Applicability of Game Theory in Effective Supplier Selection in Restaurants

Selin İlsay

ÖZGÜR PRESS

Applicability of Game Theory in Effective Supplier Selection in Restaurants

Dr. Selin Ilsay

ÖZGÜR PRESS

Published by
Özgür Yayın-Dağıtım Co. Ltd.
Certificate Number: 45503
15 Temmuz Mah. 148136. Sk. No: 9 Şehitkamil/Gaziantep
+90.850 260 09 97
+90.532 289 82 15
www.ozguryayınlari.com
info@ozguryayinlari.com

Applicability of Game Theory in Effective Supplier Selection in Restaurants

Dr. Selin Ilsay

Language: English
Publication Date: 2025
Cover paint by Mehmet Çakır
Cover design and image licensed under CC BY-NC 4.0
Print and digital versions typeset by Çizgi Medya Co. Ltd.

ISBN (PDF): 978-625-5757-92-0

DOI: https://doi.org/10.58830/ozgur.pub992

Suggested citation:
İlyas, S. (2025). *Applicability of Game Theory in Effective Supplier Selection in Restaurants.* Özgür Publications. DOI: https://doi.org/10.58830/ozgur.pub992. License: CC-BY-NC 4.0

The full text of this book has been peer-reviewed to ensure high academic standards. For full review policies, see https://www.ozguryayinlari.com/

Preface

In today's competitive business world, the success of businesses is closely linked not only to the efficiency of their internal processes but also to the effectiveness of their supply chain relationships. Choosing the right supplier is critical to business sustainability, especially in industries like restaurants, where supply continuity, quality, and cost are highly sensitive.

Supply chain management in the food and beverage industry is not just about sourcing raw materials; it has a direct impact on food safety, customer satisfaction, brand reputation, and cost control. Incorrect or inadequate supplier selection can lead to serious negative consequences, such as food safety violations, decreased service quality, and customer loss. Therefore, food and beverage companies need more scientific, objective, and strategic methods for supplier selection.

At this point, game theory stands out as a valuable tool for decision-makers. Game theory is a powerful method that analyzes the conflicts of interest, collaboration opportunities, and strategic behaviors of different actors through mathematical models. Because relationships between restaurants and suppliers often involve interdependencies

and strategic decisions, game theory offers an effective framework for understanding these relationships and developing optimal solutions. This enables not only short-term cost advantages but also long-term sustainable collaborations.

This book is derived from the BAP Project No. 2025/026, "Applicability of Game Theory in Effective Supplier Selection in Restaurants," supported by the Balikesir University BAP Unit.

The book aims to be a useful resource for business and department managers and employees working in the food and beverage sector and to contribute to literature.

Contents

CHAPTER 1

1. Introduction

The supply chain is a chain consisting primarily of producers and distributors who provide raw materials, transform these raw materials into by-products or final products, and bring the resulting products to the market (Özdemir, 2004). Supply chain management encompasses the planning, development, control, and proper execution of all activities in these areas, particularly by the producer, throughout the entire process from the producer to the customer (Büyüközkan and Vardaloğlu, 2008; Sarıoğlan, 2017a). A supplier is essentially a person, business, institution, or organization that provides a service or product, which is at the core of all these processes. Supplier selection is an important decision that affects both the supply chain management from start to finish and the success of the business indirectly or directly (Sarıoğlan, 2017b; Över Özçelik and Eryılmaz, 2019).

Purchasing operations account for a generous portion of businesses' expenses. Purchasing operations can be carried out through suppliers. Businesses intend to obtain

high-quality products that suit their purposes at the most favorable price, with the best delivery timing and conditions. Therefore, identifying potential suppliers, selecting from among identified potential suppliers, evaluating the selected supplier, designing development programs, and conducting performance analyses are crucial for an effective supplier selection process (Özdemir, 2010). In general, in an effective supplier selection process, multi-criteria decision-making methods are used when deciding among potential suppliers. Among these multi-criteria decision-making methods, AHP (analytical hierarchy process), ANP (analytical network process), PROMETHEE and MOORA are commonly used (Sarıoğlan and Arslan, 2020; Dalbudak and Rençber, 2022). In addition to these widely used methods, game theory can also be effectively used in the supplier selection process.

Game theory is a decision-making approach that is based on human behavior and preferences, has principles appropriate to its nature, and includes interdisciplinary features. Since it focuses on strategic situations between two parties, the game theory approach to decision-making is a method in which the parties adhere to their mutual strategic moves (Aktan and Bahçe, 2013). Game theory, applicable both in daily life and in solving complex problems, is a reliable decision-making method that incorporates mathematical expressions guided by strategies.

This study aimed to test the applicability of game theory as a decision-making method in restaurants' effective supplier selection processes. A scale developed by the researchers, based on a comprehensive literature review, was adapted to a predetermined sample group and analyzed within the scope of a quantitative research design. The data obtained from the study were analyzed using statistical methods, and the findings were evaluated considering the purpose of the study.

CHAPTER 2

2. Conceptual Framework

This section of the study will include literature-based information on supply chain management, the supplier selection process, and game theory.

2.1. Supply Chain Management

The supply chain is an integrated system encompassing the process of sourcing raw materials and parts, transforming them into final products, and delivering them to retailers and customers with added value. This system ensures that many business processes such as material supply, procurement, production, sales forecasting, sales, customer service, inventory management, and distribution are carried out in harmony (Öztürk, 2016).

The concepts of supply chain and supply chain management cover a broad area in literature. Monczka, Trent, and Handfield (1998) define the supply chain as "encompassing all processes from the raw material stage to the delivery of goods to the end user. It includes systems management, production, assembly procurement,

production planning, order processing, inventory management, warehousing, and customer service," adding that successful supply chain management integrates and coordinates all these activities for a sustainable competitive advantage. La Londe and Masters (1994) stated that two or more companies in the supply chain, typically including buyers, sellers, logistics, and warehousing activities, engage in a relationship with each other in an integrated and synchronized manner, even if there is no formal legal contract. Houlihan (1988), who stated that supply chain management differs significantly from a classical logistics approach, emphasized that the elements constituting the supply chain (production, procurement, distribution, etc.) cannot be considered separately, that the process depends on strategic decisions, and that integration is always necessary. Mentzer, DeWitt, Keebler, Min, Nix, Smith and Zacharia (2001) in their study to create a general definition by examining various aspects of the supply chain, defined the supply chain as "the systematic and strategic coordination of traditional business functions and tactics across business functions within a particular company and businesses within the supply chain, with the aim of improving the long-term performance of individual companies and the entire supply chain". Supply chain management can be described as a process that includes classic logistics operations such as warehousing and transportation, as well as information processing, strategic decision-making, and value-generating activities (Kopczak, 1997). Supply chain management has also been shown to have a positive impact on other management areas of companies, such as quality management (Theodorakioglou, Gotzamani and Tsiolvas, 2006). Lummus and Vokurka (1999) made a observation that "successful companies will be those that manage all

nodes of the supply chain, from their suppliers' suppliers to their customers' customers."

Although the concept of logistics, which has a military origin, has developed for centuries with the trade made to meet war needs and the supply of materials for construction, with the start of transporting people and goods with large ships (Koçak, 2020). Before the 1970s, purchasing was a function that was done on paper for businesses, was unplanned, thought to have no effect on profitability, and therefore was seen as an irregular and uncoordinated job, and therefore not invested in. However, after the 1980s, the increasing global competition environment led businesses to become aware of the importance of the purchasing function, and the purchasing function began to be accepted as a managerial activity.

The concept of logistics originates from a military perspective and, for centuries, was limited to trade activities aimed at meeting wartime needs and the procurement of materials for construction. Although the transportation of people and goods began to develop with the construction of large ships, until the 1970s, purchasing was largely viewed as a paper-based activity in businesses, unplanned, and deemed unprofitable. Consequently, investments in the purchasing function were not made during that period, as it was considered a disorganized and uncoordinated endeavor. However, increasing global competition from the 1980s onward led to a growing awareness of the importance of the purchasing function within businesses, and this function increasingly came to be recognized as a managerial activity. This function, previously not handled by a single department, has since been consolidated into a single department. By the 1990s, it became clear that successful purchasing not only yields profit from total cost but also has the potential to create consumer value. To achieve this, businesses

adopted an integrated logistics approach, recognizing that logistics is a factor that can impact all other aspects of the business. Factors such as increased global competition, the undeniable power of consumers, and advancing technology in the late 1990s pushed companies to adopt supply chain management rather than an integrated logistics concept. The purchasing function has moved away from short-term tactics and become a strategic element involving long-term planning with the supply chain management approach. With the emergence of the concepts of supply chain and supply chain management, the need to minimize costs, storage, and timely distribution, as well as supplier selection and establishing good relationships with suppliers through supply chain management, has come to the fore. The rapid advancement of technology and increased global competition since the 2000s have caused businesses to face numerous problems, such as the need to quickly identify fluctuations in supply and demand, the need for up-to-date and accurate information, flexibility, and disruptions in process monitoring. The solution to these problems has been the transition to e-supply chain methods that provide high visibility, flexibility, full control, and speed (Trent and Monczka, 1998; Akturan, 2009; Wisner, Tan and Keong Leong, 2009).

Supply chains are essentially divided into three categories: the "Basic Supply Chain," which includes only the buyer, seller, and customer; the "Extended Supply Chain," which also includes the supplier's suppliers and distributors; and finally, the "Top-Level Supply Chain," which also includes third-party suppliers and financing providers. This distinction is illustrated in Figure 1.

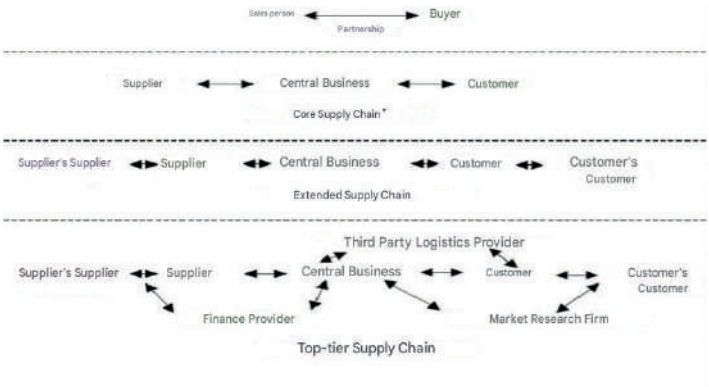


Figure 1: Supply Chain Structure

Source: Eymen, 2007

The primary objective of supply chain management is to meet customer demands by utilizing external resources through strategic decisions (Siddiqui, Abbas, Idrees, Khan, Minhas, 2022). Other objectives of supply chain management are as follows (Özdemir, 2004):

- Increase customer satisfaction,
- Reduce cycle time,
- Ensure the reduction of inventory and inventory-related costs,
- Reduce product defects,
- Reduce operating costs

In line with all these objectives, supply chain management encompasses certain processes. Supply chain management processes are considered to be eight processes that are generally accepted and defined by members of the Global

Supply Chain Forum. These are (Croxton, García-Dastugue, Lambert and Rogers, 2001):

- Customer Relationship Management: Sheds light on developing relationships between businesses and their customers. It targets both existing customers and customers the business wishes to reach. Efforts are made to increase the loyalty of existing customers and attract potential customers to the business (Reinartz, Krafft and Hoyer, 2004; Lambert, 2008).
- Customer Service Management: This is the process where the business and the customer interact directly. Information such as the status of the order, delivery time, and condition of the product is communicated directly to the customer. This information is conveyed to customers through interfaces created by the companies. It is also a process responsible for agreements made with customers (Karasu, 2006).
- Demand Management: Businesses plan their production activities to determine the quantities of products expected to be produced in the future or that need to be produced now. To do this, demand for the product must first be determined. Demand is determined by conducting market research. This process can also be used as a precaution against potential future fluctuations in demand (Öztürk, 2016).
- Order Processing: This involves designing the logistics network, meeting customer expectations, and fulfilling orders. It requires integrated manufacturing, logistics, and planning activities (Dinçer, 2009).
- Manufacturing Flow Management: This involves the production of goods and their delivery to the target market. It encompasses the planned execution of necessary production in a specific flow to meet customer

demands and needs. The goal is to determine production capabilities and optimize them for the best possible delivery to the customer (Ciravoğlu, 2006).

- Supplier Relationship Management: This is of critical importance in terms of business operations. A well-established network of relationships with suppliers means cost efficiency, increased effectiveness, facilitating technological developments, and increased competition in the market for companies (Sheth and Sharma, 1997). Supplier relationships directly affect company performance (Gadde and Snehota, 2000). The supplier's contribution to the company's core competencies and competitive advantage should be taken into account (Dyer, Cho and Cgu, 1998). Handfield and Nichols (1999) state that a single mistake in supply chain relationship management can affect all supply chain members, adding that "without effective supply chain organizational relationships, any effort to manage the flow of information or materials throughout the supply chain is likely to fail." Supplier selection is extremely important for effective supply chain relationship management. Appropriate supplier selection and evaluation can be performed using multi-criteria decision-making techniques, mathematical programming, artificial intelligence, expert systems, and multivariate statistical analysis methods (Özdemir, 2007).
- Product Development and Commercialization: This involves developing new products and presenting them in the most appropriate way to reach the target market. The most critical point in this process is being able to enter the market on time. It plays a key role in maintaining companies' competitive advantages (Özdemir, 2004).

- Returns Management: Similar to other processes, it is essential for a sustainable competitive advantage (Lambert and Cooper, 2000). It involves the collection of returns, testing and sorting processes, and examining reusability and recyclability features (Öztürk, 2016).

In conclusion, supply chain management is a holistic structure that encompasses not only the movement of goods and services but also many critical elements, from customer relationships to supplier collaborations, from production flow to return processes. These eight basic processes defined by the Global Supply Chain Forum provide a guiding framework for increasing the competitiveness of enterprises, ensuring customer satisfaction and achieving sustainable growth. Therefore, effective supply chain management becomes a strategic element that directly determines both operational efficiency and long-term success in dynamic sectors like restaurants.

2.2. Supplier Selection and Supplier Selection Criteria

Supplier selection is an important part of the supply chain management process. Supplier management plays a significant role in achieving the company's goals. Factors such as the quality of raw materials provided by the supplier, delivery date, and supply conditions can directly affect the final product and shape the expectations of the company's customers (Gökalp and Soylu, 2010). Globalization and the resulting increase in global competition, changing commercial practices worldwide, environmental sensitivity, shorter product life cycles, and accelerated new product development processes, increased product complexity, consumers' growing quality awareness, technological developments leading to increased customer demands, and

similarly evolving competitive environments with rising customer expectations and demands compel businesses to enter into long-term strategic agreements with suppliers and manage an effective supplier selection process (Jain, Wadhwa and Deshmukh, 2006).

The supplier selection process consists of five stages. The first stage is determining the company's objective. The company must decide what type, quality, and form of raw material it wishes to purchase. Next, potential supplier pools should be created, and supplier evaluation criteria should be determined based on the company's objective and the expected characteristics of the raw material. For each criterion determined, the suppliers in the supplier pool must be reviewed and evaluated. This evaluation stage is important to avoid undesirable results; therefore, an appropriate evaluation method must be selected. After all these steps, the supplier selection can be finalized. Figure 2 shows these stages.

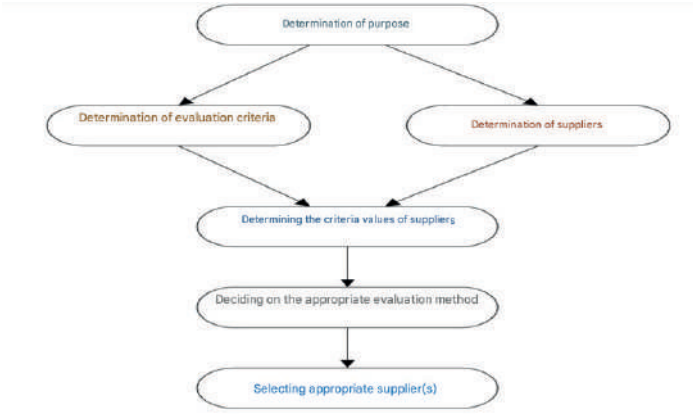


Figure 2: Supplier Selection Process

Source: Gökalp and Soylu, 2010

Dickson (1966), who conducted one of the first studies in the literature on supplier selection, identified 23 important criteria for supplier selection in his study. The most important of these criteria was quality, followed by delivery, performance history, warranty and claim policies, production facilities and capacity, price, technical competence, and financial condition as relatively important criteria. Procedural compliance, communication system, reputation and position in the industry, willingness to do business, management and organization, operational controls, repair and service, attitude, impression, packaging capability, history of labor relations, geographic location, past business volume, and training assistance are considered moderately important, and finally, mutual agreements are considered slightly important criteria (Dickson, 1966). Subsequently, in their 1991 study, Webber, Current and Benton examined 74 articles written between 1966 and 1991 on supplier selection and concluded that the most important criteria were quality, delivery, and pricing. Based on studies currently available in the literature, it is possible to say that the most important criteria are still cost, quality, and delivery (Akyüz, 2012).

Establishing a pool of suppliers that meet the specified criteria is crucial for conducting an effective supplier selection process. After evaluating potential suppliers based on the selected criteria, the next key step in the process is determining the supplier selection method. Suppliers can be selected using methods such as listing, ranking, and scoring, or multi-criteria decision-making methods such as AHP, ANP, Electre, Promethee, Data Envelopment Analysis, and VIKOR, and fuzzy logic applied to these multi-criteria decision-making methods (Güner, 2005; Sarıoğlan, 2016). Multi-criteria decision-making methods are algorithms developed to facilitate decision-making on complex issues

involving numerous criteria. If all the information about the situation is known and the accuracy of this information is certain, classical multi-criteria decision-making methods are used; if all the information about the situation is not known and the information obtained is not clear, fuzzy logic is adapted to multi-criteria decision-making methods and used (Dalbudak and Rençber, 2022).

The fact that raw materials form the basis of many products, the need to ensure that investments in suppliers do not result in losses, the necessity to protect customer expectations and corporate image, and the desire to maintain existence in an increasingly competitive environment make supply chain management and, consequently, supplier selection extremely important (Ecer and Küçük, 2008). Supplier selection has become a strategic management element rather than merely a cost-focused decision. Adopting an effective supplier selection process enhances businesses' ability to adapt to changing conditions and provides them with numerous benefits.

2.3. Game Theory

Game Theory is a mathematical approach that describes and analyzes situations of conflict, cooperation and coordination (Gächter, 2004). Game theory, which helps make decisions and set strategies in the face of uncertainty, is used to solve problems where there is a conflict of interest between decision-makers (Şahin and Miran, 2008).

Game theory comes into play when individuals' strategies depend on the decisions of other individuals (players). Even in daily life, every individual interacts with other individuals. Individuals make decisions based on the behavior of those around them. In this decision-making process, individuals can develop cooperation with others around them or

enter into conflict. Therefore, any situation in which individuals interact can fall within the scope of game theory (Yalçıntaş, 2015). For example, each driver on the road has a destination they want to reach. A traffic jam causing drivers to choose another route means that their decisions are influenced by the decisions of other drivers. Or, if there are only two butchers in a town, both butchers know that the prices they set, and therefore the money they earn, will depend on the prices of the rival butcher. On a larger scale, for example, all countries in the world consume fossil fuels for various reasons. This increases carbon emissions. Carbon emissions can lead to global warming, affecting every living thing on Earth. While some countries choose to implement environmental policies to reduce carbon emissions, other countries may continue to consume fossil fuels in order to sustain economic growth. When this is the case, countries that continue to consume fossil fuels may get ahead of environmentally friendly countries in industrial competition, but if every country continues to consume fossil fuels, all countries may lose in the long run. As a result of this mutual interaction and conflict of interests, each country is affected by the decisions of other countries and may become dependent on each other in this situation. The only common point in all these situations is that the players are dependent on each other. Therefore, game theory can be described as an applied branch of mathematics that examines conflicts involving mutual strategic decision-making, where the strategies of decision-makers depend on the strategies of other decision-makers (Kural, 2007). Blaise Pascal explains reasoning with game theory with the following words:

"*There are really only two possibilities: either God exists, or He does not. There are two choices: you either believe in God, or you do not. If you believe, you try to be a good person and deprive yourself of certain blessings in the name of God. If you*

don't believe, you behave and live as you wish. If God does not exist and you don't believe, so much the better. If God exists and you don't believe, you're doomed. If God does not exist but you believe he does, the restricted life you lead is wasted. If God exists and you believe, even if you lead a somewhat restricted life in this world, the eternal reward is yours." (cited by Kural, 2007). In game theory, each move is assigned a certain value, and even under the worst conditions, the strategy with the highest value is chosen.

Every game has three elements. These are the players, the strategy, and the payoff or reward. The player is the decision-making element within a game. Depending on the nature of the game, these players can be individuals, companies, governments, etc. The important thing here is that there are two or more players and that each player in the game aims to achieve the best possible outcome for themselves (Keskin, 2009). Strategy refers to the choices available to each player. Players' strategies may change and evolve depending on the course of the game. Strategy must have three characteristics: completeness, certainty, and alternative choices. Strategies must be fully related to the games, determined within the framework of the game's requirements rather than randomly, and open to alternatives in the event of any adverse circumstances (Gacar, 2021). Gains or payments represent the outcomes that may occur in the game environment. Situations such as winning, losing, or withdrawing from the game are negative, positive, or zero, and the proportional and mathematical expression of players' gains or payments (losses) is included in this element (Demirci, 2019). One of the most famous examples of game theory is the Prisoner's Dilemma phenomenon (Güney and Bahçekapılı, 2010). According to this, the police arrest two prisoners for a simple crime but suspect that the two people they have arrested may have actually committed a

more serious crime. The police cannot bring the suspects to court due to insufficient evidence. Therefore, the police offer the criminals two options: to confess to their crimes or not to confess. If neither confesses, they will receive a short prison sentence for the minor crime they committed. If both confess, both suspects will receive a medium prison sentence. However, if one confesses and the other does not, the suspect who confesses will receive a much smaller sentence, while the suspect who does not confess will receive a larger sentence (Günör, 2020; Yenisoy and Hassan, 2024). Figure 3 shows the possible strategies and outcomes.

Prisoner A	Prisoner B: **Don't confess**	Prisoner B: **Confess**
Don't confess	Both 1 year	Prisoner A 10 years Prisoner B 3 months
Confess	Prisoner A 3 months Prisoner B 10 years	Both 8 years

Figure 3: Prisoner's Dilemma

Source: Uçan, 2008

Each suspect is a player. Both players want the best outcome for themselves. The decisions the suspects make are strategies. However, each suspect's strategy depends on the other suspect's strategy. The best outcome for the suspects is to receive the shortest prison sentence possible, which means confessing, but being certain that the other party will not confess. In this situation, the suspects can choose to cooperate or confess. The value they assign to each outcome determines their decision, which can be a gain

or a loss. This phenomenon is a perfect example of game theory because it encompasses all its elements.

Looking at the historical development of Game Theory, it is evident that the logic in question was actually applied by people long before. The logic of the marriage contract contained in the Talmud, a book of rules written in 500 AD with the aim of regulating the social life of the Babylonians, remained incomprehensible for many years, but it was later seen that this marriage contract contained a game theory logic based entirely on cooperation. In the ongoing process, some studies were conducted on strategic thinking, especially for military interests. Sun Tzu's scrolls entitled The Art of War are an example of this (Genç and Kadah, 2018). The logic of game theory was seen in the correspondence between Blaise Pascal and Pierre de Fermat in 1654 on probability and risk (Şahin and Eren, 2012), but the real foundations of game theory were laid by observing people's strategy and chance games. In 1913, Zermelo studied the game of chess and defined a game structure stating that either white or black wins, otherwise it is a draw, and this situation later became known as the "Zermelo Theorem" (Turgut and Uçan, 2022). The first application of game theory was proposed by Emile Borel in 1927 using the minimax principle. In 1938, Augustin Cournot's work emphasized that in order for one of the parties, a company, to maximize its profits, it must take into account the supply quantities of the other parties, thus introducing game theory into the field of economics (Muntaş, 2023). In 1944, Von Neumann and Morgenstern conceptualized game theory for the first time in their book "Game Theory and Economic Behavior" and defined possible solutions for two-person zero-sum games. Subsequently, John Nash pioneered Game Theory with his doctoral thesis titled "Non-Cooperative Games" and his work between 1950 and 1954, developing

the concept of "Nash Equilibrium," which defines a balance point where each player makes the best decision and no one wants to change their decision. John Nash was awarded the Nobel Prize in Economics for his contributions to Game Theory (Yalçıntaş, 2015; Muntaş, 2023). Today, the concept of Game Theory is used in many disciplines, from economics to sociology, psychology to biology. In their study, Bekmez and Çalış (2011) examined the direction of credit usage between the banking sector and various customer types in Turkey under asymmetric, i.e., uncertain, information, within the framework of game theory rules. They concluded that Nash Equilibrium would be achieved when banks grant credit to customers with the ability to pay and customers repay the credit they receive on time. It was observed that all equilibria outside this equilibrium would have negative consequences for the banking sector. Köse (2014), in their study aimed at demonstrating that financial sanctions, which any state or group of states can impose on another state or group of states without the use of military force, can be examined within a "game theory" framework, determined that a combination of strategies developed by the sanctioning country and the target country could lead to a balanced strategy. On the other hand, Deniz and Akbaşlı (2018), in their study aimed at testing the applicability of game theory in educational organizations, concluded that education is generally a state monopoly and therefore not a suitable field for the application of the theory, as it is far removed from concepts that could create conflict, such as profit-loss, cost, and competition. Özer and Özçelik (2010), in their work, aimed to maximize profits for producers by determining the best time to sell harvested cotton products using game theory logic. In a study conducted by Asoy (2018), game theory logic was applied to an example case to overcome the glass ceiling syndrome that women may

experience in their professional lives. The study sought to find a balance where women both break the glass ceiling and earn profits, and discussed the conditions necessary for this balance to exist.

The literature also contains some examples of the use of game theory in supplier selection processes from various perspectives. In a study by Hoş and Demirer (2022), different buyer-supplier games were designed by defining various scenarios specific to a business. In this study, which particularly considers competitive strategies, the main objective is to adapt the applicability of game theory to supplier selection. Similarly, Canlı and Aplak (2016) addressed a supply chain management application specific to the defense industry within the framework of uncertainty using game theory methods, ensuring that the parties made decisions within the framework of game theory based on predetermined strategies and priorities. Mohammaditabar, Ghodsypour and Hafezalkotob (2016) designed both cooperative and non-cooperative games in the supplier selection process within scenarios based on the total costs of both the buyer and the seller. Lau, Shum, Nakandala, Fan and Lee (2020) developed a game theory model to monitor transparency among organic fruit suppliers from a different perspective. Rzeczycki (2022) used game theory methods for supplier selection in his study but concluded that the outcome of the process is directly linked to the decision-maker's personality. Mediavilla, Mendibil and Bernardos (2021) pointed out that game theory applications in supplier selection processes are mostly carried out using basic and simple resources, and therefore the effects they would have on the supply of complex products requiring more layers and care are not yet known. They constructed a game theory scenario for complex products specific to an automotive company and concluded that this method

enables faster and more robust progress within the process, greatly simplifying it.

As mentioned in the previous paragraph, it has been concluded that game theory facilitates and accelerates the supplier selection process in different sectors, is suitable for use in uncertain and complex situations, and is applicable in all of these cases. However, no game theory model has been found in the literature that has been applied to a supplier selection process in restaurants. In the following sections, the applicability of game theory in effective supplier selection processes for restaurants will be tested using a scale developed by researchers, and the results will be evaluated.

CHAPTER 3

3. Method

The purpose of this study is to test the applicability of game theory in conducting an effective supplier selection process specifically for restaurants. In line with this objective, the study has been designed within the framework of a quantitative research design. The purpose of quantitative research is to determine the relationships between phenomena and understand the nature of these phenomena. Data defined by numerical expressions can be statistically meaningful, proving the reliability of the data. Furthermore, in quantitative research, hypotheses determined by the researcher can be tested, and precise definitions can be made (Garip, 2023).

A comprehensive literature review was conducted, covering both domestic and foreign sources and documents previously published on the subject. Literature review fills gaps and deficiencies, expands and enriches previous studies, eliminates studies previously conducted with the same perspective and method, enables the identification of opposing and concurring views, and finally adds depth to the research (Demirci, 2014).

In the study, the survey design (questionnaire method) was used as the data collection technique among quantitative research methods. The "Survey on the Applicability of Game Theory in Effective Supplier Selection in Restaurants," developed by the researchers for data collection purposes, was used as the data collection tool. The questionnaire was administered to restaurant managers in Istanbul, Izmir, Ankara, and Antalya. The data obtained were analyzed using the SPSS statistical analysis package in accordance with the research design and nature of the study. The results obtained from the analyses were evaluated in line with the purpose of the study.

The population of the study consists of restaurant managers located in the provinces mentioned above. A sample group was created from the population using simple random sampling. Given that the deviation value is .05 and the population size is 100,000 or more, the sample must consist of at least 384 participants (Köklü, Büyüköztürk and Çokluk, 2007; Neuman and Robson, 2014). Therefore, the study was conducted with 396 participants.

CHAPTER 4

4. Hypotheses

H_1: There is a statistically significant difference between the operating periods of businesses and their views on game theory.

H_2: There is a statistically significant difference between the number of products on business menus and views on game theory.

H_3: There is a statistically significant difference between businesses' raw material purchasing cycles and their views on game theory.

H_4: There is a significant positive difference between businesses with shorter raw material procurement cycles and views on game theory.

H_5: The number of products on a business's menu affects their ultimate goal of purchasing products at the best price.

H_6: Participants who are certain that the final objective decided upon before starting the supplier selection process is the most appropriate decision for the represented business

do not change their final objectives in response to situations encountered during the process.

H_7: Participants who have made their final decision before the supplier selection process begins can also collaborate with the supplier during the process.

H_8: Participants who anticipate every possible outcome in the supplier selection process also assign a value (acceptable, unacceptable, no impact, etc.) to each possible outcome in advance.

CHAPTER 5

5. Analyses and Findings

Cronbach's Alpha reliability test was applied to test the reliability of the scale. As a result of the test, the reliability coefficient of the scale was determined to be 0.73. Considering that the accepted range for Cronbach's Alpha reliability coefficient is 0.70-0.90 (Uzunsakal and Yıldız, 2018; Adeniran, 2019), the scale was considered reliable.

Table 1. Reliability Analysis

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,737	,718	12

After confirming the reliability of the scale, factor analysis was conducted to determine its validity. The KMO test showed that the sample size was appropriate for factor analysis, and the Bartlett sphericity test showed that the correlation between items was sufficient. The scale was found to be suitable for factor analysis. The test results showed that the scale had a validity of 63%.

Table 2. KMO and Barlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,806
Bartlett's Test of Sphericity	Approx. Chi-Square	1206,968
	df	66
	Sig.	,000

Table 3. Exploratory Factor Analysis

Extraction Sums of Squared Loadings		
Total	% of Variance	Cumulative %
3,564	29,699	29,699
1,790	14,916	44,615
1,251	10,427	55,042
1,026	8,549	63,591

Exploratory Factor Analysis (EFA) revealed that the scale has 4 distinct factors, with these 4 factors contributing to the total explained variance at rates of 29.69%, 14.91%, 10.42%, and 8.54%, respectively. The table below shows the factors to which the items belong and their factor loadings.

Table 4. Factor Loads

Items	Factor 1	Factor 2	Factor 3	Factor 4
I1	,772			
I2	,666			
I3	,818			
I4	,797			
I5	,762			
I6				,975
I7		,731		
I8			,794	
I9		,777		
I10				
I11			,769	
I12		,715		

The first sub-dimension consists of items 1, 2, 3, 4, and 5; the second sub-dimension consists of items 7, 9, and 12; the third sub-dimension consists of items 8 and 11; and finally, the fourth sub-dimension consists of item 6. Item 10 was found not to belong to any sub-dimension. As a result, the first sub-dimension was named the goal-oriented approach, the second sub-dimension the strategy and interest-oriented approach, the third sub-dimension the proactive flexible approach, and finally, the fourth sub-dimension the collaborative approach.

Normality tests were applied to determine whether the statements on the scale showed a homogeneous distribution. Normality tests are important in determining whether to use parametric or nonparametric analysis methods in subsequent analyses. Skewness and kurtosis values are used to determine the normality of the scales. There are different opinions on these values, such as that they should be between +1.0 and -1.0 (Huck, 2012) or that they should not be greater than 2 (Kim, 2013). Since the Skewness and Kurtosis values of the scale used in the study met the normality criteria, it was deemed appropriate to continue the analyses with parametric tests.

Table 5. Normality Analysis

		Statistic	Std. Error
toport	Mean	3,9478	,02253
	Skewness	-,602	,123
	Kurtosis	,170	,245

Descriptive analyses were conducted to determine the participants' descriptive characteristics. The table below contains descriptive information about the participants.

Table 6. Descriptive Characteristics of the Participants

Duration of the business's operations	n	%
0-5 years	7	1,8
6-10 years	22	5,6
11-20 years	85	21,5
21-30 years	143	36,1
31 years and over	139	35,1
Number of products on the establishment's menu	n	%
1-20	8	2,0
21-40	24	6,1
41-60	68	17,2
61-80	132	33,3
81 and above	164	41,4
The frequency of raw material purchases by the business	n	%
Hourly	65	16,4
Daily	100	25,3
Weekly	59	14,9
Monthly	118	29,8
Annual	54	13,6

The majority of participants stated that the duration of their companies' operations ranged from 21-30 years to 31 years and above, that the number of products on their companies' menus ranged from 61-80 items to 81 items and above, and finally that their companies' raw material purchasing cycles varied between daily and monthly.

One-Way ANOVA tests were applied to test the hypotheses and understand the relationship between the responses to the scale statements and the descriptive frameworks. The ANOVA test examining the operating periods of the companies and their participation in the scale statements is shown below.

Table 7. ANOVA Results of the Differences Between Game Theory Views of Businesses According to Their Operating Duration

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	32,133	4	8,033	66,499	,000
Within Groups	47,233	391	,121		
Total	79,366	395			

The results of the ANOVA test show that there is a statistically significant difference between the length of time participants have been working at their companies and their views on game theory. H1 is accepted. A post-hoc test was conducted to understand which groups exhibit this difference.

Table 8. Post-Hoc Analysis of Differences Between Activity Duration Groups

Multiple Comparisons

Dependent Variable: toport

Tukey HSD

(I) What is the operating period of the business?	(J) What is the operating period of the business?	Mean Difference (I-J)	Sig.
0-5 years	6-10 years	-,23810	,512
	11-20 years	-,68025*	,000
	21-30 years	-,98926*	,000
	31 years and above	-1,19493*	,000
6-10 years	0-5 years	,23810	,512
	11-20 years	-,44216*	,000
	21-30 years	-,75117*	,000
	31 years and above	-,95683*	,000

11-20 years	0-5 years	,68025*	,000
	6-10 years	,44216*	,000
	21-30 years	-,30901*	,000
	31 years and over	-,51468*	,000
21-30 years	0-5 years	,98926*	,000
	6-10 years	,75117*	,000
	11-20 years	,30901*	,000
	31 years and over	-,20567*	,000
31 years and over	0-5 years	1,19493*	,000
	6-10 years	,95683*	,000
	11-20 years	,51468*	,000
	21-30 years	,20567*	,000

*. The mean difference is significant at the 0.05 level.

The results of the data obtained show that there has been a positive increase in views on game theory with an increase in the duration of business activities. In order to determine the approach to the sub-dimensions of the scale with the duration of business activities, another ANOVA and post hoc test were applied to the sub-dimensions of the scale.

Table 9. ANOVA Results of the Differences Between the Operating Periods of the Businesses and Scale Sub-Dimensions

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	101,276	4	25,319	79,446	,000
Within Groups	124,610	391	,319		
Total	225,886	395			
Between Groups	5,687	4	1,422	6,314	,000
Within Groups	88,040	391	,225		
Total	93,727	395			
Between Groups	7,615	4	1,904	7,833	,000
Within Groups	95,029	391	,243		
Total	102,643	395			
Between Groups	119,588	4	29,897	39,752	,000
Within Groups	294,069	391	,752		
Total	413,657	395			

Following the ANOVA test, a post-hoc test was applied upon finding a significant difference between the operating periods of the businesses and the sub-dimensions of the scale.

Table 10. Post-Hoc Analysis of Differences in Scale Sub-Dimensions Among Activity Duration Groups

Multiple Comparisons

Dependent Variable: toport

Tukey HSD

(I) What is the operating period of the business?	(J) What is the operating period of the business?	Mean Difference (I-J)	Sig.
0-5 years	6-10 years	-,54416	,174
	11-20 years	-1,54319*	,000
	21-30 years	-2,10849*	,000
	31 years and over	-2,26639*	,000
6-10 years	0-5 years	,54416	,174
	11-20 years	-,99904*	,000
	21-30 years	-1,56434*	,000
	31 years and over	-1,72224*	,000
11-20 years	0-5 years	1,54319*	,000
	6-10 years	,99904*	,000
	21-30 years	-,56530*	,000
	31 years and over	-,72320*	,000
21-30 years	0-5 years	2,10849*	,000
	6-10 years	1,56434*	,000
	11-20 years	,56530*	,000
	31 years and over	-,15790	,132
31 years and over	0-5 years	2,26639*	,000
	6-10 years	1,72224*	,000
	11-20 years	,72320*	,000
	21-30 years	,15790	,132

0-5 years	6-10 years	,05411	,999
	11-20 years	,24146	,695
	21-30 years	,19980	,813
	31 years and over	-,03494	1,000
6-10 years	0-5 years	-,05411	,999
	11-20 years	,18734	,466
	21-30 years	,14569	,666
	31 years	-,08906	,925
11-20 years	0-5 years	-,24146	,695
	6-10 years	-,18734	,466
	21-30 years	-,04166	,968
	31 years and over	-,27640*	,000
21-30 years	0-5 years	-,19980	,813
	6-10 years	-,14569	,666
	11-20 years	,04166	,968
	31 years and over	-,23474*	,000
31 years and over	0-5 years	,03494	1,000
	6-10 years	,08906	,925
	11-20 years	,27640*	,000
	21-30 years	,23474*	,000
0-5 years	6-10 years	,29221	,650
	11-20 years	,37563	,299
	21-30 years	,24675	,696
	31 years and over	,02569	1,000
6-10 years	0-5 years	-,29221	,650
	11-20 years	,08342	,955
	21-30 years	-,04545	,994
	31 years and over	-,26651	,130
11-20 years	0-5 years	-,37563	,299
	6-10 years	-,08342	,955
	21-30 years	-,12888	,314
	31 years and over	-,34994*	,000
21-30 years	0-5 years	-,24675	,696
	6-10 years	,04545	,994
	11-20 years	,12888	,314
	31 years and over	-,22106*	,002
31 years and over	0-5 years	-,02569	1,000
	6-10 years	,26651	,130
	11-20 years	,34994*	,000
	21-30 years	,22106*	,002

0-5 years	6-10 years	-,64935	,419
	11-20 years	-1,79160*	,000
	21-30 years	-2,20180*	,000
	31 years and over	-2,58787*	,000
6-10 years	0-5 years	,64935	,419
	11-20 years	-1,14225*	,000
	21-30 years	-1,55245*	,000
	31 years and over	-1,93852*	,000
11-20 years	0-5 years	1,79160*	,000
	6-10 years	1,14225*	,000
	21-30 years	-,41020*	,006
	31 years and over	-,79628*	,000
21-30 years	0-5 years	2,20180*	,000
	6-10 years	1,55245*	,000
	11-20 years	,41020*	,006
	31 and over	-,38607*	,002
31 years and over	0-5 years	2,58787*	,000
	6-10 years	1,93852*	,000
	11-20 years	,79628*	,000
	21-30 years	,38607*	,002

*. The mean difference is significant at the 0.05 level.

The results of the post-hoc analysis show that as the duration of business operations increases, the tendency toward the first sub-dimension, which is the goal-oriented approach, and the fourth sub-dimension, which is the collaborative approach, also increases. Businesses with 31 years or more of activity show a greater tendency toward the second sub-dimension, strategy and interest-focused approach, and the third sub-dimension, forward-looking flexible approach, compared to businesses with 11-20 years and 21-30 years of activity.

An ANOVA test was conducted to examine the participation rates of businesses in the number of products and scale statements on their menus. Upon observing a significant difference between the two contexts, H2 was accepted.

Table 11. ANOVA Analysis of Differences Between Number of Items on the Menu and Agreement with Scale Statements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24,787	4	6,197	44,393	,000
Within Groups	54,579	391	,140		
Total	79,366	395			

A post-hoc test was performed upon observing a difference between groups. The results obtained from the test are as follows.

Table 12. Post-Hoc Analysis of Differences in Scale Expressions Among the Number of Items in the Menu

Multiple Comparisons

Dependent Variable: toport

Tukey HSD

(I) How many items are on the establishment's menu?	(J) How many items are on the establishment's menu?	Mean Difference (I-J)	Sig.
1-20	21-40	-,36111	,127
	41-60	-,36887	,065
	61-80	-,77967*	,000
	81 and above	-,95224*	,000
21-40	1-20	,36111	,127
	41-60	-,00776	1,000
	61-80	-,41856*	,000
	81 and above	-,59112*	,000
41-60	1-20	,36887	,065
	21-40	,00776	1,000
	61-80	-,41080*	,000
	81 and above	-,58336*	,000
61-80	1-20	,77967*	,000
	21-40	,41856*	,000
	41-60	,41080*	,000
	81 and above	-,17256*	,001

81 and above	1-20	,95224*	,000
	21-40	,59112*	,000
	41-60	,58336*	,000
	61-80	,17256*	,001

*. The mean difference is significant at the 0.05 level.

The results of the data obtained show that as the number of products on the menus of businesses increases, there is also a positive increase in views related to game theory. In order to determine the relationship between the number of products on the menus of businesses and their approach to the sub-dimensions of the scale, another ANOVA and post hoc test were applied to the sub-dimensions of the scale.

Table 13. ANOVA Results of Differences in Scale Sub-Dimensions According to the Number of Products in the Menu Groups

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	94,711	4	23,678	70,577	,000
Within Groups	131,176	391	,335		
Total	225,886	395			
Between Groups	,276	4	,069	,289	,885
Within Groups	93,451	391	,239		
Total	93,727	395			
Between Groups	2,216	4	,554	2,157	,073
Within Groups	100,427	391	,257		
Total	102,643	395			
Between Groups	87,326	4	21,831	26,158	,000
Within Groups	326,331	391	,835		
Total	413,657	395			

Following the ANOVA test, a Post-hoc test was applied upon observing a significant difference between the number

of products on the menus of the establishments and the first and fourth sub-dimensions.

Table 14. Post-Hoc Analysis of Differences in Scale Sub-Dimensions Among Product Number Groups

Multiple Comparisons

Tukey HSD

(I) How many items are on the establishment's menu?	(J) How many items are on the establishment's menu?	Mean Difference (I-J)	Sig.
1-20	21-40	-,60833	,077
	41-60	-,67941*	,016
	61-80	-1,47879*	,000
	81 and above	-1,81220*	,000
21-40	1-20	,60833	,077
	41-60	-,07108	,986
	61-80	-,87045*	,000
	81 and above	-1,20386*	,000
41-60	1-20	,67941*	,016
	21-40	,07108	,986
	61-80	-,79938*	,000
	81 and above	-1,13278*	,000
61-80	1-20	1,47879*	,000
	21-40	,87045*	,000
	41-60	,79938*	,000
	81 and above	-,33341*	,000
81 and above	1-20	1,81220*	,000
	21-40	1,20386*	,000
	41-60	1,13278*	,000
	61-80	,33341*	,000

1-20	21-40	-1,54167*	,000
	41-60	-1,47059*	,000
	61-80	-2,24242*	,000
	81 and above	-2,40244*	,000
21-40	1-20	1,54167*	,000
	41-60	,07108	,998
	61-80	-,70076*	,005
	81 and above	-,86077*	,000
41-60	1-20	1,47059*	,000
	21-40	-,07108	,998
	61-80	-,77184*	,000
	81 and above	-,93185*	,000
61-80	1-20	2,24242*	,000
	21-40	,70076*	,005
	41-60	,77184*	,000
	81 and above	-,16001	,564
81 and above	1-20	2,40244*	,000
	21-40	,86077*	,000
	41-60	,93185*	,000
	61-80	,16001	,564

*. The mean difference is significant at the 0.05 level.

Based on the results obtained, an increase in the number of products on the menu of businesses leads to an increase in their tendency towards the first sub-dimension, the goal-oriented approach, and the fourth sub-dimension, the collaborative approach.

An ANOVA test was conducted to examine the participation status of businesses in raw material purchasing cycles and scale statements. Upon observing a significant difference between the two contexts, H3 was accepted.

Table 15. ANOVA Test of Differences Between Purchase Cycle Groups and Agreement with Scale Statements

toport

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10,694	4	2,674	15,222	,000
Within Groups	68,672	391	,176		
Total	79,366	395			

A post-hoc test was performed upon observing a difference between groups. The results obtained from the test are as follows.

Table 16. Post-Hoc Analysis of Differences in Scale Expressions Among Purchase Cycle Groups

Multiple Comparisons

Dependent Variable: toport

Tukey HSD

(I) What is your raw material purchasing cycle?	(J) What is your raw material purchasing cycle?	Mean Difference (I-J)	Sig.
Hourly	Daily	-,09385	,624
	Weekly	-,15328	,252
	Monthly	-,36303*	,000
	Yearly	-,46650*	,000
Daily	Hourly	,09385	,624
	Weekly	-,05944	,910
	Monthly	-,26918*	,000
	Yearly	-,37265*	,000
Weekly	Hourly	,15328	,252
	Daily	,05944	,910
	Monthly	-,20975*	,016
	Yearly	-,31322*	,001

Monthly	Hourly	,36303*	,000
	Daily	,26918*	,000
	Weekly	,20975*	,016
	Yearly	-,10347	,561
Yearly	Hourly	,46650*	,000
	Daily	,37265*	,000
	Weekly	,31322*	,001
	Monthly	,10347	,561

*. The mean difference is significant at the 0.05 level.

A positive increase has also been observed in views on game theory with the lengthening of the raw material purchasing cycle. H4 has been rejected. An ANOVA test was reapplied to the sub-dimensions of the scale in order to determine the approach of businesses to the sub-dimensions of the scale with their raw material purchasing cycles.

Table 17. ANOVA Analysis of Differences Between Raw Material Purchasing Cycles and Scale Sub-Dimensions

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	36,898	4	9,224	19,084	,000
Within Groups	188,989	391	,483		
Total	225,886	395			
Between Groups	2,452	4	,613	2,626	,034
Within Groups	91,275	391	,233		
Total	93,727	395			
Between Groups	2,567	4	,642	2,508	,042
Within Groups	100,076	391	,256		
Total	102,643	395			
Between Groups	29,669	4	7,417	7,553	,000
Within Groups	383,987	391	,982		
Total	413,657	395			

Following the ANOVA test, a Post-Hoc test was applied upon observing a significant difference between the raw material purchasing cycles of the companies and the first and fourth sub-dimensions.

Table 18. Post-Hoc Analysis of Differences in Scale Sub-Dimensions Among Raw Material Purchasing Cycle Groups

Multiple Comparisons

Tukey HSD

(I) What is your raw material purchasing cycle?	(J) What is your raw material purchasing cycle?	Mean Difference (I-J)	Sig.
Hourly	Daily	-,27262	,102
	Weekly	-,51750*	,000
	Monthly	-,76156*	,000
	Yearly	-,87054*	,000
Daily	Hourly	,27262	,102
	Weekly	-,24488	,203
	Monthly	-,48895*	,000
	Yearly	-,59793*	,000
Weekly	Hourly	,51750*	,000
	Daily	,24488	,203
	Monthly	-,24407	,181
	Yearly	-,35304	,056
Monthly	Hourly	,76156*	,000
	Daily	,48895*	,000
	Weekly	,24407	,181
	Yearly	-,10898	,875
Yearly	Hourly	,87054*	,000
	Daily	,59793*	,000
	Weekly	,35304	,056
	Monthly	,10898	,875

Hourly	Daily	-,14846	,881
	Weekly	-,31812	,384
	Montly	-,66558*	,000
	Yearly	-,68661*	,002
Daily	Hourly	,14846	,881
	Weekly	-,16966	,835
	Monthly	-,51712*	,001
	Yearly	-,53815*	,012
Weekly	Hourly	,31812	,384
	Daily	,16966	,835
	Monthly	-,34746	,182
	Yearly	-,36849	,280
Monthly	Hourly	,66558*	,000
	Daily	,51712*	,001
	Weekly	,34746	,182
	Yearly	-,02103	1,000
Yearly	Hourly	,68661*	,002
	Daily	,53815*	,012
	Weekly	,36849	,280
	Monthly	,02103	1,000

*. The mean difference is significant at the 0.05 level.

Businesses with weekly, monthly, and yearly cycles show a greater tendency toward the first sub-dimension, the goal-oriented approach, compared to businesses with hourly and daily cycles, and businesses with monthly and yearly cycles show a greater tendency toward this approach compared to businesses with daily cycles. On the other hand, businesses with monthly and yearly purchasing cycles are increasingly inclined toward the collaborative approach, the fourth sub-dimension, compared to businesses with hourly cycles.

Correlation and regression tests were performed to test the hypotheses. Simple linear regression analysis was applied to test hypothesis H5.

Table 19. Simple Regression Analysis Results for the Effect of Number of Products on the Menu on Final Purchase Intention

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2,313	,185		12,509	,000
	How many items are on the establishment's menu?	,364	,044	,383	8,232	,000

a. Dependent Variable: My ultimate goal in the supplier selection process is to purchase the products I want at the best price.

When the dependent variable is the statement "My ultimate goal in the supplier selection process is to purchase the products I want at the best price" and the independent variable is accepted as "the number of products on businesses' menus," a statistically significant difference is observed between the dependent and independent variables. The number of products on businesses' menus influences their decision to make purchasing products at the best price their ultimate goal. H5 is accepted.

Correlation analysis was performed to test hypotheses H6, H7, and H8.

Table 20. Correlation Analysis Results of the Relationship Between Decision Consistency and Objective Invariance in the Supplier Selection Process

		Before starting the supplier selection process, I make sure that the final goal I have decided on is the right decision for the business I represent.	The situations I encounter during the supplier selection process may cause me to change my ultimate goal.
Before starting the supplier selection process, I make sure that the final goal I have decided on is the right decision for the business I represent.	Pearson Correlation	1	,558**
	Sig. (2-tailed)		,000
	N	396	396
The situations I encounter during the supplier selection process may cause me to change my ultimate goal.	Pearson Correlation	,558**	1
	Sig. (2-tailed)	,000	
	N	396	396

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

Before starting the supplier selection process, a statistically significant difference was observed between participants who were certain that the final objective decided upon was the most appropriate decision for the represented business and participants who could change their final objectives based on situations encountered during the process. Participants who were certain that the final objective decided upon before starting the supplier selection process was the most appropriate decision for the represented business also changed their final objectives

based on situations encountered during the process. H6 is rejected.

Table 21. Correlation Analysis Results of the Relationship Between Final Decision Certainty and Supplier Collaboration Tendency

		Before starting the supplier selection process, I make a firm decision about what my ultimate goal is.	I can collaborate with the supplier using various strategies (such as negotiation) to achieve my ultimate goal.
Before starting the supplier selection process, I make a firm decision about what my ultimate goal is.	Pearson Correlation	1	-,032
	Sig. (2-tailed)		,524
	N	396	396
I can collaborate with the supplier using various strategies (such as negotiation) to achieve my ultimate goal.	Pearson Correlation	-,032	1
	Sig. (2-tailed)	,524	
	N	396	396

There was no statistically significant difference between participants who made a firm decision about their ultimate goal before starting the supplier selection process and participants who were able to collaborate with the supplier using various strategies (such as bargaining) to achieve their ultimate goal. Participants who make a definitive decision about their ultimate goal before starting the supplier selection process do not collaborate with the supplier using various strategies (such as bargaining) to achieve their ultimate goal. H7 is rejected.

Table 22. Correlation Analysis Results of the Relationship Between the Level of Forecasting Possible Process Outcomes and Outcome Evaluation Behaviors

		I consider every possible outcome that may arise during the supplier selection process in advance.	I assign a value (acceptable, unacceptable, no impact, etc.) to every possible outcome that may arise during the supplier selection process..
I consider every possible outcome that may arise during the supplier selection process in advance.	Pearson Correlation	1	,092
	Sig. (2-tailed)		,067
	N	396	396
I assign a value (acceptable, unacceptable, no impact, etc.) to every possible outcome that may arise during the supplier selection process.	Pearson Correlation	,092	1
	Sig. (2-tailed)	,067	
	N	396	396

There was no statistically significant difference between participants who considered every possible outcome in advance during the supplier selection process and those who assigned a value (acceptable, unacceptable, no impact, etc.) to every possible outcome in advance. Participants who consider every possible outcome in advance during the supplier selection process do not assign a value (acceptable, unacceptable, no impact, etc.) to every possible outcome in advance. H8 is rejected.

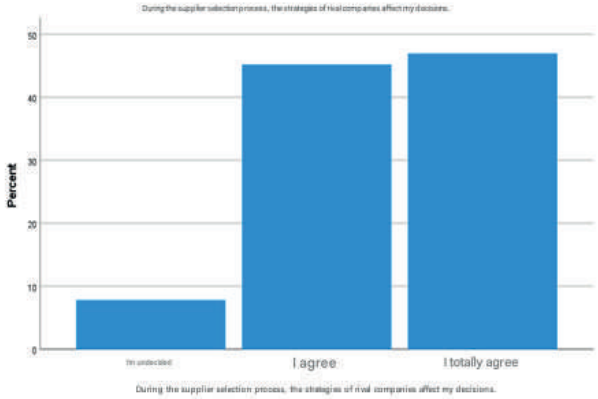
Frequency analyses of responses to scale statements were conducted to make generalizations about the sample. The

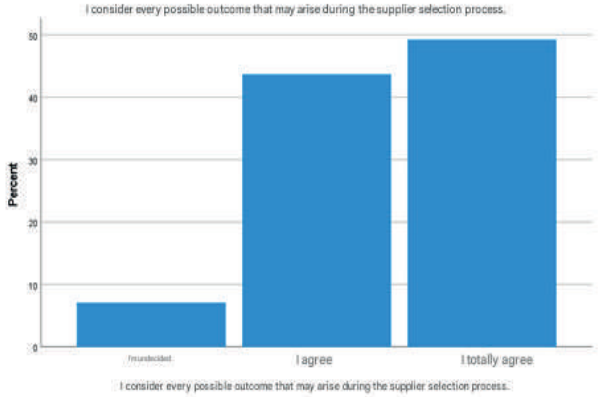
means of the statements were found to range from 2.78 to 4.42. It was understood that participants' views on game theory generally clustered under the "I agree" option.

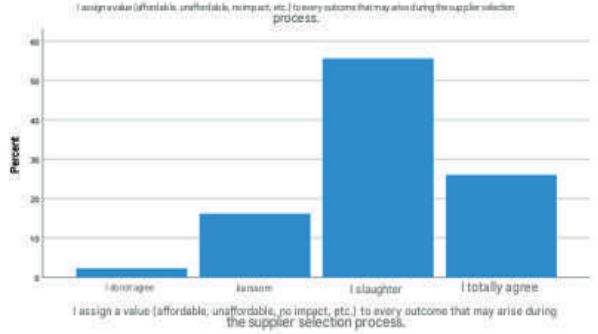
Table 23. Frequency Distribution of Expressions

*Items	1	2	3	4	5	6	7	8	9	10	11	12
Valid Percent	4,07	3,79	3,97	3,89	4,01	3,84	2,78	4,05	4,39	4,11	4,42	4,05

When the responses to the statements were analyzed individually, it was observed that the responses were concentrated on the options "I agree," "I am undecided," and "I strongly agree." Specifically, regarding the statements "Competitors' strategies influence my decisions in the supplier selection process" and "I consider every possible outcome in advance in the supplier selection process," none of the participants selected the options "disagree" or "strongly disagree." However, regarding the statement "I assign a value (acceptable, unacceptable, no impact, etc.)" more than half of the participants selected the "agree" option.


During the supplier selection process, the strategies of rival companies affect my decisions.
Percent
50
40
30
20
10
0
I'm undecided
I agree
I totally agree
During the supplier selection process, the strategies of rival companies affect my decisions.


I consider every possible outcome that may arise during the supplier selection process.
Percent
50
40
30
20
10
0
I'm undecided
I agree
I totally agree
I consider every possible outcome that may arise during the supplier selection process.


I assign a value (affordable, unaffordable, no impact, etc.) to every outcome that may arise during the supplier selection process.
Percent
60
50
40
30
20
10
0
I slaughter
I totally agree
I assign a value (affordable, unaffordable, no impact, etc.) to every outcome that may arise during the supplier selection process.

Hypotheses Used in the Research and Their Results

In line with the purpose of the research, 8 hypotheses were created and these hypotheses were tested. Table 24. shows the hypotheses created within the framework of the research and their results.

Table 24. Results of the Hypotheses Used in the Research

No	Hypotheses	Results
H_1	There is a statistically significant difference between the operating periods of businesses and their views on game theory.	ACCEPTED
H_2	There is a statistically significant difference between the number of products on business menus and views on game theory.	ACCEPTED
H_3	There is a statistically significant difference between businesses' raw material purchasing cycles and their views on game theory.	ACCEPTED
H_4	There is a significant positive difference between businesses with shorter raw material procurement cycles and views on game theory.	REJECTED
H_5	The number of products on a business's menu affects their ultimate goal of purchasing products at the best price.	ACCEPTED
H_6	Participants who are certain that the final objective decided upon before starting the supplier selection process is the most appropriate decision for the represented business do not change their final objectives in response to situations encountered during the process.	REJECTED
H_7	Participants who have made their final decision before the supplier selection process begins can also collaborate with the supplier during the process.	REJECTED
H_8	Participants who anticipate every possible outcome in the supplier selection process also assign a value (acceptable, unacceptable, no impact, etc.) to each possible outcome in advance.	REJECTED

Among the hypotheses tested within the scope of the study, H1, H2, H3 and H5 were statistically accepted. These results indicate that a company's operating period, variety of menu items, and raw material purchasing cycles have a significant impact on views regarding game theory. On the other hand, the rejection of hypotheses H4, H6, H7 and H8 reveals that businesses do not exhibit a homogeneous approach in factors such as foresight, cooperation and ultimate goal consistency in their decision-making processes based on game theory.

CHAPTER 6

6. Conclusions and Recommendations

Effective supplier selection processes carried out in restaurants are a critical process that directly impacts success through factors such as cost control, product quality, and customer satisfaction. Throughout the literature, it is observed that multi-criteria decision-making (MCDM) methods are predominantly used in this process, with criteria such as price, quality, and delivery time being emphasized. However, this study examines the applicability of game theory, which also accounts for strategic interactions between decision-makers. Game theory allows for the modeling of situations such as bargaining, competition, or cooperation between the supplier and the restaurant manager, thereby adding a more dynamic dimension to the selection process. Indeed, the findings show that restaurant managers can conduct supplier selection processes not only with a cost-focused approach but also by being open to strategic relationships, flexible, and acting on the principle of mutual gain.

As the duration of business operations and the number of products on menus increase, the adaptation to game theory also increases, suggesting that game theory is more applicable to large-scale food and beverage businesses. However, since no obstacles to its application have been encountered for businesses that could be considered small-scale, the applicability of game theory to small-scale businesses can also be accepted.

The positive increase observed in views on game theory with the lengthening of the raw material purchasing cycle shows that game theory can be effective in an efficient supplier selection process when flexible conditions are provided. It is seen that the companies participating in the study generally show a clear tendency towards two of the four sub-dimensions of the scale. In particular, it was observed that large-scale companies showed an increased tendency towards the first sub-dimension, which is the goal-oriented approach, and the fourth sub-dimension, which is the collaborative approach. Accordingly, it can be said that these companies proceed with a focus on the final goal and collaboration in their effective supplier selection processes. However, participants who are certain that the final goal decided upon before starting the supplier selection process is the most appropriate decision for the represented company also change their final goals based on situations encountered during the process. Participants who consider every possible outcome that may arise in the supplier selection process also assign a value (acceptable, unacceptable, no impact, etc.). These findings indicate that companies are not sufficiently decisive in determining their ultimate objectives and that they proceed throughout the process without giving sufficient thought to the outcomes that may be achieved as a result of the process. Another finding, namely that participants who make a definitive decision about their

ultimate goal before starting the supplier selection process do not collaborate with the supplier using various strategies (such as bargaining) to achieve their ultimate goal, supports this idea.

I strongly agree with most of the scale statements, and the "agree" responses have been marked. The fact that businesses contributing to the study are already acting in accordance with game theory concepts suggests that these businesses are intentionally or unintentionally conducting a supplier selection process within the framework of game theory in an effective supplier selection process. Nevertheless, understanding the logic of game theory and consciously and deliberately applying it in an effective supplier selection process can lead to processes that benefit businesses.

The findings of this study indicate that game theory can be applied in effective supplier selection processes in restaurants. Although no information has been found in the literature regarding the use of game theory in the supplier selection process specifically for restaurants, applications conducted by Canlı and Aplak (2016), Olgun, Özdemir, and Alparslan Gök (2017), and Hoş and Demirer (2022) for businesses in different sectors may support the obtained result. This study, which demonstrates the applicability of game theory in restaurants as well as other businesses, highlights the effectiveness of this application, which has received relatively little attention in the literature. In this context, it is seen that the application of game theory, which has proven effective in different sectors, has cross-sector validity. A game theory logic applied in the supplier selection process specifically for restaurants may serve as a guide for businesses in other sectors.

The study is limited to restaurants in certain provinces only. Therefore, the impact of regional and cultural

differences cannot be determined. Another limitation of the study is that it does not take into account the scale and type of restaurants. Strategy and opinion differences that may arise between different types of restaurants, such as large-scale and small-scale restaurants, local, luxury, etc., are open to research. Similarly, the study is also limited in terms of its participant group. Only restaurant managers, who are one side of the game, were included in the study. The impact of other stakeholders in the supply chain on the process has not been considered. However, considering the effectiveness of these stakeholders in the process and their possible strategies within the logic of game theory could lead to much more comprehensive and valid results. To fully grasp the subject and understand the dynamics, the study could also be applied to other supply chain stakeholders.

In future studies, this work, which sheds light on the nature of businesses and their existing behaviors in effective supplier processes, can be expanded to create an effective supplier selection process model structured within a game theory framework that is entirely suitable for restaurants. This would enable the integration of game theory into the effective supplier selection processes of these businesses. At this point, scenarios can be designed for different game theory methods (cooperative games, zero-sum games, etc.) to generate strategies for different situations. Similarly, a game theory application that can be implemented in the effective supplier selection process for food and beverage businesses can both guide businesses and prove the competence of game theory in this field. Furthermore, the results of this study can be tested through case-based studies within the scope of restaurants or, more broadly, food and beverage businesses, and necessary improvements can be made.

References

Adeniran, A. O. (2019). Application of likert scale's type and cronbach's alpha analysis in an airport perception study. Scholar Journal of Applied Sciences and Research, 2(4), 1-5.

Aktan, C. C. & Bahçe, A. B. (2013). Kamu tercihi perspektifinden oyun teorisi. Hukuk ve İktisat Araştırmaları Dergisi, 5(2), 93-117.

Akturan, U. (2009). Tedarik zinciri yönetiminde satın alma fonksiyonunun değişen karakteri: stratejik satın alma. Öneri Dergisi, 8(31), 103-111.

Akyüz, G. A. (2012). Bulanık vıkor yöntemi ile tedarikçi seçimi. *Atatürk Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 26(1), 197-215.

Asoy, E. (2018). Toplumsal cinsiyet ayrımı ve cam tavan sendromu üzerine oyun teorisi modeli: cam tavanın kırıldığı oyun dengesi. *Marmara Üniversitesi Kadın ve Toplumsal Cinsiyet Araştırmaları Dergisi*, *2*(2), 85-95.

Bekmez, S. & Çalış, F. (2011). Oyun teorisi çerçevesinde türk bankacılık sistemi ve asimetrik bilgi problemi. Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 16(2), 79-96.

Büyüközkan, G. & Vardaloğlu, Z. (2008). Yeşil tedarik zinciri yönetimi. Lojistik Dergisi, 8(2008), 6-7.

Canlı, A. K. & Aplak, H. S. (2016). Belirsizlik içeren tedarik zinciri yönetimi karar süreçlerinde savunma sektörüne yönelik bir uygulama. Güvenlik Stratejileri Dergisi, 12(24), 71-108.

Ciravoğlu, G. (2006). Tedarik zinciri yönetimi uygulamaları ve performans üzerine etkilerinin analizi. (Yüksek Lisans Tezi). Trakya Üniversitesi, Edirne.

Croxton, K.L., García□Dastugue, S.J., Lambert, D.M. & Rogers, D.S. (2001). The supply chain management processes. The International Journal of Logistics Management, 12(2), 13-36.

Dalbudak, E. & Rençber, Ö. F. (2022). Çok kriterli karar verme yöntemleri üzerine literatür incelemesi. Gaziantep Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 4(1), 1-17.

Demirci, A. (2014). Literatür taraması. Y. Arı ve İ. Kaya (Ed.), *Coğrafya araştırma yöntemleri* (s.73-108). Balıkesir: Coğrafyacılar Derneği.

Demirci, E. (2019). Ulusal yazında oyun teorisi üzerine genişletilmiş bir literatür taraması. Mehmet Akif Ersoy Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 11(29), 530-549.

Deniz, Ü. ve Akbaşlı, S. (2018). Oyun teorisi bağlamında eğitim örgütlerinde karar verme. C. T. Uğurlu, K. Beycioğlu, S. Koşar, H. Kahraman ve F. K. Şermin (Ed.), *Eğitim yönetimi araştırmaları* (s. 238-245). Sivas: Cumhuriyet Üniversitesi Yayıncılık.

Dickson, G. W. (1966). An analysis of vendor selection systems and decisions. Journal of Purchasing, 2(1), 5–17.

Dinçer, C. (2009). Tedarik zincirinde sipariş işleme süreci. Öneri, 8(31), 191-196.

Dyer, J. H., Cho, D. S. & Cgu, W. (1998). Strategic supplier segmentation: the next "best practice" in supply chain management. California Management Review, 40(2), 57–77.

Ecer, F. & Küçük, O. (2008). Tedarikçi seçiminde analitik hiyerarşi yöntemi ve bir uygulama. Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 11(1), 355-369.

Eymen, U. E. (2007). Tedarik zinciri yönetimi. Kalite Ofisi Yayınları.

Gacar, A. (2021). Oyun kuramı muhasebe denetiminde kullanılabilir mi?. Celal Bayar Üniversitesi Sosyal Bilimler Dergisi, 19(04), 52-62.

Gadde, L.E. & Snehota, I. (2000). Making the most of supplier relationships. Industrial Marketing Management, 29, 305–316.

Gächter, S. (2004). Behavioral game theory. D. J. Koehler and N. Harvey (Ed.), *Blackwell Handbook Of Judgment And Decision Making* (p. 485-503). Oxford: Blackwell Publishing.

Garip, S. (2023). Sosyal bilimlerde nicel araştırma geleneği üzerine kuramsal bir inceleme. International Journal of Social Science Research, 12(1), 1-19.

Genç, S. Y. & Kadah, H. (2018). Oyun teorisi ve nash'in denge stratejisi. *Iğdır Üniversitesi Sosyal Bilimler Dergisi*, (14), 419-440.

Gökalp, B. & Soylu, B. (2010). Tedarikçinin süreçlerini iyileştirme amaçlı tedarikçi seçim problemi. *Endüstri Mühendisliği Dergisi*, 23(1), 4-15.

Güner, H. (2005). Bulanık AHP ve bir işletme için tedarikçi seçimi problemine uygulanması. (Yüksek Lisans Tezi). Pamukkale Üniversitesi, Denizli.

Güney, Ş. & Bahçekapılı, H. G. (2010). İnsanlarda özgeci iş birliğinin psikolojik ve beyinsel temelleri. *Türk Psikoloji Yazıları*, 13(25), 29-38.

Günör, R. B. (2020). Epikürosçu adalet ve sözleşme kavramlarının mahkûm ikilemi açısından tahlili. *Electronic Turkish Studies*, 15(8), 3545-3554.

Handfield, B.R. & Nichols, L.E. (1999). Introduction to supply chain management. Prentice-Hall, Upper Saddle River, NJ.

Hoş, S. & Demirer, Ö. (2022). Tedarikçi değerlendirmede oyun teorisi yaklaşımı: Alıcı-tedarikçi oyunu. Karadeniz Ekonomi Araştırmaları Dergisi, 3(1), 81-111.

Houlihan, J. B. (1988). International supply chains: a new approach. Management Decision, 26(3), 13–19.

Huck, S.W. (2012). Reading statistics and research (6 th Edition). Boston, MA: Pearson

Jain, V., Wadhwa, S. & Deshmukh, S. G. (2006). Supplier selection using fuzzy association rules mining approach. International Journal of Production Research, 45(6), 1323–1353.

Karasu, I.F. (2006). Tedarik zinciri yönetiminin yapısı ve işleyişi. (Yüksek Lisans Tezi). Anadolu Üniversitesi, Eskişehir.

Keskin, H.İ. (2009). Oyun kuramının ekonomide uygulanması. (Yüksek Lisans Tezi). Çukurova Üniversitesi, Adana.

Kim, H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. Restorative Dentistry & Endodontics, 38(1), 52-54.

Koçak, R.D. (2020). Lojistiğin tarihsel gelişimi: askeri gereksinimden işletme lojistiğine ve tedarik zinciri yönetimine evrilme süreci. Yaşar Üniversitesi Dergisi, 15(58), 246-258.

Kopczak, L.R. (1997). Logistics partnership and supply chain restructuring, survey results from the us computer industry. Production and Operations Management, 6(3), 226-247.

Köklü, N., Büyüköztürk, Ş. & Çokluk B. Ö. (2007). Sosyal bilimler için istatistik. Ankara, Pegem Yayıncılık.

Köse, Y. (2014). Küresel finansal yaptırımlar: oyun teorisi yaklaşımı ile ampirik bir uygulama. Maliye ve Finans Yazıları, 1(103), 10-20.

Kural, H. (2007). Karar verme sürecinde oyun teorisi ve sektörel uygulamalar. (Yüksek Lisans Tezi). Dokuz Eylül Üniversitesi, İzmir.

La Londe, B. J. & Masters, J.M. (1994). Emerging logistics strategies: Blueprints for the next century. International Journal of Physical Distribution and Logistics Management, 24(7), 35-47.

Lambert, D. M. (2008). Supply chain management. D.M. Lambert (Ed.), Supply chain management: processes, partnerships, performance, 3rd ed., Florida: Supply Chain Management Institute.

Lambert, D.L. & Cooper, M.C. (2000). Issues in supply chain management. Industrial Marketing Management, 29(1), 65-83.

Lau, H., Shum, P. K. C., Nakandala, D., Fan, Y. & Lee, C. (2020). A game theoretic decision model for organic food supplier evaluation in the global supply chains. *Journal of Cleaner Production*, *242*.

Lummus, R. R. & Vokurka, R. J. (1999). Defining supply chain management: a historical perspective and practical guidelines. Industrial management & Data Systems, 99(1), 11-17.

Mediavilla, M., Mendibil, K. & Bernardos, C. (2021). Making the most of game theory in the supplier selection process for complex items. *Production Planning & Control*, *32*(10), 845-860.

Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D. & Zacharia, Z. G. (2001). Defining supply chain management. *Journal of Business logistics*, *22*(2), 1-25.

Mohammaditabar, D., Ghodsypour, S. H. & Hafezalkotob, A. (2016). A game theoretic analysis in capacity-constrained

supplier-selection and cooperation by considering the total supply chain inventory costs. *International Journal of Production Economics*, *181*, 87-97.

Monczka, R., Trent, R. & Handfield, R. (1998). Purchasing and supply chain management. Cincinnati, OH: South-Western College Publishing.

Muntaş, M. (2023). Fındığın optimum satış süresinin belirlenmesi: oyun teorisi ve karar kriterleri yaklaşımları. (Yüksek Lisans Tezi). İstanbul Teknik Üniversitesi, İstanbul.

Neuman, W. L. & Robson, K. (2014). Basics of Social Research. Canada: Pearson Publishing.

Olgun, M. O., Özdemir, G. & Alparslan Gök, S. Z. (2017). Gri Stok Modelinin İşbirlikçi Oyun Teorisi ile Maliyet Dağıtımlarının İncelenmesi. *Uludağ Üniversitesi Mühendislik Fakültesi Dergisi*, 22(2), 23-34.

Över Özçelik, T. & Eryılmaz, S. A. (2019). Traktör imalatında çok kriterli karar verme yöntemleri ile tedarikçi seçimi. Avrupa Bilim ve Teknoloji Dergisi, (Özel Sayı), 498-512.

Özdemir, A. İ. (2004). Tedarik zinciri yönetiminin gelişimi, süreçleri ve yararları. Erciyes Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, (23), 87-96.

Özdemir, A. (2007). Tedarikçi seçiminde karar modelleri ve bir uygulama denemesi. (Doktora Tezi). Anadolu Üniversitesi, Eskişehir.

Özdemir, A. (2010). Ürün grupları temelinde tedarikçi seçim probleminin ele alınması ve analitik hiyerarşi süreci ile çözümlenmesi. Afyon Kocatepe Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 12(1), 55-84.

Özer, O. & Özçelik, A. (2010). Pamuk ürününün en uygun satış zamanının oyun teorisi yöntemiyle saptanması. *Tarım Bilimleri Dergisi*, *16*(4), 262-270.

Öztürk, D. (2016). Tedarik zinciri yönetimi süreçlerini etkileyen faktörler. Uluslararası Sosyal ve Ekonomik Bilimler Dergisi, 6:(1), 17-24.

Reinartz, W., Krafft, M. & Hoyer, W. D. (2004). The customer relationship management process: Its measurement and impact on performance. *Journal of marketing research*, *41*(3), 293-305.

Rzeczycki, A. (2022). Supply chain decision making with use of game theory. *Procedia Computer Science*, *207*, 3988-3997.

Sarıoğlan, M. (2016). Yiyecek-içecek işletmelerinde satın alma müdürlerinin tedarikçi seçim yöntemleri bilgi düzeylerinin belirlenmesine yönelik bir araştırma. IUJEAS, 1(1), 13-30.

Sarıoğlan, M. (2017a). A Study Concerning the Applicability of Supply Chain Management Scor Model in Food and Beverage Enterprises, Kocaeli Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 34(2) 85–100.

Sarıoğlan, M. (2017b). Supplier selection with fuzzy vikor method in food and beverage enterprises Turkey. Balıkesir Sosyal Bilimler Enstitüsü Dergisi, 20(37) 357–373.

Sarıoğlan, M. & Arslan, K. (2020). Yiyecek içecek işletmelerinde MOORA yöntemi ile tedarikçi seçiminin uygulanabilirliği. *Elektronik Sosyal Bilimler Dergisi*, 19(73), 254-270.

Sheth, J. N. & Sharma, A. (1997). Supplier relationships: emerging issues and challenges. *Industrial Marketing Management*, *26*(2), 91-100.

Siddiqui, A. A., Abbas, M., Idrees, M. A., Khan, A. & Minhas, A. A. (2022). Effects of e-procurement on supply chain management in the modern era. *International Journal of Social Science & Entrepreneurship*, *2*(2), 202-217.

Şahin, A. & Miran, B. (2008). Risk koşullarında tarım işletmelerinin planlanması: oyun teorisi yaklaşımı. *Hayvansal Üretim*, *51*(1), 31-39.

Şahin, S. & Eren, E. (2012). Oyun teorisinin gelişimi ve günümüz iktisat paradigmasının oluşumuna

etkileri. *Hukuk ve İktisat Araştırmaları Dergisi*, *4*(1), 265-274.

Theodorakioglou, Y., Gotzamani, K. & Tsiolvas, G. (2006). Supplier management and its relationship to buyers' quality management. *Supply Chain Management: An International Journal*, *11*(2), 148-159.

Trent, R. J. & Monczka, R. M. (1998). Purchasing and supply management: trends and changes throughout the 1990s. *International Journal of Purchasing and Materials Management*, *34*(3), 2-11.

Turgut, E. & Uçan, O. (2022). Bankaların kredi sistemi üzerine bir oyun teorisi simülasyonu. *Niğde Ömer Halisdemir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *4*(1), 27-35.

Uçan, M. Y. (2008). Müzakere yönetimi ve bir model denemesi. (Doktora Tezi). Süleyman Demirel Üniversitesi, Isparta.

Uzunsakal, E. & Yıldız, D. (2018). Alan araştırmalarında güvenilirlik testlerinin karşılaştırılması ve tarımsal veriler üzerine bir uygulama. *Uygulamalı Sosyal Bilimler Dergisi*, *2*(1), 14-28.

Weber, C. A., Current, J. R. & Benton, W. C. (1991). Vendor selection criteria and methods. *European journal of operational research*, *50*(1), 2-18.

Wisner, J.D., Tan,K.C. & Keong Leong, G. (2009). Principles of supply chain management: a balanced approach. Canada: Cengage Learning.

Yalçıntaş, M. (2015). Ekonomik karar almada adalet ve oyun teorisi. *Maliye ve Finans Yazıları*, *1*(103), 247-273.

Yenisoy, C. & Hassan, A. (2024). Turizm alanyazınında oyun teorisi makalelerinin bibliyometrik analizi. *Journal of Recreation and Tourism Research*, *11*(2), 1-17.

Applicability of Game Theory in Effective Supplier Selection in Restaurants

Selin İlsay

ÖZGÜR PRESS

ISBN 978-625-5757-92-0