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Determination of Customer Loyalty Rate in a Bank Branch Using the Analytical Hierarchy Process (AHP) Method [1]

Bir Banka Şubesinde Müşteri Sadakat Oranının Analitik Hiyerarşi Süreci (AHS) Yöntemi ile Belirlenmesi

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Abstract

Considering the high needs and expectations of today's customers, the efforts of businesses to provide and improve customer satisfaction are increasing. For this reason, businesses that make service differentiation are now working not only to satisfy their customers but also to gain their loyalty. This study aims to determine the customer loyalty rate with the Analytical Hierarchy Process (AHP) method taking a bank branch as a sample. No such study has been found to determine the loyal customer rate in the banking sector. Beyond the fact that determining the loyalty rate provides some numerical indicators, the biggest benefit to businesses is that they have information about the extent to which they realize their goals, customer expectations, and needs. Thus, they can establish standards and priorities for the goods or services they produce or will produce and apply different strategies by changing them when necessary. In addition, businesses that access loyal customer information have the opportunity to communicate and maintain relationships with their most valuable assets, their loyal customers, while exploring opportunities to gain their non-loyal customers.

Keywords: *Customer Loyalty Rate, Banking Sector, Analytical Hierarchy Process (AHP).*

Jel Codes: *C02, C69, G21, L21, L89.*

Öz

Günümüz müşterilerinin yüksek ihtiyaç ve beklentileri göz önünde bulundurularak işletmelerin müşteri memnuniyetini sağlama ve geliştirme çabaları artmaktadır. Bu nedenle hizmet farklılaştırması yapan işletmeler, artık sadece müşterilerini memnun etmek için değil sadakatlerini kazanmak için de çalışmaktadır. Bu çalışmanın amacı, bir banka şubesini örnek alarak müşteri sadakat oranını Analitik Hiyerarşi Süreci (AHS) yöntemi ile belirlemektir. Bankacılık sektöründe sadık müşteri oranını belirlemeye yönelik böyle bir çalışmaya rastlanmamıştır. Sadakat oranı belirlemenin bazı sayısal göstergeler sağlamasının ötesinde işletmelere en büyük faydası; hedeflerini, müşteri beklentilerini ve ihtiyaçlarını ne ölçüde gerçekleştirdikleri hakkında bilgi vermesidir. Böylece işletmeler, ürettikleri veya üretecekleri mal veya hizmetler için standartlar ve öncelikler belirleyebilir ve gerektiğinde bunları değiştirerek farklı stratejiler uygulayabilir. Ayrıca, sadık müşteri bilgilerine erişen işletmeler, en değerli varlıkları olan sadık müşterileri ile iletişim kurma ve ilişkiyi sürdürme fırsatına sahip olurken sadık olmayan müşterilerini kazanma fırsatlarını keşfeder.

Anahtar Kelimeler: *Müşteri Sadakat Oranı, Bankacılık Sektörü, Analitik Hiyerarşi Süreci (AHS).*

Jel Kodları: *C02, C69, G21, L21, L89.*

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1. INTRODUCTION

A loyal customer is not only the most valuable asset of a business but also very important for the continuity of the business. It is not possible for businesses that do not develop different strategies and create value to acquire loyal customers, increase their sales, and thus maintain their profitability. The research on this topic revealed that a 5% increase in customer loyalty increases the operating profit rate between 25% and 85%. Therefore, businesses need to increase their customer loyalty rates to survive in today's competitive environment (Kandampully and Suhartanto, 2000: 346). Businesses are greatly affected by globalization, new business models, and the increasing pace of change due to rising expectations (Tüfekçi ve Tüfekçi, 2006: 172). In addition, today's customer structure exhibits a dynamic and variable situation. This situation creates an effect that makes it difficult for businesses to follow their customers and satisfy them at the same time, and it also reveals the need to determine the loyal customers and the loyal customer rate within the business, which is the subject of this study.

Customer loyalty occurs when businesses create value for their customers and grow with the customer's ownership of the business (Çınar, 2007: 28). Customer loyalty can be defined by examining the customer's shopping habits. So in this study, an application was conducted in which the customers of the bank branch and the products they use were analyzed by using the Analytical Hierarchy Process (AHP) method in the field of banking, which is one of the service-intensive sectors. The fact that no study has been found in the banking sector to determine the loyal customer rate is important in terms of the originality of this study and is expected to contribute to the literature.

The study is organized as follows. In the second section, information on customer loyalty is given and the relevant literature is reviewed. In the third section, the methodology used to determine the customer loyalty rate is presented. In the fourth chapter, the findings are explained together with the application. Finally, in the fifth chapter, the results are discussed, and recommendations are given.

2. CUSTOMER LOYALTY

Customer loyalty, which is not a new concept, is of great importance for businesses because it is difficult to gain customers who desire to remain loyal to the business, and it is very easy to lose them. Customer loyalty is achieved not only by satisfying the customer but also by ensuring the continuity of customer satisfaction. Therefore, it is necessary to maintain the number of existing customers as well as to increase the number of customers. It is not possible for businesses that do not develop a customer retention strategy and look at their customers only as a transaction to survive in today's conditions (Gümüş, 2014: 1).

Customer loyalty is the extent to which the customer resists all competitive effects and how determined the business is to use its goods and services (Erk, 2009: 44). This concept is defined as the frequency of being a customer for a good or service, the customer's constant preference for the same product or business (Dick and Basu, 1994: 99), the probability of a customer purchasing a product and the rate of purchase, i.e. the frequency of purchase (Kumar and Shah, 2004: 318) in the literature. In its broadest sense, customer loyalty can be defined as the desire, tendency, and action of the customer to purchase the same product or to prefer the same business with the usual frequency to find a solution to their similar needs

(Çoban, 2005: 297). Today, the definition of customer is redefined as "freer, more participatory, and more valuable". It is no longer possible to retain customers by simply expanding the product range and increasing product quality. The profitability of customer loyalty is an undeniable fact. Lewitt's statement "The loyalty of satisfied customers is the main key to profitability" reflects this reality (Özdağoğlu vd., 2008: 371).

It is extremely important for businesses to retain their customers in the long run and to adopt approaches that will not cause customer losses, in terms of increasing competitiveness and profitability (Çoban, 2005: 297). According to Drucker (1958), the aim of the business should be not only to make sales but also to acquire customers and retain existing customers. According to Gerson (1997), businesses conduct customer service with the rule of 10. According to this rule, if the cost of acquiring a new customer is £10,000, it takes 10 seconds to lose that customer, and it takes 10 years to recover or fix the problem. Therefore, existing customers should not be lost (Gerson, 1997: 22). This situation is still valid today. In addition, long-term loyal customers take less time and show less sensitivity to price changes (Suh and Youjae 2006: 151). Blackwell (2001) defines the current period as the "customer century" and states that the balance of power has shifted from manufacturers, distributors, or retailers to customers. Capuzzi and Stauffer (2014) draw attention to the value that loyal customers create for businesses and state that acquiring new customers is about five times more difficult and expensive than retaining customers. Stauffer and Capuzzi (2014), who suggest focusing on existing customers, argue that customers agree to spend 15-20% more for a product they like or are satisfied with, and the loyal customer plays the role of an agent in acquiring new customers.

According to the bibliometric analysis of customer loyalty by Mohamad et al. (2022) customer loyalty studies have been conducted extensively in the literature since 1982. Because the study of customer loyalty encompasses different subject areas it is regarded as a topic that is still relevant for future research and is universal. Some studies on this subject in recent years are as follows. Tannady and Purnamaningsih (2023) examined the relationship between brand equity, product quality, and service quality and their impact on consumer satisfaction and loyalty. Utz et al. (2023) examined the effects of trust, distrust, and ambivalence on customer loyalty and designed a blockchain-based loyalty program for green electricity customers to strengthen customer loyalty. Cui et al. (2023) investigated the sustainability of customer loyalty of fresh food e-retailers in China. This research revealed that trust and perceived product risk significantly affect customer loyalty. Al Ruqaishi and Rais (2023) examined the effect of service quality on customer loyalty in the hospitality industry with a structural equation model. They investigated the connection between customer loyalty to the hostel and service quality, particularly customer happiness and trust. Williams and Okechukwu (2023) examined the influence of employee relations strategies on customer loyalty in selected deposit money banks with a survey. They concluded that good employee relations in terms of effective conflict resolutions, employee empowerment to customer loyalty in deposit money banks attract more customers. Hinchcliff et al. (2023) confirmed the moderating effect product type has on the customer loyalty relationship in retail banking regarding high- and low-involvement product categories. Manyanga et al. (2022) examined the effect of customer experience, satisfaction, and word-of-mouth intentions on customer loyalty in the banking sector. Naini et al. (2022) examined the effect of

product, service quality, and customer satisfaction on customer loyalty in one restaurant. According to the authors, the most important indicators are response accuracy, uniqueness of the product, and employee attention which makes customers happy and want to come back to the restaurant.

As a result of the literature review, there are many studies examining customer loyalty, its dimensions, and characteristics. However, no studies were found in which customer loyalty was measured and the loyal customer rate among total customers was determined. It has been determined that a scale in which loyalty is examined with different dimensions is used to measure customer loyalty in very few studies. Srinivasan et al. (2022) identified eight factors customization, contact interactivity, care, community, convenience, cultivation, choice, and character that potentially impact e-loyalty and developed scales to measure these factors. The data demonstrated that all these factors, except convenience, impact e-loyalty, and also e-loyalty has an impact on word-of-mouth promotion and willingness to pay more. McMullan and Gilmore (2003) developed a scale to measure the different phases (cognitive, affective, conative, and action) of customer loyalty. 28 questions on the scale they developed were asked to 438 different members of 250 restaurants by using a 7-point Likert scale. Customers were classified according to their low, medium, and high loyalty status. It is recommended to use the developed scale to maintain the level of high-loyalty customers and to make low-loyalty customers more loyal. Bobâlcă, Gătej, and Ciobanu (2012) also tested customer loyalty by developing a scale consisting of these four different stages. In the research conducted using qualitative and quantitative methods, 31 sellers of cosmetic products operating in Romania were interviewed. The developed loyalty scale was applied to 676 young cosmetic product students of Alexandru Ioan Cuza University. As a result of explatory and confirmatory factor analysis, it has been concluded that managers can use this loyalty scale which is made of affective, conative, and action loyalty components for efficient customer relationship marketing strategies.

3. METHODOLOGY

In this study, the Analytical Hierarchy Process (AHP) method was used to determine the loyal customer rate in the bank branch. AHP method developed by Saaty (1977) is a mathematical method that can integrate the preferences, experiences, intuitions, knowledge, judgments, thoughts, and intuitions of the group or individual into the decision process in a logical way, and that enables complex problems to be solved by considering them in a hierarchical structure. This method has a wide application area and is used effectively in many decision problems. The reason for this is that it is a method that can be easily understood by decision-makers. One of the biggest advantages of the method is that it provides an analytical evaluation of criteria without numerical values, thanks to the comparison methods (Dağdeviren vd., 2004: 132; Ömürbek vd., 2015: 67).

According to Singh (2016)'s 6-year (2010-2015) review of AHP applications in various fields, AHP has been accepted mostly in the field of management. But it is also used in other fields such as business and marketing, design, environment, agriculture, development, healthcare, banking, manufacturing, construction, and other complex decision-making tasks. Darko et al. (2019) examined AHP in the field of construction and determined the decision areas. These are risk management, sustainable or green construction, transportation, housing, contractor

prequalification and selection, competitive advantage/competitiveness assessment, plant and equipment management, building design, dispute resolution, health and safety management, construction productivity, project delivery systems selection, office projects delivery, facilities management, fire safety management, contractor performance evaluation, procurement/purchasing, bidding, planning and scheduling, information management, earned value management, benchmarking, quality management, knowledge management, international expansion, contractors self-performance measurement, earthmoving projects delivery, high-rice building, pricing, public projects delivery, build-operate-transfer infrastructure projects, value engineering, value enhancement in crucial decisions, design og engineer-to-tender products, drilling, differentai settlement. In short, it can be said that there are many decision areas even in the field of construction, but it is not limited to them. They include different fields such as planning, selecting the best alternative, resource allocations resolving conflict, optimization, etc. (Vaidya and Kumar, 2006: 1-2). Vaidya and Kumar (2006) analyzed different applications of AHP. They classified these applications into three groups applications based on a theme, specific applications, and applications combined with some other methodology. The themes are selection, evaluation, benefit–cost analysis, allocations, planning and development, priority and ranking, and decision-making. The second group consists of the specific applications in forecasting, medicine, and related fields. The third group consists of AHP applications with Quality Function Deployment (QFD). Application areas are personal, social, manufacturing sector, political, engineering, education, industry, government, and others which include sports, management, etc.

The AHP method allows decision-makers to model complex problems in a hierarchical structure by showing the relationship between the goal, criteria, sub-criteria, and alternatives of the problem (Dinçer ve Görener, 2011: 111). In other words, the AHP method is the process of developing numerical values to rank each decision alternative according to the degree of meeting the decision maker's criteria (Urfalı ve Eymen, 2020: 230). The application steps of the AHP method are as follows:

Step 1 - The decision problem is defined and the hierarchical structure is created with the goal, criteria, and alternatives of the problem. The goal of the problem is at the top level, the criteria and sub-criteria are at the middle level and the alternatives are at the lowest level (Saaty, 2008: 85).

Step 2 – Pairwise comparison matrices are created with comparisons made regarding the elements (criteria, sub-criteria, alternatives) in the hierarchical structure determined in the first step. The obtained values reflect comparisons regarding the relative importance of criteria or alternatives. Salty's 1-9 scale given in Table 1 is used when making comparisons.

Table 1. Saaty's 1-9 Scale for AHP

1	Equal importance
3	Moderate importance
5	Strong importance
7	Very strong importance
9	Absolute importance
2,4,6,8	Intermediate values

Source: Saaty, 1980: 6

For n criteria or alternatives nxn pairwise comparison matrix (A) shown in Equation 1 is obtained (Saaty, 1994: 41). The decision maker compares the criteria or alternatives pairwise for the criterion matrix or alternative matrix.

$$A = [a_{ij}]_{nxn} = \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ 1/a_{12} & 1 & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ 1/a_{1n} & 1/a_{2n} & \dots & 1 \end{bmatrix}_{nxn} \quad \text{i, j = 1, 2, …, n} \tag{1}$$

Step 3 - The eigenvector of the matrix (W) is calculated by using Equation 2. It shows the priorities of the criteria or alternatives (Caputo et al., 2013: 212).

$$w_i = \frac{1}{n}\sum_{j=1}^{n} \frac{a_{ij}}{\sum_{j=1}^{n} a_{ij}} \qquad W = [w_i]_{nx1} \qquad \text{i , j = 1, 2, …, n} \tag{2}$$

Step 4 - The consistency ratio (CR) for each of the comparison matrices is calculated as shown in Equation 3. If this ratio is less than 0.10 then the matrix is considered to be consistent (Al Harbi, 2001: 20; Forman and Gass, 2001: 482).

$$CR = CI/RI \tag{3}$$

$CI = (\lambda_{max} - n)/(n-1)$ and λ_{max} is the largest eigenvalue of A. It is the consistency index. RI is the random index and Table 2 shows the RI values for different n values.

Table 2. RI Values

n	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

Source: Saaty, 1980: 21

Step 5 - Using the priorities obtained in Step 3, aggregated (global) priorities are determined throughout the hierarchy and the scores of the alternatives are calculated.

4. APPLICATION

In this study, an application has been made to calculate the loyal customer rate with the AHP method. For the application, the bank branch in Denizli, the city of Türkiye was considered. First of all, decision criteria and alternatives were determined and a hierarchical structure was created as in Figure 1. As a result of the brainstorming made by a team of experts in the relevant bank branch, the decision criteria affecting the contribution of this decision problem to the purpose were determined as the continuity of the product in terms of usage characteristics, the benefit of the product for the bank and the importance of the product for the bank. The banking transactions examined as decision alternatives in the study and offered to customers are demand deposits, time deposits, investment accounts, loans, advance accounts, cards, payments, insurance, and channels.

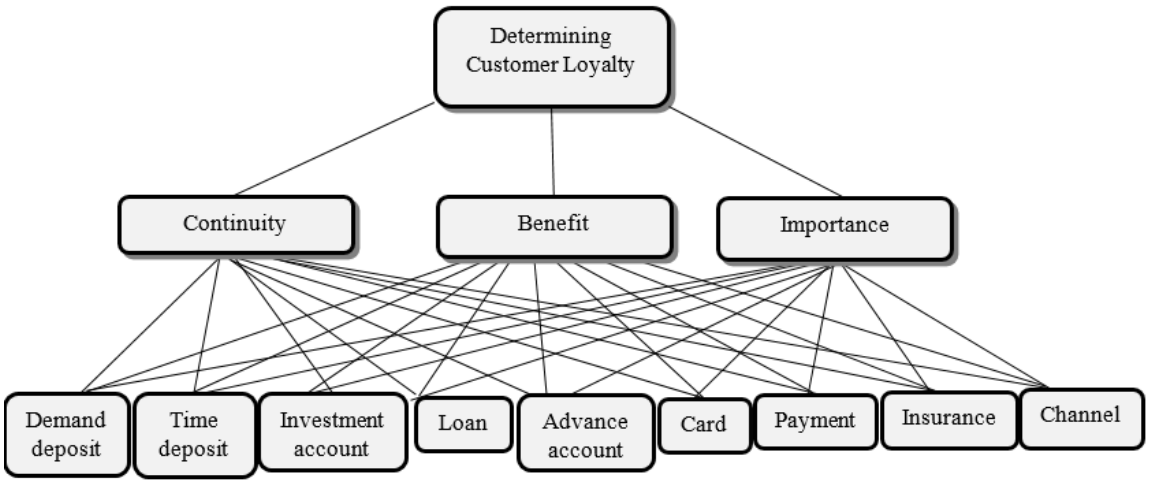

Figure 1. Hierarchical Structure of the Decision Problem

First of all, the criteria forming the hierarchical structure by the decision-making group were compared in pairs using Saaty's scale given in Table 1, and the priority value of each criterion was calculated (Table 3). All calculations were made using the Expert Choice 11 program. According to Table 3, the continuity criterion is in the first place, then the benefit criterion and the last one is the importance criterion.

Table 3. Pairwise Comparison Matrix and Weights of Criteria

LOYALTY	Continuity	Benefit	Importance	Priority values
Continuity	1	3	5	0.637
Benefit	1/3	1	3	0.258
Importance	1/5	1/3	1	0.105

Consistency ratio: 0.04

After the criterion weights were calculated, the alternatives were compared in pairs for each criterion, and their priority values were calculated (Table 4). According to the continuity criterion, the loan is the product with the highest priority value, and the demand deposit is the product with the lowest priority value. According to the benefit criterion, the loan is the product with the highest priority value, while the time deposit is the product with the lowest priority value. According to the importance criterion, investment is the product with the highest priority value, and payment is the product with the lowest priority value. Aggregated priority values were calculated by using the priority values of the products separately based on criteria (Table 4). According to Table 4, the product with the highest priority value is the loan, while the product with the lowest priority value is the advance. The products are scored out of 100 considering these aggregated priority values and these scores are shown in the last column of the same table.

Table 4. Aggregated Priority Values and Scores of Alternatives

Alternatives	Continuity *0.637*	Benefit *0.258*	Importance *0.105*	Aggregated Priority Values	Score
Demand Deposit	0.022	0.223	0.159	*0.082*	*8*
Time Deposit	0.038	0.018	0.228	*0.053*	*5*
Investment Account	0.027	0.024	0.290	*0.053*	*5*
Loan	0.265	0.313	0.035	*0.253*	*25*
Advance Account	0.059	0.035	0.025	*0.050*	*5*
Card	0.113	0.074	0.113	*0.104*	*10*
Payment	0.211	0.108	0.019	*0.169*	*17*
Insurance	0.086	0.052	0.051	*0.075*	*8*
Channel	0.179	0.151	0.079	*0.165*	*17*
Total	1.00	1.00	1.00	1.00	100.00

These scores were used to determine the loyalty status of customers and the loyal customer rate in the branch to total customers. First of all, the products actively used by 4,650 customers were determined one by one, the scores indicated in Table 4 were assigned to these products, and a total score was obtained for each customer. Since the concept of loyalty is defined in the literature as the rate of purchase of a product or service, that is, the frequency of purchase, in this study it was decided to define the customer with a total score above 50 as a "loyal" customer, and a customer with a total score below 50 as a "non-loyal" customer. Table 5 shows sample calculations of 2 customers. For example, the first customer in Table 5, using demand, time deposit, investment, card, payment, and channel products, was included in the "loyal" customer group with 62 points. On the other hand, the second customer was in the "non-loyal" customer group with 25 points, using only demand and channel products. The products used by a total of 4,650 customers were examined as in the example, and the loyal customer rate to total customers was determined as 18%.

Table 5. An Example of Customer Loyalty Calculation

	Banking Products										
Customer	Demand deposit	Time deposit	Investment account	Loan	Advance account	Card	Payment	Insurance	Channel	Total Score	Loyalty
1	x	x	x			x	x		x	62	loyal
2	x								x	25	non-loyal

In addition, in the study, whether there is a relationship between the loyalty status of the customers of the relevant bank branch and the customer segments was analyzed by performing the chi-square test at the 5% significance level. Customers are divided into three portfolios, mass and pool customers. Data for two qualitative variables are given in Table 6.

Table 6. Contingency Table

	Loyalty		
Customer Segments	Loyal	Non-loyal	Total
Portfolio	365	891	1,256
Mass	198	406	604
Pool	297	2,493	2,790
Total	860	3,790	4,650

$\chi^2 = 288.84$

As a result of the analysis, it was determined that there is a relationship between customer segments and loyalty. This analysis is important in terms of providing information that the bank can increase the loyal customer rate by making effective studies based on customer segments.

5. CONCLUSION AND RECOMMENDATIONS

In the long run, profitability depends on customer satisfaction and loyalty. For this reason, businesses should examine their current and potential customers in detail about the products they use and determine the potential customers and the loyal customer rate on the way to being loyal. Thus, it can be decided how much to invest in these customers, and the continuity of their satisfaction can be ensured by getting to know the loyal customers better.

Businesses that complete their loyalty stages by getting to know their customers through the products they use should create value for their loyal customers to maintain loyalty. Long-time customer value focuses on retaining existing customers and including them in the group of loyal customers instead of finding new potential customers and converting them into real customers. Once customer loyalty is established, more value must be offered to these customers to maintain their loyalty. While businesses that focus on creating customer loyalty focus their resources on creating loyalty in their valuable customers, it is also very important to know which customer is loyal and which customer is valuable in the way of being loyal and these rates among all customers.

In this study customers' loyalty status was examined and the loyal customer rate in the branch to total customers was determined as 18% with the AHP method. The sector average is not known, as there is no study to determine the loyal customer rate for other banks. However, the managers of the bank branch can work to improve the loyalty rate by having an idea about the degree of meeting customer expectations and needs and the realization rate of business goals with the help of this rate. To keep customers with numerous product and service alternatives connected to the same business for a long time, investments in loyal customers can be increased, and product/service differentiation can be made to win over ones who are not loyal. The customer's trust in the business has a direct and positive effect on the customer loyalty process. In addition, trust contributes positively to the loyalty process by affecting the customer's perceptions of the value it offers to the business in favor of the business. In this respect, managers should focus on their work to gain the trust of their customers.

This study is limited to determining the customer loyalty rate of only a single branch of the relevant bank. In the future, a study covering all branches of the bank can be conducted to determine a bank-wide customer loyalty rate. It can also be expanded further by calculating customer loyalty rates of other banks and comparing banks in terms of customer loyalty. Different alternatives and different criteria may be taken into consideration. Studies can be carried out to determine the customer loyalty rate in different sectors other than the banking sector. Different studies can be conducted in which customer loyalty is measured and the ratio of loyal customers in total customers is determined with different MCDM methods other than the AHP method, and comparative analyses can be made using these methods.

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