is one of the most difficult things for the retail sector. It costs five times more than keeping the old one (Idris et al., 2012). That is why, the concept of customer retention led to the emergence of a new term in the academic literature that is "Churn Management". The aim of this study is to analyse the low and high efficient stores of Retailer X that are located in different parts of İzmir by conducting data envelopment analysis, and then examine the reasons of the churn customers in these stores both from customers and store managers perspective. Data was collected from Retailer X to conduct data envelopment analysis to find out low and high efficient stores. In the next stage, semi-structured interviews were conducted with both store managers and customers to be able to compare the perceptions of both sides. As a result of these interviews, the reasons of churn customers are classified into 7 groups that are product and stock level, price, promotions, physical atmosphere, interaction of sales personnel, after sales services and competitors.

Keywords: Churn Customer, Churn Customer Management, Retail Management, Data Envelopment Analysis, Semi Structured Interview *Jel Codes:* M10, M31, L80

Perakende Sektöründe Kayıp Müşteri Yönetimi: Bir Vaka Çalışması

Özet

Perakende sektörü, küresel olarak gelişmekte olan endüstriler arasında yer almakta, uygulayıcılar ve akademisyenler tarafından artan bir ilgi görmektedir. Perakende çevresi hızla değişmekte ve hem yerli hem de yabancı şirketlerden gelen büyük rekabet ile karakterize edilmektedir. Firmaların çoğu özdeş mallar üretmekte ve bunları rekabetçi fiyatlarla satmaya çalışmaktadır. Bu bağlamda yeni müşteriler bulmak ve onları sadık kılmak perakende sektörünün en zor işlerinden biridir. Firmalar için yeni müşteri bulmak eski müşteriyi elde tutmaktan beş kat daha pahalıya mal olmaktadır. Bu nedenle müşteriyi elde tutma kavramı akademik literatürde yeni bir terim olan "Kayıp Müşteri Yönetimi" nin ortaya çıkmasına neden olmuştur. Bu çalışmanın amacı, Perakendeci X'in İzmir'in farklı bölgelerinde bulunan düşük ve yüksek verimli mağazalarını veri zarflama analizi yaparak analiz etmek ve ardından bu mağazalardaki müşteri kaybının nedenlerini hem müşteriler hem de mağaza yöneticileri açısından incelemektir. Düşük ve yüksek verimli mağazaları bulmak için veri zarflama analizi yapmak üzere Perakendeci X'ten veriler toplanmıştır. Bir sonraki aşamada, her iki tarafın algılarını karşılaştırabilmek için hem mağaza yöneticileri hem de müşterilerle yarı yapılandırılmış görüşmeler yapılmıştır. Bu görüşmeler sonucunda müşteri kaybı nedenleri ürün ve stok düzeyi, fiyat, promosyonlar, fiziksel mağaza atmosferi, satış personelinin etkileşimi, satış sonrası hizmetler ve rakipler olmak üzere 7 grupta sınıflandırılmıştır.

Anahtar kelimeler: Kayıp Müşteri, Kayıp Müşteri Yönetimi, Perakende Yönetimi, Veri Zarflama Analizi, Yarı Yapılandırılmış Görüşme Jel Kodu: M10, M31, L80



CITE (APA): Börühan-Karaca G. (2022). Churn Customer Management in Retail Industry: A Case Study. *İzmir İktisat Dergisi*. 37(4). 1094-1118. Doi: 10.24988/ije.1070830

¹ Asst. Prof. Dr., Yaşar University, Faculty of Business, Department of Logistics, İzmir, Türkiye.

EMAIL: gulmus.boruhan@yasar.edu.tr ORCID: 0000-0003-0347-3463

1. INTRODUCTION

Retailing covers all business processes which involves the sales of goods and services to customers for personal, family or household use (Berman and Evans, 2004). Retailing industry is growing rapidly and there is a big competition in domestic and global market. Being different in the market is vital to gain new customers and make them loyal. Hence, customer retention is crucial to manage churn customers (Dabholkar et al., 1996; Oghojafor et al., 2012). "Customer churns are those targeted customers who have decided to leave a service provider, product, or even a company and shifted to a competitor in the market" (Amin et al., 2017:243). Understanding the behaviour of customers and reacting to changes of their behaviour is crucial for the companies to survive in a competitive and mature market. Because of new services, technologies, and liberalization of the telecommunication industry, the role of customer has become vital. For this reason, managing customer churn is significant to survive in the market and for the development of any telecommunication companies (Johny and Mathai, 2017) Furthermore, the competitive environment of electronic banking services is provided by different banks has increased the importance of churn management (Keramati et al., 2016). Hence, there are many researches about banking and telecommunication sectors in the literature (Lejeune, 2001; Hung, 2006; Mutanen, 2006). However, there are not enough research about churn management in retail sector that discuss the topic from customers and employees' point of view.

Retail industry is very dynamic, there are variety of customers and customers' demand is changing rapidly. In this regard, analyzing the reasons of churn customers and focusing on retaining valuable customers are the major task for companies. In line with this idea, the main focus of this study is on the churn customers who do not complete the purchasing activity; in other words the customers who go out of the physical stores without shopping for any reason in Retailer X. Retailer X refers these customers as churners because these are the ones that leave the store, cause loss in income but also negative effect on the brand image of the Retailer X. Retailer X is one of the significant fashion retailer in Turkey and has two brands which is referred as Brand A and Brand B in this study and they have physical stores in different areas in İzmir.

The aim of this study is to analyse the efficient and inefficient stores (churn customer is high, conversion rate is low) of Retailer X that are located in different parts of İzmir by conducting data envelopment analysis, and then examine the reasons of the churn customers in these stores both from customers and store managers perspective. According to aim of this study, two research questions are determined as follow:

- 1. Which stores of the Retailer X are efficient and inefficient in İzmir?
- 2. What are the reasons of churn customers from the perspective of store managers and customers?

To address these research questions, data was collected from Retailer X to conduct data envelopment analysis to find out efficient and inefficient stores. In the next stage, semi-structured interviews were conducted with both store managers and customers to compare the perceptions of both sides. As a result of these interviews, the reasons of churn customers are classified into 7 groups that are product and stock level, price, promotions, physical atmosphere, interaction of sales personnel, after sales services and competitors.

The remainder of the paper is structured as follows. Section 2 provides the literature review about customer churn and churn management in retailing. Section 3 covers the methods used in the case

study of Retailer X and the results. Section 4 concludes by conclusion and managerial implications and finally section 5 identifies limitations and suggesting future research.

2. LITERATURE REVIEW

2.1 Customer Churn

As the customers are the most valuable asset of the companies, customer retention is vital for any organisation. Many companies have realized that to survive in the competitive market, retaining existing customers is a key strategy (Keramati et al., 2016). Tsai and Chen (2010) stated that this aroused the term of customer churn. Customer churn is defined as a customer abandoning an established relation with an organization (Subramanya, 2016). Customer churn refers to the loss of customers who switch from one company to another competitor within a given period (Bi et al., 2016, p.1270). In Turkish literature churn customer is named as "kayıp müşteri" in studies (Gülpınar, 2013; Seker, 2016; Koca et al., 2019). Customer churn simply occurs when customers stop doing business or end the interaction with a company, not renewing a contract and some of them can turn to the competitor (Orac, 2019). Customer churn is a critical problem in businesses because keeping existing customers is always much easier and cheaper than trying to attract new customers (Huang et al., 2015). In other words, the cost of attracting a new customer is appropriately by 5 times higher than the cost of retaining the existing one because of additional sales, marketing, operating cost as well as more spend time (Idris et al., 2012; Keramati et al., 2014).

Customer churn, customer satisfaction and corporate profitability are directly linked without considering the type of businesses. In the case that, customers are not happy and dissatisfied towards goods and services, customer churn is unavoidable (McDonald et Rundle-Thiele, 2008). However, reduction in churn rate by appropriately by 1% will lead to increase revenue significantly (Huang et al., 2015).

Most of the companies may lose their customers for some reasons. Customer loss is experienced in companies whose service starts to change and does not meet the demands and expectations of customers. The biggest cause of customer loss is that the company does not actually know the customer's exact demands (Zhang et al., 2022). Every customer has a historical data, which gives a signal of when and how they are buying that product. It provides the company some hints whether he/she will churn or not. For instance, in the banking industry, the credit card users can easily start to use another credit card. So, the only sign that the customer is churning is declining transactions (Veningston et al., 2022). On the other hand, in retail sector, it is not easy to see that signals. Because retail industry is very dynamic, there are variety of customers and customers' demand is changing rapidly. Once a customer becomes a churn, the loss incurred by the company is not just the lost revenue due to the lost customer but also the costs involved in additional marketing activities to attract new customer (Patil et al., 2017).

Most of the loyal customers do not become a churn one immediately, except unexpected situations such as payment problems due to change in financial circumstances or unavailable services due to change in geographical situations (Hadden et al., 2007). In addition to these examples, researches showed that the main reasons of customer churn are; price of products, customer service and service quality, customer needs, seller's reputation and types of products (Shapiro, 1982; Buttle, 2004; Bharti, 2017). In this study, Retailer X refers the customers that leave their physical stores without shopping for any reason as churn customer.

2.2 Churn Management in Retailing

In retail sector the competition rate is higher than other industries (Kim and Staelin, 1999). Because lots of companies are producing similar products and selling them in competitive prices. Therefore, companies tend to use different strategies such as CRM applications, discounts, social media promotions, better customer service, and change in in-store atmosphere to attract more customers (Chan and Li, 2022). To survive in a highly competitive environment, a new retailing approach is required which includes both creation of brand image and value difference in products (Amin et al., 2017). It is necessary to consider all physical and psychological factors that may affect the customer to make a suitable shopping environment. While making decision to purchase, consumers evaluate not just the product itself but the total product design, packaging, price, advertising, warranty coverage, after-sales services and image, as well as the environment where and how products are sold (Arslan and Ersun, 2011). If the firm's service is sufficient, customers will stay longer in the store, buy more and spend a better time (Saricam, 2022). Rather than these differentiation strategies, many companies forget making an effort on churn customers.

At this point, companies should analyse the reasons of churn customers. In this regard companies can determine a common set of metrics (Karakaya and Ganim, 2010) to better understand why the customers are dissatisfied. For example; customer complaints that are common to a category or product can be early signs of the churn. In addition to this, problems about inadequate service, products exchange or frequent complaints can point out that a customer is looking for other options (Buttle, 2004). Measuring product returns may show which categories may lead to customer loss. A high rate of return from the same retailer can create dissatisfaction with the brand and reduce the chances of shopping from this company again. Product reviews, purchase frequency rate, and the time between purchases are the other metrics that a retailer can use on identifying potential churners. When all this data gathered and analyzed together, retailer will have an idea about which customers are loyal, what motivates them to buy more or what push them to become a churner. The retailer can target these customers for loyalty programmes or give incentives to make them stay and protect from churning (Khan et al., 2010). This process includes activities such as offering better products, providing lower prices, building satisfactory customer relationships, better marketing, successful customer communications etc. (Oghojafor et al., 2012). Also, interactions with the customers should be differentiated based on the past shopping experience of that customer. Building satisfactory customer relations, establishing customized product offers can improve customer retention and help the retailer to make better decisions about how to improve it. This is the direct relationship between customer lifetime value and the ability to grow your business. Because customer retention rate has a large impact on the value of customer (Kaya and Williams, 2005). Customer value analysis can be used to understand the true value of a customer thus it will help the company in managing churn customers.

Lastly, retailer focuses on holding its customers on hand and ensure them as a loyal (Oghojofor et al, 2012). Because, even if a company is doing the best marketing promotions in the whole industry, it suffers if it is losing customers at a high rate, as the cost of acquiring new customers is so high. Therefore, keeping the customer loyal and investing in customer retention programs should be the main strategy to maintain the company's presence in the market. However, there are some differences between the physical stores and the online stores of the retailers about the causes of churns. For example, it is easier to manage this situation with the help of different kind of technics (such as; computer programs, cookies, etc.) in online stores. If we consider the current level of

technology, any information about the online customer journey can be trackable. For example, you can easily gather lots of data to learn the time that the customers spend on website, the kind of products which are much more preferred, the stage which the customer stops purchasing process and the reasons of giving up the process (Ridge et al., 2015). However, analyzing churn customers in physical stores is much more complicated because it is affected by many factors. Sometimes customers can get bored because of the pressure of shop assistants and they decide to not to buy anything. Furthermore, physical atmosphere of the store, its sales employees, service level, the promotions the retailer offer, broad assortment of the store, display of the products in store are the important cues that form the store image (Leroi-Werelds, 2021).

In retailing, some customers are classified as cherry pickers. For instance, they visit various retailers when searching for a particular item while others are totally store switchers (Miguéis et al., 2013). Furthermore, the number of the churn customers can be different depending on the locations. For example, a store in one location may have more customers than a store in another location. We need to determine why it is different from one location to another one. When we try to determine these differences, we also need to consider age, salary and life-standards of customers close to this area. These factors affect the buying behaviour of the customers (Deekshitha et al., 2017). Hung et al. (2006) showed that stores located in an area with higher per capita income have higher sales rate. This situation can be explained based on the relationship between income and opportunity cost of time. On the other hand, another issue is the variability on the conversion rates of each physical store. The term of conversion rate, refers to the percentage of customers who actually purchase a product from a store, during that visit (Rao et al., 2009). The increase in conversion rate is positively associated with an increase in customer loyalty (Perdikaki et al., 2012). This variability causes an unbalanced distribution of churn customers in each region. The aim of this study is to determine the reasons of churn customers and this variability in different physical stores of Retailer X.

3. CASE STUDY: RETAILER X

The study was conducted in one of the largest retailer (Retailer X) which operates in 60 cities with 200 stores and more than 300 sales points. Retailer X is a fashion retailer and it has multi-channel strategy. Retailer X has two well-known brands that are defined as Brand A and Brand B in this study. Their headquarter is at Torbalı/İzmir. They produce 25.000 products everyday. The company has 250 employees in the head office and 800 in the field.

3.1. Data Collection and Methodology

The study aims to reveal the reasons of why customers do not complete their purchasing activity; in other words why they leave the physical stores of Retailer X without shopping for any reason. Marketing managers and executives in CRM department refers these customers as churn customers in Retailer X.

The main aim of this study is to identify the churn customers in different physical stores of Brand A and Brand B. For this reason, this study consists of two stages. Firstly, data envelopment analysis is conducted to find out efficiency of different stores of Brand A and Brand B in İzmir and examine the efficient and inefficient stores. Data envelopment analysis is widely used quantitative method for identifying and selecting best practices to improve performance and increase efficiency and it provides business units to be survived and successful in the business environment (Zhu, 2008). Secondly, one of the qualitative research methods which is semi structured interview is used. The aim of application and combination of two research methodologies in this study is to triangulate data

collection, enrich the study and increase the validity and reliability of the study (Miles and Huberman, 1994).

Semi-structured interview is often preferred in qualitative research because while it is providing depth knowledge on particular subject, it eliminates the limitations of writing and completing questionnaires (Liu et al., 2016). Furthermore, it is generally based on a guide, focused on the main topic of the research and it provides general pattern (Magaldi and Berler, 2020). In semi-structured interviews, some questions can be open-ended while others are standardised (Okumus, 2020), which enables the researcher to obtain detailed information (Filimonau et al., 2020). In this study, semi structured interviews are conducted both store managers/store manager assistants and customers of efficient and inefficient stores of Brand A and Brand B in İzmir. The interviews are conducted in the location of efficient and inefficient physical stores of Brand A and Brand B.

According to many researchers, it will be beneficial for the interviewers to have interview guide prepared which is a kind of informal grouping of questions and related topics. This guide helps researchers to focus on the topics without any limitation with a particular format. By this way, interviewers can adapt their questions to the interview context and people being interviewed (Lindlof & Taylor, 2002). In this study, interview guide was prepared and questions were tailored to people being interviewed during semi structured interview. 30 open-ended questions (appendix 1) were asked to the store managers/store manager assistants and 14 open-ended questions (appendix 2) were asked to customers. The semi structured interviews were recorded and manually analysed by the author following a standardized set of typing procedures. Firstly, review of each transcript was done and then matching it against the tape was provided. Secondly, a final review was performed and edit of each transcript was completed. The text was 19 pages for store managers and 83 pages for customers.

The interview findings are shown below in Table 3 with 7 dimensions and discussed as product and stock level, price, promotion, sales personnel, physical store atmosphere, after sales services and competitors. Duration of the interviews, demographic characteristics of the participants are given below in section 3.2.

3.1.1. Data Envelopment Analysis

Data envelopment analysis helps to determine the most productive units such as branches, departments, but also the inefficient units, as well. Furthermore, it helps to process multiple inputs and outputs at the same time (Sherman and Zhu, 2006). After data are collected from Retailer X, they are organised and clustered as an input and output variable. Using data envelopment analysis as a framework, 18 stores of Retailer X are determined as decision making units (DMUs). In this study, input and output variables are selected from literature which are commonly used in retailers' efficiency analyses. In this study, input variables are total area (m²) and number of employees per m²) and output variables are turnover per m², number of shopping/invoices, turnover per invoice. Size of firm (e.g. square feet of selling space) and number of employees were used as an input in most of the previous studies (Donthu and Yoo, 1998; Thomes et al., 1998; Rubio and Mas-Ruiz, 2006; Uyar et al., 2013). Furthermore, turnover (Perrigot and Barros 2008; Yu and Ramanathan, 2008) and invoices (Lau, 2012) were used as an output variable in retail studies. After selecting input and output variables, solver add-in of Microsoft® Excel is then used to analyse these variables to generate the weights of each DMU and their efficiency scores.

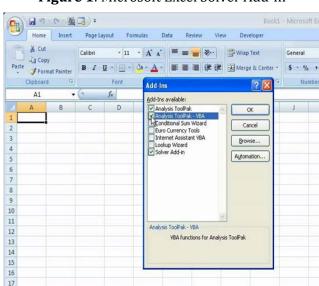


Figure 1: Microsoft Excel Solver Add-in

Figure 2: Excel Model

Hede <u>f</u> Ayarla:		SF527		1
Hedef: 🛞 En <u>B</u>		O <u>D</u> eğeri:	0	
Değişken Hücreler SF\$24:5J\$24	i Değiştirerek:			1
Kısıtlamalara Bağlı	dan			
\$F\$28 = 1 \$M\$4:\$M\$21 <= 0			~	Ekle
				Değiştir
				<u>s</u> u
				Tümünü Sıfırla
			~	Yükle/Kaydet
Kisitlanmamiş	Değişkenleri Pozitif Y	ар		
Çözme Yöntemi Seçin:	Basit LP		~	Seçenekler
Doğrusal Cözücü	ıl olmayan Çözücü Pr i Problemleri için Bas Açılım altyapısını seçi	it LP altyapısını seçi	Doğrusal Olmayan n ve düzgün olmay	altyapısını seçin. an Çözücü

3.1.1.1. Model Formulation

In this section, a model in Microsoft® Excel is created, (Figure 2) to determine the inefficient brands' stores among the 18 stores of Brand A and Brand B. This model is formulated as a simplex linear program (LP), and it is solved by using Excel Solver (Figure 3).

The formulation consists of (1) decision variables (2) objective functions which maximizes the outputs of each stores (3) constraints which limits the model. Variables representing company-provided data used in the model are also listed below. DEA model can be analyzed in two ways as input or output oriented with the aim of efficiency improvement. The purpose of input-oriented model is to minimize the inputs to improve efficiency, and output oriented model tries the maximize output to improve efficiency (Ko et al., 2017). In this study, output-oriented model is used because companies operating in competitive environment aim to maximize their output rather than minimizing their input (Barros and Alves, 2003).

Subscripts

a: Outputs

b: Inputs

		OUTPUTS		INF	PUTS	WEIGH	TED CALCU	ILATIONS
STORES per m2' shooping p		Turnover per invoice	TotalArea (m2)	Number of Employees per m2	OUTPUT	INPUT	DIFFERENC	
1	\$8.269	11.181	€444	600	0,05		0,92246	-0,377039
2	€13.321	6.383	€399	191	0,10	0,53531	1	-0,46469
3	€33.121	21.533	&445	115	0,08	0,73757	0,73757	-1,12E-1
4	\$6.105	10.025	\$244	289	0,04	0,31145	0,56971	-0,25826
5	\$5.831	6.587	\$326	400	0,04	0,39855	0,71821	-0,31965
6	\$5.890	4.968	\$346	88	0,04	0,4212	0,4212	-5,73E-1
7	\$5.218	4.129	\$379	164	0,04	0,45173	0,45173	6,31E-1
8	\$16.772	8.755	 ≰408	250	0,06	0,5721	0,69232	-0,12021
9	\$4.288	2996	€322	368	0,04	0,38265	0,69785	-0,315
10	\$11.630	5676	\$266	292	0,08	0,37871	0,90145	-0,52274
11	\$4.101	3060	\$335	300	0,05	0,39532	0,70052	-0,30519
12	\$11.902	2.947	≵46 4	213	0,08	0,59585	0,84245	-0,24660
13	\$77.690	9.835	≵695	225	0,27	1,35273	2,47636	-1,12362
14	\$9.705	3.234	 &492	130	0,12		1,08252	-0,47350
15	\$4.051	4128	\$314	320	0,04	0,37208	0,62333	-0,25124
16	\$3.786	1084	\$629	250	0,07	0,71174	0,82491	-0,11317
17	\$5.951	12.172	€122	180	0,04	0,17849	0,46038	-0,28188
18	€5.693	6806	\$243	290	0,06	0,3072	0,7469	-0,439
Decision Variables	a1	a2	а3	ь1	b2			
	7,7E-06	0	0,001086	0,000888	8,3472264			
Stores	2							
Output	54%							
Input	100%							

Figure 3: Excel Solver

(1) Decision Variables

- a1: weight of the 'Turnover per m²' in the activity score of the store
- a2: weight of the 'Number of shopping /invoices in the activity score of the store
- a3: weight of the 'Turnover per invoice' in the activity score of the store
- b1: weight of the 'Total area (m²)' in the activity score of the store
- b2: weight of the 'Number of employees per m²' in the activity score of the store

(2) Objective functions

<u>Stores</u>	Objective Functions
IZMIR PARKBORNOVA AC	max
	z=8.269a1+11.181a2+444a3
IZMIR ÇİĞLİ KIPA AC	max
	z=13.321a1+6.383a2+399a3
IZMIR OPTIMUM AC	max
	z=33.121a1+21.533a2+445a3
IZMIR GAZIEMIR OUTLET	max
AC	z=6.105a1+10.025a2+244a3
IZMIR POINT AC	max
	z=5831a1+6.587a2+326a3
NOVADA MENEMEN AC	max
	z=5.890a1+4.968a2+346a3
IZMIR MONTRO AC	max
	z=5.218a1+4.129a2+379a3
IZMIR MAVIBAHCE AC	max
	z=16.772a1+8.755a2+408a3

IZMIR LIDER CENTRIO AC	max
	z=4.288a1+2996a2+322a3
BALCOVA KIPA AC	max
	z=11.630a1+5676a2+266a3
IZMIR WESTPARK AC	max
	z=4.101a1+3060a2+335a3
IZMIR EGEPARK MVS. ERK	max
BB	z=11.902a1+2.947a2+464a3
IZMIR OPTIMUM BB	max
	z=77.690a1+9.835a2+695a3
IZMIR PARK BORNOVA BB	max
	z=9.705a1+3.234a2+492a3
IZMIR SAKIPAGA BB	max
	z=4.051a1+4128a2+314a3
IZMIR WESTPARK BB	max
	z=3.786a1+1084a2+629a3
IZMIR	max
SELWAY ÇADIR/OUTLET	z=5.951a1+12.172a2+122a3
IZMIR CIGLI O.S.B AC/BB	max
	z=5.693a1+6806a2+243a3

(3) Constraints

 Constraint 1 indicates that (total value of Outputs -total value of Inputs) should be less than 0 for each store.

Stores
IZMIR PARKBORNOVA AC
IZMIR ÇİĞLİ KIPA AC
IZMIR OPTIMUM AC
IZMIR GAZIEMIR OUTLET AC
IZMIR POINT AC
NOVADA MENEMEN AC
IZMIR MONTRO AC
IZMIR MAVIBAHCE AC
IZMIR LIDER CENTRIO AC
BALCOVA KIPA AC
IZMIR WESTPARK AC
IZMIR EGEPARK MVS. ERK BB
IZMIR OPTIMUM BB
IZMIR PARK BORNOVA BB
IZMIR SAKIPAGA BB
IZMIR WESTPARK BB
IZMIR SELWAY ÇADIR/OUTLET
IZMIR CIGLI O.S.B AC/BB

Constraints (1)
$8,269a1+11,181a2+444a3-600b1-0,5b2 \leq 0$
$13,321a1+6,383a2+399a3-191b1-0,10b2 \leq 0$
$33,121a1+21,533a2,445a3 - 115b1-0,08b2 \le 0$
6,105a1+10,025a2+244a3 – 289b1-0,04b2 ≤0
5,831a1+6,587a2+326a3 – 400b1-0,04b2 ≤ 0
5,890a1+4,968a2+346a3 – 88b1-0,04b2 ≤ 0
5,218a1+4,129a2+379a3 – 164b1-0,04b2 ≤ 0
$16,772a1+8,755a2+408a3 - 250b1-0,06b2 \le 0$
4,288a1+2,996a2+322a3 – 368b1-0,04b2 ≤ 0
11,630a1+5676a2+266a3 - 292b1-0,08b2 ≤ 0
4101a1+3060a2+335a3 - 300b1-0,05b2 ≤ 0
11,902a1+2947a2+464a3 - 213b1-0,08b2 ≤ 0
77,690a1+9835a2+695a3 - 225b1-0,27b2 ≤ 0
9705a1+3234a2+492a3 - 130b1-0,12b2 ≤ 0
4051a1+4128a2+314a3 - 320b1-0,04b2 ≤ 0
3786a1+1084a2+629a3 - 250b1-0,07b2 ≤ 0
5951a1+12,172a2+122a3 - 180b1-0,04b2 ≤ 0
5693a1+6806a2+243a3 - 290b1-0,06b2 ≤ 0

Constraint 2 indicates that total value of Inputs should be equal to 1 for each stores.

Constraints (2)
Constraints (2)
600b1+0,5b2 =1
191b1+0,10b2 =1
115b1+0,08b2 =1
289b1+0,04b2 =1
400b1+0,04b2 =1
88b1+0,04b2 =1
164b1+0,04b2 =1
250b1+0,06b2 =1
368b1+0,04b2 =1
292b1+0,08b2 =1
300b1+0,05b2 =1
213b1+0,08b2 =1
225b1+0,27b2 =1
130b1+0,12b2 =1
320b1+0,04b2 =1
250b1+0,07b2 =1
180b1+0,04b2 =1
290b1+0,06b2 =1

Constraint 3 indicates that decision variables should be greater than or equal to 0 for each store.

a1, a2, a3, b1, b2 ≥0

3.1.1.2. Model Results

Excel solver illustrates the efficiency ratings of each store. According to the results obtained from Excel solver; the stores of Brand A that have the lowest efficiencies are İzmir Çiğli Kipa Ac, Balcova Kipa Ac. that are highlighted in green. In addition, the stores of Brand B that have lowest efficiencies are İzmir Egepark Mvs. Erk Bb, Izmir Sakipaga Bb. that are highlighted in orange. Six stores operated at perfect efficiency (%100) highlighted in yellow. Table 1 shows all the results after data envelopment analysis.

Brands	Stores	Efficiency
Brand A	İzmir ParkBornova AC	100%
Brand A	İzmir Optimum AC	100%
Brand A	Novada Menemen AC	100%
Brand A	İzmir Montrö AC	100%
Brand A	İzmir Gaziemir Outlet AC	96%
Brand A	İzmir Mavibahçe AC	94%
Brand A	İzmir Point AC	78%
Brand A	İzmir Lider Centrio AC	70%
Brand A	İzmir Westpark AC	62%
Brand A	İzmir Çiğli Kipa AC	54%
Brand A	Balçova Kipa AC	46%
Brand B	İzmir Optimum BB	100%
Brand B	İzmir Park Bornova BB	96%
Brand B	İzmir Westpark BB	92%
Brand B	İzmir Sakıpağa BB	76%
Brand B	İzmir Egepark MVS. ERK BB.	71%
AC&BB	İzmir Selway Çadır/Outlet	100%
AC&BB	İzmir Çiğli O.S.B. AC/BB	52%

Table 1: Efficiency Scores of the Stores

3.2. Semi Structured Interview with Storage Managers and Customers of Retailer X

After data envelopment analysis, efficient and inefficient stores (Brand A and Brand B) of Retailer X are found out. Then, semi structured interview is conducted both with the store managers/store manager assistant and customers of efficient and inefficient stores of Retailer X to reveal the reasons of churn and compare the results.

3.2.1. Semi Structured Interview with store managers of Retailer X

Semi structured interview was conducted with the 5 store managers and store manager assistants of the brands of Retailer X, between the dates of 25-27 of February, 2021 between 13:30 and 17:30. The interviews were lasted approximately 5 hours in total and the whole interviews were recorded with the permission of the participants. All the participants were middle and senior executives operating in ready-made clothing retail sector. The demographic characteristics of the participants are shown in Table 2. The participants were between 27 and 45 years old at least 5 years' experience in retail sector. During the interviews, 30 open-ended questions were asked to the participants. Appendix 1 shows semi-structured interview questions that were asked to store managers and store manager assistants of Brand A and B.

Participant	Gender	Age	Total experience in Retailing	Position
1	Male	27	5 years	Store manager assistant (Brand A)
2	Male	30	7 years	Store manager (Brand A)
3	Male	35	8 years	Store manager (Brand B)
4	Male	45	22 years	Store manager (Brand A)
5	Male	33	5.5 years	Store manager (Brand B)

Table 2. Demographic Characteristics of Participants

3.2.2. Semi Structured Interview with customers of Retailer X

Semi structured interview was conducted with the customers between the dates of 8-9 of March, 2021 between 13:30 -21:30. All interviews were recorded with the permission of the participants. 31 customers were participated the interview. The participants' ages range from 25 and 65 years. During the interview, 14 questions were asked to the customers to reveal the reasons of churn. Appendix 2 shows semi-structured interview questions that were asked to customers of Brand A and B.

3.2.3. The Results of Semi-Structured Interview

Table 3 shows the comparison of the efficient and inefficient stores of Brand A and Brand B as a result of semi structured interview. According to results, the factors that affect customer churn are product and stock level, price, promotions, sales personnel (number of personnel, service level, ability to give enough information etc.), physical store atmosphere, location design, area, after sales services and return management and competitors.

According to store managers of inefficient stores of Brand A and B, total area of the stores is not enough to stock and display the products. Furthermore, at the end of the season period, they have some problems about variety and assortment of products and stock level. For this reason, customers cannot find what they want. While, customers find the products' prices are high, store managers believe that the prices are reasonable. Store managers say that they determine their prices according to economic conditions, their competitors and the types of cotton they used in their products. Brand A and B work with CRM department to increase sales and to keep their customers informed about the new campaigns by sms. However, customers want more promotions and discounts. Store managers state that the number of staffs is determined based on customer circulation, product variety, and size of the store area. Brand A train their staffs 2 times a year about collections and promotions but Brand B doesn't have training program. Customers want to be greeted by a smiling face and well informed about the products without any sales force. Moreover, finding the same sales personnel in the store affects the customers' shopping experience in a good way.

Store manager of Brand A say that being away from the city center and road construction affect their sales. Also, their customers aren't satisfied with physical atmosphere of the store. Store manager of Brand A believe that optimal retail space is important to control the staff and customers. Store of Brand B need redesign according to customers and store managers. Customers don't have any problems about the product return and don't need after sales services. Store managers are conscious

about the customers' legal right and give their customers enough information about it. Customers want to make comparison among the other brands and give their decision accordingly. Hence, store managers try to make their customers stay in their store. Once, they go out, they believe that they get confused because of the competitors.

According to store managers of efficient stores of Brand A and B, stocks are enough to meet the customer demand. If the customers cannot find the product that they need at the store, Brand A is able to supply it immediately. Customers of Brand A don't have any problem about finding the product. However, if customers of Brand B cannot find the product at the store, they check it from online store. Customers find the products' prices are affordable but above the market level. They also compare the prices with the other brands in the market. Store managers explain that product prices are determined according to competitors by headquarter of the Retailer X. Brand A gives gift parapuan to their customers as a promotion. Brand B doesn't use aggressive campaigns compared to other brands in the market. Customers are satisfied with the campaigns but they would be happy if there were some other campaigns such as 2 buy-pay 1, 3 buy-pay 2. Stores managers state that the number of staffs is enough. Furthermore, they are expert on communicating with the customers, understanding their need and finding the best product for them. Moreover, customers of Brand B fell like sales personnel are from their family due to their close relationships. On the other side, customers are expecting good smile, good knowledge from the sales personnel. They want some suggestions but they hate selling pressure.

Store managers of Brand A is satisfied with the total area of the store. This store is one of the biggest one in İzmir and it is well designed to attract their customers. Customers also think that this store is the most beautiful store in İzmir. They say that they fell like they are in the market when they are at the store of other same format retailers. Furthermore, although the brand manager of store B think that the store is small and not enough especially at the time of special days, according to customers the store is big enough to shop, designed beautifully and close to public transportation area. However, it doesn't affect their purchase decision. Customer of Brand B had a problem about the product but it was solved immediately. For this reason, store managers know the importance of after sales services and return management. They provide enough information to their customers not to lose their customers. Customers want to make comparison among the other brands and give their decision accordingly. Hence, Brand A and B try to provide high amount of assortment and variety of products according to different market segment. Furthermore, store managers try to attract their potential customers by placing most beautiful products on the store window.

To sum up, common reasons of churn customers are the price of the products, not providing enough promotions for both efficient and inefficient stores of Retailer X. Even the customers of the efficient stores complain about the high prices. Customers believe that prices are above the market level. Furthermore, customers state that they need more promotions regardless of efficiency of the stores. Customers of efficient stores also want different kind of promotions. Lastly, although the customers of efficient stores are satisfied with the physical store atmosphere, location design and area, store managers complain about the store area. They state that the store doesn't have enough area especially on special days such as Father's Day and Valentine's Day etc.

	EFF	ICIENT STORES OF BR	AND A AND BRAND B		INEFF	ICIENT STORES OF BI	RAND A AND BRAND I	3
Reasons of churn	Store Manager of Brand A, Park Bornova (Male, 30)	Customer of Brand A, Park Bornova	Store Manager of Brand B, Gaziemir Optimum <i>(Male, 33)</i>	Customer of Brand B, Gaziemir Optimum	Store Manager Assistant of Brand A, Balçova Kipa (Male, 27)	Customer of Brand A, Balçova Kipa	Store Manager of Brand B, Ege Park Mavişehir (Male, 35)	Customer of Brand B, Ege Park
1.Product and Stock Level	"Our stocks are usually enough. Customers find what they need. If they can't find the products, we can supply them immediately."	"I don't have any problem about finding the product that I need at the store."	"For both brands' store, there are same number of items in stocks. We are trying to meet the demand for similar products."	"Last time, we tried the product, we liked it but there was not suitable size of the product. If it is cheaper on the internet and we know the size and code of the product, we directly give the order from online stores."	"We don't have the whole collection in our store and we don't have enough space to store all products."	"Stocks are inadequate. In particular, we are having difficulties about the body size."	"For the end of season periods, number of our products might start to decrease."	"In general, the stock was enough but I couldn't find the product I wanted."
2.Price	"Price strategy is determined according to competitors. Some customers think that our prices are affordable, some customers think our prices are expensive."	"I think prices are affordable than the other brands, but I think it's above the market level."	"The profit margins are determined by headquarters of Retailer X."	"Prices are almost at the same level with competitors but of course, I also take a look at other brands before buying."	"As a Brand A, we sell high-quality products at reasonable prices."	"The products are expensive."	"Our prices change depending on the type of cotton."	"When we compare with other brands, prices are more expensive."

		111/16	ur. 2022 Citty Vol.37	Suy17N0.1 D01. 10	D.24988/ije.aergiparkia			1	
				"Prices are good right now but at the beginning of the seasons, prices are becoming unnecessarily high."					
3.Promotions	"Promotions are determined by headquarter. We don't have any special promotions, we only give a gift parapuan to our customers."	"I think company's promotions are enough. I visit Brand A for only special days for my husband. It has already discount for special days."	"This store is dynamic. We do not use aggressive campaigns compared to the market. We use promotions to attract more customers."	"I am happy with the campaigns, maybe campaigns such as 2 buy- pay 1, 3 buy- pay 2 can be increased."	"We work with CRM department to increase sales. The customers are informed about the new campaigns by SMS."	"They can make more discounts in products."	"It depends on the season."	"Promotions not enough."	are
4.Sales Personnel (number of personnel, service level, ability to give enough information etc.)	"We have eight staffs. They are experts. There are enough cabins in the store and one staff can handle up to three people. We cannot sell products without one-to-one communication with customers, and this has positive effect on customers."	I'm uncomfortable with the staff interest". "When I cannot find the product that I need, I want help."	"We get efficient performance. Establishing the right communication is very important. This is about getting to know the customer, understanding their wishes as soon as possible and providing those most appropriate products."	"It is important for me that sales personnel are smiling and understand what you want. In this type of shopping, I want sales personnel to know body measurement procedure. Their ideas are also important for me."	"The number of staffs is determined based on customer circulation, product variety, and size of the area. We're six people and that's enough for us."	"It is nice to be greeted by a smiling face, but it is uncomfortable that they always show unnecessary products."	"We do not have training program."	-	

				"Sales personnel have been always kind to us. We are shopping so often, so they are like one of our family members. It is easier for us to tell our problem directly".	"Staffs are trained 2 times a year. Information about season openings, summer and winter collections are given."	-		
5.Physical Store Atmosphere, Location Design, Area	"Our store is one of the biggest stores in Izmir. Customers can make their shopping comfortably and they are not bored. The store is designed to sell the product to the customer. Store design is the best way to take the attraction of customers."	"Area and atmosphere is good. I don't think it's technically affected, but in some companies such as Mavi, Koton, I feel like I'm in the market, but it's not like that for this brand."	"The store area is very small. On special days such as Father's Day and Valentine's Day, there is a shortage of space in the store."	"The store is designed beautifully. The size is also enough. However, I cannot say that it affects my purchase decision too much."	"The campaigns that will attract consumers is always located on the first stand."	"The design of the store is not good. I hardly find the products that I need."	"We can change and re-new some areas."	"The store is small and the decoration is not good."
		"I can say that it is the most beautiful store in Izmir".		"The location is nice and close to IZBAN, minibus, bus etc. and it can be reached easily by public transport."	"This store is a bit far away from the city center and right now we have a road construction here. Of course, all these affect us negatively".			"The store could be bigger".

		Y11/Y6	ear: 2022 Cilt/Vol:37	Sayı/No:1 Doi: 10	0.24988/ije.dergiparkid			
6. After Sales Services and Return Management	"When the customers want after sales service, we provide necessary information to them. As long as the customer does not give any harm to the product, we do not have any problems in returning and exchanging products."	"One of the things that make a brand good quality is its after-sales support, and if they are interested in its customers without difficulty, the customers will be satisfied. Furthermore, it increases the likelihood of being a loyal customer."	"If we don't, we lose the customer from the beginning, so of course we do provide information about returns during shopping."	"We had troubles with the pants we bought. Then the pants went to the examination, they changed them, our problem has been solved in a short period of time."	"In the cases of customers did not use and did not make any modification on the products, we take the products back unconditionally. Customers have a legal right: 15 days."	-	"We inform our customers about our return conditions and if they want to know more we inform them with additional information too. For some specific situations, they can return their products after 6 months."	"I did not have any problem."
7. Competitors	"Other companies can never compete with us because our prices are more advantageous for the customer. Another reason is that we are a brand that is suitable to every segment, especially to young people. Kiğılı has narrow segment. Sarar and Damat don't make more campaigns than us."	"I didn't have any problem about after sales services." "Of course, I look at them all. After that, I'm buying from the cheapest brand's store."	"Shop window is very important in the shopping center. No customer can see the interior of the store but they can look at the shop window and decide about the brand. We usually display most beautiful products that are very expensive. In this way, we attract the customers."	"I am checking the price of other brands. This brand is usually becoming my first choice because of its quality."	"Customers want to take a look at the other brands too. We don't want to take them out of the store. Once they do, they might get confused."	"I make a comparison between stores, I decide the latest."	"Our competitors affect us depending on the customers' need. We sell business products, if they need casual products it might affect us."	"The prices are quite expensive compared to other competitors."

				"We are the one who has		"I check all stores
				the most turnover among		and then I decide
				the other brands in this		what I will buy."
				shopping mall."		

4. Conclusion and Managerial Implications

According to results of semi structured interviews, the general problems of inefficient stores are as follows; not having enough store and display area for all products, insufficient stock, problems about variety and assortment, expensive products, insufficient promotions, not having appealing in-store environment, lack of staff training, and difficulty in finding the products in store.

Efficient stores have enough stock, no problem in stock levels, have good promotions and some discounts on special days to attract more customers. However, some customers still expect more campaign such as 2 buy-pay 1, 3 buy-pay 2 etc. These stores have expert staff and they are able to establish the right communication with their customers. Sales staffs are friendly and they can understand their customers' need. Efficient stores are large enough for their customers to be able to find the products in a comfortable way and they have good store design. When the customers have a problem with after-sales services, sale personnel can solve this problem as soon as possible.

The findings of this study have several managerial implications. Managers of Retailer X should compare the results of efficient and inefficient stores and understand the reasons of problems firstly. Accordingly, they have to focus on the inefficient stores and try to make an improvement on these stores.

For the physical stores, customer value is vital before, during and after the customer's store visit. At the time of customer store visit, this value perception will affect the customer decision of buying from the same store or not. For example, if the customer likes the store atmosphere, store design, service quality, assortment, and price she/he will buy a product from this store (Leroi-Werelds, 2021). Otherwise, the customer will become a churn customer. If the customer becomes a churn, the company will lose revenue and additional marketing activities will be needed. Hence, the cost of the company will increase to attract new customers. For this reason reducing customer churn is a key business goal for store managers (Bagul et al., 2021).

Store managers should carry broad product assortment because deep product in the physical store increase customer value and competitive advantage of the retailer in the market (Zhang et al., 2021). Otherwise, if the product is out of stock, the customer will have two choice. First choice is that the customer may wait before obtaining the product, but this will increase the cost of time for the customer. Second choice is that customer may go out of physical store, stop buying anything from this retailer and become a churn customer. For this reason, designing the store, having enough display area for all products and replenishment of products are vital for store managers. Furthermore, appearance of the physical store such as lighting, temperature, music, smells are important for the first impression (Petermans and Kent, 2017). Research states that these elements affect the experience of the customer in the store and form a brand image of the retail (Leroi-Werelds, 2021). Existence of helpful and experienced sale personnel is also important service dimensions for retailers. Customers need prompt attention and return adjustments when they have any problem (Saricam, 2022). Store managers should know that customers value their relationships with the store employees and accordingly give their purchasing decision. Special treatment, price discounts, faster services, more attention will increase customer satisfaction (Leroi-Werelds, 2021). Finally, price is the most obvious negative value type. It includes monetary sacrifice perceived by the customers. Hence, store managers may consider promotional pricing to attract customers in the short term.

To sum up, store managers shouldn't forget that customers are free to leave and end the relationship with the retailer. However, customers who are willing to shift the store and unlikely to make a purchase because of mentioned issues can be convinced (Bagul et al., 2021). On the other hand, it is obvious that online retailing is increasing tremendously during the Covid-19 pandemic. However, online retailers are establishing an offline presence to enhance customer value by providing customers tangible, concrete experience (Zhang et al., 2021). Moreover, physical stores have become

a critical part of omni channel retail strategy and provides opportunities for online retailers' customers to known the brand.

5. Limitations and Further Research

One of the limitations of this study is that analyzing customer churn and the reasons of it just in physical stores of Retailer X. For this reason, it is difficult to generalize the results since the analysis only covered a single Retailer X and stores of its two brands. Conducting the analysis both at physical and online stores and comparing the results of these stores can broaden the concept of this study. Second limitation of this study is related with the number of participants. The number of participants was limited due to the challenges while reaching them. Further research can be conducted with more participants. Another limitation can be the method of the study. To strengthen the study, further research can be done by using other research methods such as structural equation modelling based on theories such as theory of planned behaviour which is mostly used to explain the reasons of consumer behaviour in retail sector. Moreover, new studies can be conducted with the same type of (fashion retailer) but with different well-known retailer in the market and the results can be compared. Diffent types of retailers such as food retailers can also be the topic of the new study.

REFERENCES

- Amin, A., Anwar, S., Adnan, A., Nawaz, M., Alawfi, K., Hussain, A., & Huang, K. (2017). Customer churn prediction in the telecommunication sector using a rough set approach. Neurocomputing, 237, 242-254.
- Arslan, İ. K., & Ersun, N. (2011). Moda sektöründe faaliyet gösteren mağazalarda müşterilerin mağaza tercihinde mağaza tasarımının önemi ve tasarım kriterleri, Istanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi. 10(19), 221-245.
- Bagul, N., Surana, P., Berad, P., & Khachane, C. (2021).Retail Customer Churn Analysis using RFM Model and K-Means Clustering, International Journal of Engineering Research & Technology (IJERT), 10(3).
- Barros, C. P., & Alves, C. A. (2003). Hypermarket retail store efficiency in Portugal. International Journal of Retail & Distribution Management, 31, 549–560.
- Berman, B. and Evans, J.R. (2004). Retail Management: A Strategic Perspective, Pearson Prentice Hall, Upper Saddle River, NJ.
- Bharti, A. (2017). Customer churn management. ACADEMICIA: An International Multidisciplinary Research Journal, 7(5), 96-102.
- Bi, W., Cai, M., Liu, M., & Li, G. (2016). A big data clustering algorithm for mitigating the risk of customer churn. IEEE Transactions on Industrial Informatics, 12(3), 1270-1281.
- Buttle, F. (2004). Customer relationship management. Routledge.
- Chan, K., & Li, Q. (2022). Attributes of young adults' favorite retail shops: a qualitative study. Young Consumers, (ahead-of-print).
- Dabholkar, P. A., Thorpe, D. I., & Rentz, J. O. (1996). A measure of service quality for retail stores: scale development and validation. Journal of the Academy of Marketing Science, 24(1), 3.
- Deekshitha, M. A. Udaya Kumar & M. D. Pradeep (2017). A Study on Changing Consumer Behaviour towards Fast Moving Consumable Goods in India. International Journal of Multidisciplinary Research and Modern Education (IJMRME), 3(1), 392-398.
- Donthu, N., & Yoo, B. (1998). Retail productivity assessment using data envelopment analysis. Journal of Retailing, 74(1), 89-105.
- Filimonau, V., Zhang, H. and Wang, L. (2020). Food waste management in Shanghai full-service restaurants: a senior managers' perspective. Journal of Cleaner Production, Vol. 258, pp. 1-13.
- Gagliano, K. B., & Hathcote, J. (1994). Customer expectations and perceptions of service quality in retail apparel specialty stores. Journal of Services Marketing, 8(1), 60-69.
- Gülpinar, V. (2013). Yapay Sinir Ağlari Ve Sosyal Ağ Analizi Yardimi İle Türk Telekomünikasyon Piyasasında Müşteri Kaybi Analizi. Marmara Üniversitesi İktisadi ve İdari Bilimler Dergisi, 34(1), 331-350.
- Hadden, J., Tiwari, A., Roy, R., & Ruta, D. (2007). Computer assisted customer churn management: State-of-the-art and future trends. Computers & Operations Research, 34(10), 2902-2917.
- Huang, Y., Zhu, F., Yuan, M., Deng, K., Li, Y., Ni, B., Dai, W., Yang, Q. & Zeng, J. (2015) Telco Churn Prediction with Big Data. SIGMOD Conference 2015.
- Hung, S. Y., Yen, D. C., & Wang, H. Y. (2006). Applying data mining to telecom churn Management. Expert Systems with Applications, 31(3), 515-524.
- Idris, A., Rizwan, M. and Khan, A. (2012) Churn Prediction in Telecom Using Random Forest and PSO Based Data Balancing in Combination with Various Feature Selection Strategies. Computers & Electrical Engineering, 38, 1808- 1819.
- Johny, C. P., & Mathai, P. P. (2017). Customer churn prediction: A survey. International Journal of Advanced Research in Computer Science, 8(5), 2178-2181.
- Karakaya, F., & Ganim Barnes, N. (2010). Impact of online reviews of customer care experience on brand or company selection. Journal of Consumer Marketing, 27(5), 447-457.

- Kaya, S., Williams, B. (2005). Effective churn management for business. Journal of Corporate Real Estate, 7(2), 154-163.
- Keramati, A., Ghaneei, H., & Mirmohammadi, S. M. (2016). Developing a prediction model for customer churn from electronic banking services using data mining. Financial Innovation, 2(1), 1-13.
- Keramati, A., Jafari-Marandi, R., Aliannejadi, M., et al. (2014).Improved Churn Prediction in Telecommunication Industry Using Data Mining Techniques. Applied Soft Computing, 24, 994-1012.
- Kim, S.Y., Staelin, R., (1999). Manufacturer allowances and retailer pass-through rates in a competitive environment. Marketing Science 18 (1), 59–76.
- Khan, A.A; Jamwal, S. & Sepehri, M.M. (2010). Applying Data Mining to Customer Churn Prediction in an Internet Service Provider. International Journal of Computer Applications, 9(7), 8-14.
- Ko, K., Chang, M., Bae, E. S., & Kim, D. (2017). Efficiency analysis of retail chain stores in Korea. Sustainability, 9(9), 1-14.
- Koca Y., Söğüt, B. E., ve Mardikyan, S. (2019). Sadakat Programında Müşteri Kayıp Tahmini: Bir Vaka Çalışması. Journal of Information Systems and Management Research, 1(1), 59-66.
- Lau, K. H. (2012). Distribution network rationalisation through benchmarking with DEA. Benchmarking: An International Journal, 19(6), 668-689.
- Lejeune, M. A. (2001). Measuring the impact of data mining on churn management. Internet Research", 11(5), 375-387.
- Leroi-Werelds, S. (2021). Conceptualising Customer Value in Physical Retail: A Marketing Perspective. In The Value of Design in Retail and Branding. Emerald Publishing Limited.
- Lindlof, T.R. & Taylor, B. C. (2002). Qualitative Communication Research Methods. (2nd Ed.) California: Sage Publication.
- Liu, Y., Cheng, S., Liu, X., Cao, X., Xue, L. and Liu, G. (2016). Plate waste in school lunch programs in Beijing, China, Sustainability, 8(12), 1288-1300.
- Magaldi, D. and Berler, M. (2020).Semi-structured Interviews. In: Zeigler-Hill V., Shackelford T.K. (eds) Encyclopedia of Personality and Individual Differences, Springer.
- McDonald, L. M., & Rundle-Thiele, S. (2008). Corporate social responsibility and bank customer satisfaction: a research agenda. International Journal of Bank Marketing, 26(3), pp. 170-182.
- Miguéis, V. L., Camanho, A., & e Cunha, J. F. (2013). Customer attrition in retailing: an application of multivariate adaptive regression splines. Expert Systems with Applications, 40(16), 6225-6232.
- Miles, M. B., & Huberman, A. M. (1994). Qualitative data analysis: An expanded sourcebook. Sage.
- Mutanen, T. (2006). Customer churn analysis–a case study. Journal of Product and Brand Management, 14(1), 4-13.
- Oghojafor, B., Mesike, G., Bakarea, R., Omoera, C., & Adeleke, I. (2012). Discriminant analysis of factors affecting telecoms customer churn. International Journal of Business Administration, 3(2), 59-67.
- Okumus, B. (2020).How do hotels manage food waste? Evidence from hotels in Orlando, Florida, Journal of Hospitality Marketing and Management, 29(3), 291-309.
- Orac, R. (2019). Churn prediction: Learn how to train a decision tree model for churn prediction, <u>https://towardsdatascience.com/churn-prediction-770d6cb582a5</u>
- Patil, A. P., Deepshika, M. P., Mittal, S., Shetty, S., Hiremath, S. S., & Patil, Y. E. (2017, August). Customer churn prediction for retail business. In 2017 International Conference on Energy, Communication, Data Analytics and Soft Computing (ICECDS) (pp. 845-851). IEEE.
- Perdikaki, O., Kesavan, S., & Swaminathan, J. M. (2012). Effect of traffic on sales and conversion rates of retail stores. Manufacturing & Service Operations Management, 14(1), 145-162.

- Perrigot, R., & Barros, C. P. (2008). Technical efficiency of French retailers. Journal of Retailing and Consumer Services, 15(4), 296-305.
- Petermans, A., & Kent, T. (2017). Retail design: Theoretical perspectives. Oxon: Routledge.
- Rao, S., Goldsby, T. J., & Iyengar, D. (2009). The marketing and logistics efficacy of online sales channels. International Journal of Physical Distribution & Logistics Management, 39(2), 106-130.
- Ridge, M., Johnston, K.A & O'Donovan, B. (2015). The use of big data analytics in the retail industries in South Africa, 9(19), 688-703.
- Saricam, C. (2022). Analysing Service Quality and Its Relation to Customer Satisfaction and Loyalty in Sportswear Retail Market. Autex Research Journal, 22(2), 184-193.
- Seker, S. E. (2016). Müşteri Kayıp Analizi (Customer Churn Analysis). YBS Ansiklopedi, 3(1), 26-29.
- Sellers-Rubio, R., & Mas-Ruiz, F. (2006). Economic efficiency in supermarkets: evidences in Spain. International Journal of Retail & Distribution Management, 34, 155–171.
- Shapiro, C., (1982). Consumer information, product quality, and seller reputation. 13(1), 20-35.
- Sherman, H. D., Zhu, J.(2006). Service Productivity Management; Improving Service Performance using Data Envelopment Analysis (DEA). 49-89.
- Subramanya, K.B. (2016). Enhanced feature mining and classifier models to predict customer churn for an e-retailer".Graduate Theses and Dissertations. Iowa State University, 16023.
- Thomas, R. R., Barr, R. S., Cron, W. L., & Slocum Jr, J. W. (1998). A process for evaluating retail store efficiency: a restricted DEA approach. International Journal of Research in Marketing, 15(5), 487-503.
- Tsai C-F, Chen M-Y (2010). Variable selection by association rules for customer churn prediction of multimedia on demand. Expert Syst Appl 37:2006–2015
- Uyar, A., Bayyurt, N., Dilber, M., & Karaca, V. (2013). Evaluating operational efficiency of a bookshop chain in Turkey and identifying efficiency drivers. International Journal of Retail & Distribution Management, 41, 331–347.
- Veningston, K., Rao, P. V., Selvan, C., & Ronalda, M. (2022). Investigation on Customer Churn Prediction Using Machine Learning Techniques. In Proceedings of International Conference on Data Science and Applications (pp. 109-119). Springer, Singapore.
- Yu, W., & Ramanathan, R. (2008). An assessment of operational efficiencies in the UK retail sector. International Journal of Retail & Distribution Management.
- Zhang, T., Feng, X., & Wang, N. (2021). Manufacturer encroachment and product assortment under vertical differentiation. European Journal of Operational Research, 293(1), 120-132.
- Zhang, T., Moro, S., & Ramos, R. F. (2022). A Data-Driven Approach to Improve Customer Churn Prediction Based on Telecom Customer Segmentation. Future Internet 2022, 14, 94.
- Zhu, J. (2008). Quantitative Models for Performance Evaluation and Benchmarking: Data Envelopment Analysis with Spreadsheets. Springer.

CC () (S)	© Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY NC) license.
BY NC	(https://creativecommons.org/licenses/by-nc/4.0/).

Appendix 1: Semi Structured Interview Questions for Store Managers

- 1. What kind of campaigns do you organize for customers as Brand A / Brand B?
- 2. What is the frequency of your campaigns? What is the effect of these campaigns on direct sales?
- 3. What is the effect of your campaigns on sales?
- 4. Are there enough staff to deal with customers when in-store customer traffic is high? Do you have customers who leave the store because sales personnel do not show the necessary attention to customers?
- 5. How do you resolve when there are disagreements between sales staff and customers? Do you have services like discounts, gifts, etc. to compensate for these?
- 6. Does the number of sales personnel have an impact on sales performance?
- 7. What is your staff change rate? If this rate is high, how does it affect the sales staff's adaptation to the store and to the customer? How does it affect customer loyalty? Do you have any precaution to reduce this rate?
- 8. Do you provide the necessary training to your sales personnel in terms of campaigns, changing prices, products, etc.? If so, how often? Do you think that it is enough? Also, are the information provided in these trainings transferred to the customers in the right way?
- 9. Do you need any additional sales staff on weekends, in campaign periods and special days?
- 10. Do your sales staff have enough motivation to convert in-store customer traffic into actual sales?
- 11. What factors determine the firm's price policy? Do you have pricing policy according to different customer segments and what is the effect of the price on sales?
- 12. Do the prices in the physical store vary with the prices in the online store? If there is a difference, does this cause customer losses in the physical store?
- 13. Do you think the location of the store is easy to find within the city center or the shopping center? What is the impact on sales?
- 14. Does the economic income of people living near your store have an impact on your sales?
- 15. How does the other brands affect your sales in the same shopping mall/AVM?
- 16. Are your store atmosphere and design suitable for your customers? What is the impact of them on sales?
- 17. Is the area of the store in m² adequate for the comfortable shopping of the customers?
- 18. When the customer arrives at the store, can they find every product they are looking for and do you have enough inventory?
- 19. Based on increasing demand, are you able to replenish your stocks in a short time period?
- 20. Have you lost customers in the case of you didn't organize customized campaigns, price discounts or special offers?
- 21. Do the not offering special services (refreshments, special interest, etc.) within the store, cause loss of customers?
- 22. How is the attitude of the sales staff when a customer asks for a product/products that are not available in your stocks?
- 23. Are the customers able to find the products they see on the internet or social media in the physical store?
- 24. Does your sales personnel inform your customers about the return conditions?
- 25. What are the reasons for returns in general, and what kind of precautions do you take to reduce this amount?
- 26. What are the conveniences you provide to customers about product returns?
- 27. Do your sales staff inform your customers about your after-sales service?
- 28. What can be the biggest reason for your customers in the case of them leave your store without buying?

- 29. If you give a score from 1 to 10, how many points would you give yourself about customer satisfaction?
- 30. Why people should shop from you? Can you express the points that make you different from other competitors in 3 words? (Such as quality, promotion, brand value etc.)

Appendix 2: Semi Structured Interview Questions for Customers

- 1. Have you ever visited stores of Brand A and Brand B and left without buying a product? If yes, what was the most important reason for not completing your shopping? (High price, insufficient customer service, lack of desired product, etc.) If no, (leaving with a purchased product) how long have you been a customer of Brand A /Brand B? How often do you shop from this brand?
- 2. What do you think is the most important factor to complete your shopping when you enter the store? (Friendly staff, service quality, shop atmosphere, price-quality etc.)
- 3. Do you think the campaigns of the company are enough? What kind of campaign do you interest in? (Product price discount, 1 buy, 1 free, gift cards, money-points, etc.)
- 4. What do you think about the sales prices compared to other brands? Have you ever left the store because the prices were high?
- 5. Do you find the same sales staff when you visit the store at different time periods? How does it affect you?
- 6. Do the sales staff bother you when they want to help you during the sales, do they have a positive or negative effect on you?
- 7. Have you left the store because of the conflict with the sales staff, store manager, return process or sales prices (ex. difference in cash register and on the label) etc.? How would you expect to be compensated for such a conflict? (For example, special discount, gift etc.)
- 8. How does the other brands near Brand A/Brand B stores in shopping mall/ AVM affect you? (Do you visit other stores and make your final decision?)
- 9. Are you able to find the products that you see in the online store in the physical store or have you left the store because you could not find the product you were looking for? In such cases, does the store have applications such as recommending similar products, finding the product in other stores, and if it is available shipping the product to your address?
- 10. What do you do if you see the same product you see in the brand's online shop is more expensive in the physical store?
- 11. Do you think the location of this store is easily accessible?
- 12. Are you satisfied with the size, atmosphere and design of the store? How does it affect your purchase decision?
- 13. If you would give a score about your customer satisfaction, how many points would you give to this store over 10?
- 14. What would you say if you listed your dissatisfaction with this company? Summarize in 3 words, (poor quality, expensive, indifference, lack of stock etc.)