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EFFECTS OF TRADE PROMOTIONS ON SUPPLIER SELECTION IN FOOD RETAILING: SCALE DEVELOPMENT AND VALIDATION

¹Murat Selim Selvi, ²Neslihan Cavlak & ³Beste Burcu Kasap

¹ Department of Business Administration, Namik Kemal University, Tekirdağ-Turkey.

² Marmara Ereğlisi Vocational High School, Tekirdağ Namik Kemal University,
Tekirdağ-Turkey.

³ Babaeski Vocational High School, Kırklareli University, Kırklareli-Turkey.

¹Corresponding author: msselvi@nku.edu.tr

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ABSTRACT

This study aims to develop and validate a scale designed to measure food retailers' attitudes toward the impact of trade promotions on supplier selection. The research population comprised food retailers operating in Tekirdağ province, Türkiye. Data was collected from a sample of retailers selected using a random sampling method, employing a mixed-mode survey approach (face-to-face and online). The scale development process followed rigorous psychometric procedures, including content validity assessment, as well as Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The results revealed a stable two-dimensional structure comprising "Economic Incentives" and "Physical and Distribution Incentives." The findings demonstrate that the scale possesses strong construct validity and high reliability. Unlike previous studies that primarily focus on mathematical optimization or general performance criteria, this study provides a validated instrument for measuring behavioral attitudes toward specific trade promotion tools. The proposed scale offers practical insights for suppliers to tailor their promotional strategies and for retailers to standardize their supplier selection processes.

Keywords: Trade promotions, retailer, food supplier selection, scale development.

INTRODUCTION

Driven by pandemic-induced consumption shifts and the rise of e-commerce, the global food retail market is expected to expand at a CAGR of 3.2%, approaching \$14.8 trillion by the end of the decade (Grand View Research, 2024). Concurrently, rapid globalization-particularly the expansion of supermarkets in developing nations (Reardon et al., 2007)-has encouraged food producers to expand trade marketing activities worldwide (Gómez & Rao, 2009). Effective cold chain logistics are increasingly recognized in

the retail food sector for their role in mitigating food loss and ensuring reliable supply chains. Unlike conventional supply chains, cold chains prioritize food safety alongside cost and efficiency (Chaiyaphan & Ransikarbum, 2020; Jaigirdar et al., 2022). Retailers prioritize supplier selection criteria based on their specific purchasing contexts, with Walters (1989) emphasizing that supplier-provided economic incentives significantly strengthen retailer commercial agreements. Hosseini and Hajikarimi (2025) link effective marketing and strategic promotions to reduced costs and increased efficiency. Majid et al. (2023) highlight Malaysian consumer awareness of promotion benefits in discount retail, while Isa and Dweiri (2019) suggest that promotions enhance supplier selection by facilitating knowledge sharing and, ultimately, supply chain integration. Shankar et al. (2011) further note the growing importance of trade promotions in supplier selection, with retailers prioritizing suppliers that offer optimal economic incentives and value.

Supplier selection criteria have been studied for many years. Katsikeas et al. (2004), Kumar et al. (2006), and Ha and Krishnan (2008) identify price, quality, and delivery times as key factors, while Amid et al. (2006) highlight that after-sales support services as among the top supplier evaluation criteria. Hu (2004), in an analysis of 24 studies on the subject, confirms that price, quality, and delivery consistently rank at the top. Retailer success hinges on supplier performance, including timely deliveries, accurate information, comprehensive support, and sustained collaboration, all of which enhance bilateral relationships.

Prior research indicates that food retailer supplier selection factors, as perceived by managers and experts, include promotions and supports (Poddar et al., 2013), alongside cost and delivery considerations (Shen et al., 2012). Additional studies identify quality, affordability, and delivery time as key factors for small South African merchants (Makhitha, 2017); price and delivery speed for SMEs (Ramadhani et al., 2018); cost considerations in trade promotions (Taherdoost & Brard, 2019), and reliability, cost, and on-time delivery for sustainable retail suppliers (Okwu & Tartibu, 2020). However, there remains a notable lack of studies that measure and examine the extent to which different types of trade promotions-such as price discounts, coupons, free goods, sweepstakes, shelf arrangements, grants, and off-invoice allowances-impact supplier selection. This gap highlights the need for research that evaluates the perceptions and attitudes of retail managers and experts regarding these effects. A review of the literature further suggests that, beyond cost, price, delivery-related factors, trade promotion types are not sufficiently incorporated into supplier selection criteria for small and medium-sized food retailers (Ramadhani et al., 2018; Shen et al., 2012).

Therefore, the attitudes of small and medium-sized food retailers toward the effects of various trade promotions on supplier selection remains an area of interest. However, the number of studies examining the effects of trade promotions on supplier selection is almost negligible. Accordingly, the aim of this study is to develop and validate a scale that measures the impact of different types of trade promotions on supplier selection, specifically for small and medium-sized food retailers operating within the borders of Tekirdağ province in the Thrace region of Türkiye. The Scale of Impacts of Trade Promotions on Food Retailers' Supplier Selection (SITPFRSS) developed in this study may serve as a useful reference for researchers conducting future studies on this subject.

LITERATURE REVIEW

Conceptual Background of Trade Promotions

Trade promotions, defined as manufacturer-provided incentives for channel members such as retailers (Kumar et al., 2006), aim to influence sales and pricing strategies by encouraging specific activities (Gómez & Rao, 2009; Poddar et al., 2013; Solomon et al., 2009). As incentives directed at channel members rather than consumers, trade promotions are designed to enhance retailer sales, pricing decisions, and merchandising practices (Gómez & Rao, 2009). They encourage retailer behaviors that stimulate demand (Kasulis et al., 1999), foster brand loyalty (Blattberg & Neslin, 1990), and increase intermediary motivation, while also promoting coordination within the distribution channel (Kasulis et al., 1999).

Trade promotions are defined as incentives that manufacturers offer specifically to channel partners, such as wholesalers and retailers, rather than end consumers. These promotions typically aim to influence sales and pricing by providing distributors with diverse, and sometimes complex, incentives to enhance their stocking capacity (Etim & Sunday, 2019). Trade promotions can also be viewed as marketing strategies encompassing a range of techniques, actions, and communication efforts intended to boost sales by attracting trade professionals' attention to a specific product group or brand (Hosseini & Hajikarimi, 2025; Kehinde et al., 2024). Kotler and Armstrong (2014) further define trade promotion as a sales promotion strategy used to persuade retailers to carry a brand, allocate shelf space, promote it through advertising, and ultimately reach consumers. Furthermore, trade promotion represents a distribution-oriented concept with a strong emphasis on price-related mechanisms. Such promotional activities are designed to incentivize intermediaries to stock new products, purchase in larger quantities or at earlier stages, and secure strategic shelf space. In doing so, they help reduce manufacturers' finished goods inventories while increasing the carrying capacity of wholesalers and retailers, thereby generating mutual benefits (Zheng & Xiao, 2024; Salman & Siddiqui, 2024).

The Importance of Trade Promotions

Trade promotions offer various benefits to retailers by enhancing deal attractiveness, which is particularly crucial for manufacturers with similar products to attract retailer interest. They play a key role in food manufacturer sales, driving short-term gains while also contributing to brand loyalty (Mulhern & Leone, 1991). Although trade promotions have increased globally (Gómez & Rao, 2009) and command significant organizational resources, their impact on profitability remains relatively understudied (Blattberg & Levin, 1987). Trade promotions directed at retailers within the supplier selection process can also benefit wholesalers. For instance, such promotions may lead to lower prices for raw materials used in production, reduced inventory levels, increased product demand, and enhanced product popularity (Kurata & Yue 2008; Su & Geunes, 2013). While Claro et al. (2021) highlight the positive sales impact of value-oriented promotions and the channel-specific effectiveness of price reductions compared to shelf displays, other studies caution against potential drawback. Davis et al. (1992), Cui et al. (2008) and Kurata and Yue (2008) note that trade promotions can be inefficient and may erode manufacturer profits. Similarly, Pourmohammadreza et al. (2025) emphasize the prevalence of volume and quantity discounts but highlight the associated risks of supply chain disruptions, underscoring the need for effective risk management.

Trade promotion is a sales promotion tool targeting channel members, establishing an indirect mechanism to motivate consumers to purchase a specific manufacturer's brand. According to Michael and Ogwo (2013), trade promotions create incentives for channel members to pass on to consumers, thereby generating sales for manufacturers' products. They are widely regarded as sales support tools with strong potential for value addition and sales enhancement (Pourmohammadreza et al., 2025; Kehinde et al., 2024; Sinitsyn, 2023). Although these effects are often short-term, they can evolve into long-term promotional programs that generate sustained benefits for manufacturers (Majid et al., 2023).

Ensuring reliable and safe product offerings for consumers, managing demand forecasting, and addressing supply chain uncertainties further underscore the importance of trade promotions. Moreover, trade promotion strategies aimed at mitigating losses arising from inadequacies in cold chain logistics are becoming increasingly critical for food retailers (Görçün et al. 2023). According to Amorim et al. (2016), such strategies not only assist retailers in achieving their marketing and sales objectives but may also enhance supply chain partnerships and overall efficiency.

Types of Trade Promotion

The literature identifies various types of trade promotions, often described using different terms. Blattberg and Neslin (1990) categorize trade promotions into 13 key types: street money, slotting allowances, sales drives, quota incentives, contests, sales bonuses (SPIFFs), display allowances, cooperative advertising,

floor planning, free goods, volume rebates, bill-backs, and off-invoice allowances. Among these, the most common trade promotions offered to retailers are price-offs and off-invoice allowances (Blattberg & Levin, 1987; Gómez & McLaughlin, 2007). In addition, bill-backs, discounts (allowances), and free goods are also widely applied (Blattberg & Levin, 1987). Beyond these, suppliers offer a broader range of trade promotions. Common examples include advertising incentives (Chan et al., 2017), inventory financing (Tsao et al., 2014), and tangible in-store support such as display fixtures, product samples, and training programs for sales staff. El Naggar and Bendary (2017) further suggest that manufacturers may share retailer marketing costs and use advertorials for brand endorsement; while retailers may seek credit terms and return policies to mitigate financial risk.

Table 1

Types and Descriptions of Trade Promotions

Type	Description
Price-offs	Price-offs are manufacturer incentives to channel members to reduce product costs or subsidize advertising, thereby encouraging product stocking and promotion (Blattberg & Levin, 1987; Kasulis et al., 1999; Ailawadi, 2001; Solomon et al., 2009).
Free merchandise	Free merchandise refers to additional products provided by manufacturers to encourage retailers to stock and promote new items (Blattberg & Neslin, 1990; Kasulis et al., 1999).
Direct purchase subsidies	Drèze and Bell (2003) suggest that direct purchase subsidies from manufacturers incentivize retailers to prioritize procurement efficiency over marketing efforts.
Scan-back trade deal	Yuan et al. (2013) note that manufacturers may compensate retailers per unit sold, typically requiring negotiation and verification of sales through retail data.
Cash or product refunds	Return policies, whereby retailers can return unsold goods (Govindan et al., 2013; Wei et al., 2013), play a key role in supply chain coordination by mitigating stocking risks associated with demand uncertainty and limited product shelf life. Manufacturers may also offer buy-back programs or incentives to repurchase unsold goods, particularly during new product launches (Lee & Johnson, 2013; Tibrewala & Meena, 2018).
Off-invoice allowances	Off-invoice allowances are trade promotions provided by manufacturers or suppliers in various forms, most commonly as purchase price discount or deferred payment arrangements (Arcelus et al., 2001).
Consignment of goods	Consignment allows retailers to stock goods without immediate payment until the products are sold, thereby reducing inventory and demand risk (Wang et al., 2004).
Gifts and discount vouchers	Manufacturers may offer gifts or discount vouchers to retailers as incentives for achieving sales targets or maintaining high inventory levels (Lee & Johnson, 2013).
Direct payments	Manufacturer may also incentivize sales personnel through direct payments to encourage increased sales of their products (Kasulis et al., 1999).
Shelf arrangement	Effective in-store shelf arrangement, supported through trade promotions, can significantly increase market share in competitive food markets, particularly in mature markets (Lim et al., 2004; Tsao et al., 2014).

Previous Studies on Supplier Selection

Prior research indicates that food retailer supplier selection factors, as perceived by managers and experts, include promotions and support (Poddar et al., 2013), alongside cost and delivery considerations (Shen et al., 2012). Additional studies identify quality, affordability, and delivery time as key factors for small South African merchants (Makhitha, 2017); price and delivery speed for SMEs (Ramadhani et al., 2018); cost considerations in trade promotions (Taherdost & Brard, 2019); and reliability, cost, and on-time delivery for sustainable retail suppliers (Okwu & Tartibu, 2020). Price, quality, and delivery timeframes (Katsikeas et al. 2004; Kumar et al. 2006; Ha & Krishnan 2008), along with after-sales support services (Amid et al. 2006), are consistently identified as key supplier evaluation criteria. Hu (2004), in a review of 24 studies, confirms that price, quality, and delivery remain the most important factors. The literature further indicates that food retailers' assessments of potential suppliers place significant emphasis on both quantitative and qualitative factors, including delivery delays, order inaccuracies, cost-cutting initiatives, price discounts, and product quality, as well as technical support and customer service. Price-related incentives offered by suppliers are typically categorized under pricing factors. Sarkara and Mohapatra (2006) emphasize that supplier evaluation criteria largely consist of performance-related variables such as price, product quality, on-time delivery, after-sales technical support, and responsiveness to complaints. Suppliers play a critical role in influencing quality, pricing, delivery reliability, and product availability. Luo et al. (2009) highlight that selecting appropriate suppliers significantly influences both organizational performance and the quality of products offered. Similarly, Pal et al. (2013) identify price discounts, delivery, and quality as the three most prominent supplier selection criteria.

Recent Approaches and Critical Analysis in Supplier Selection Literature

Recent studies (2020-2025) on supplier selection indicate a diversification of criteria and increasing methodological complexity. For instance, Görçün et al. (2023) focus on uncertainty factors using bipolar neutrosophic methods for fresh food supplier selection in global retail chains, while Aungkulanon et al. (2024) examined sustainable risk factors in the agri-food industry. While this body of research offers valuable contributions—particularly in terms of mathematical modeling and risk management—it predominantly emphasizes “calculating the optimal supplier” rather than measuring retailers' *attitudes* and *perceptions* toward promotions. Similarly, while Choi et al. (2024) examined the satisfaction of multi-channel buyers, Pourmohammadreza et al. (2025) provide a comprehensive review of discount policies in supplier selection. However, they also note that existing literature largely focuses on price and quantity discounts, leaving the behavioral effects of other trade promotion tools (e.g., shelf support, grants) underexplored. Studies such as Rattanasakolpatt et al. (2024) and Cheng et al. (2024) highlight factors such as quality and reputation but do not offer a psychometric instrument that measures how these factors interact with trade promotions. Consequently, there is an urgent need for a current and validated scale that examines supplier selection not only through the lens of cost or quality, but also through the specific attitudes shaped by trade promotion tools.

Existing Measurement Approaches and the Need for a New Scale

A review of the literature reveals that supplier selection research has largely relied on mathematical modeling and Multi-Criteria Decision-Making (MCDM) techniques. For example, Aungkulanon et al. (2024) recently utilized a hybrid model combining Fuzzy AHP and PROMETHEE II to address sustainable supplier selection in the agri-food industry. Similarly, a comprehensive bibliometric analysis by Pourmohammadreza et al. (2025) indicates that approximately 80% of studies examining discount policies in supplier selection employ the Analytic Hierarchy Process (AHP) method. While these approaches are valuable for weighting and ranking decision criteria, they primarily emphasize mathematical optimization rather than psychometric scale development aimed at measuring retailers' attitudes.

Studies employing scale development and survey methods have generally focused on broad performance criteria. For example, Choi et al. (2024) utilize a scale incorporating factors such as product competency, delivery reliability, and service quality to measure food buyers' satisfaction. Similarly, Wu and Yang (2011) develop a scale focused on environmental factors for green supplier selection, while Makhitha (2017) examines quality and affordability criteria for independent retailers. However, there remains a lack of valid and reliable scales specifically designed to measure the impact of trade promotions—such as price discounts, slotting allowances, display support—on supplier selection decisions and retailers' attitudes toward these promotions. Although studies such as Gómez and Rao (2009) and Gómez and McLaughlin (2007) examine the effects of trade promotions, they primarily focus on market data and budget allocations rather than scale development. This study addresses this methodological gap by translating the complex role of trade promotions into concrete and measurable dimensions within the context of supplier selection.

METHODOLOGY

The authors adopted a quantitative approach, utilizing a cross-sectional survey design to develop and validate a scale measuring food retailers' attitude toward trade promotions. The scale development process followed the rigorous 10-step guideline proposed by Carpenter (2018). The methodology is detailed in the following subsections.

Step 1: Research Design

To establish a theoretical foundation for this study, the relevant literature was first reviewed. Key dimensions and components of the topic were identified by addressing core conceptual questions, such as the importance of trade promotions—particularly for food retailers—how different types of trade promotions are evaluated as criteria in supplier selection, and what types of studies have been conducted in this area.

Item Generation

During the creation of the item pool, DeVellis' (2017) recommendations and Stockemer's (2019) guidelines were taken into consideration. First, various types of trade promotions were identified through a review of the literature, and corresponding statements were developed to capture food retailers' perspectives on each type. Second, face-to-face interviews were conducted with 10 grocery stores, 15 markets, and 10 kiosks in the Süleymanpaşa district of Tekirdağ province. These interviews aimed to gather initial insights into how food retailers evaluate different types of trade promotions and their relevance to supplier selection, as well as to identify additional statements for inclusion in the item pool. As a result, two or three statements were generated for each type of trade promotion, yielding a total of 53 items. The item pool was then reviewed by 11 marketing academics, who were requested to evaluate each item using the following scale: "1 = not necessary, 2 = needs revision, 3 = necessary."

Content Validity Ratio (CVR) and Content Validity Index (CVI)

In this study, content validity was assessed using the technique proposed by Lawshe (1975). Selecting an appropriate number of qualified experts is crucial for forming the expert panel, as content validity calculations should yield objective results. Accordingly, the number of experts is recommended to range between 5 and 40 (Veneziano & Hooper, 1997; Ayre & Scally, 2014). Following the expert review, the Content Validity Ratio (CVR) for each item was calculated using the following formula:

$$CVR = Ne / (N/2) - 1$$

Where Ne represents the number of experts indicating that the item is "essential,"
and N denotes the total number of experts.

According to the critical values reported by Ayre and Scally (2014), for a panel of 11 experts, at least 9 experts must rate an item as “3 = necessary” for it to be retained, corresponding to a minimum CVR threshold of 0.63. Accordingly, CVR values were calculated for each item in the pool. Items with a CVR of 0.63 or higher were retained, while those below this threshold were removed. After eliminating the non-qualifying items, 19 statements remained in the item pool. The Content Validity Index (CVI) was calculated by averaging the CVR values of the retained items, using the following formula:

$$CVI = \sum CVR / RI$$

Where $\sum CVR$ = Represents the sum of CVR values for the retained items

RI = The number of retained items

The calculated CVI was as follows: $CVI = 14.632 / 19 = 0.770$

Since the CVI exceeds the minimum acceptable threshold (0.59 for 11 experts, as indicated in Lawshe's table), the scale demonstrates statistically significant content validity at the $\alpha=0.05$ level.

Table 2

CVR and Comments Related to Item Pool

	NE	CVR	Comment	Item No	NE	CVR	Comment
1	0	-1.00	Removed	28	2	-0.63	Removed
2	1	-0.81	Removed	29	2	-0.63	Removed
3	0	-1.00	Removed	30	9	0.63	Retained
4	9	0.63	Retained	31	2	-0.63	Removed
5	9	0.63	Retained	32	0	-1.00	Removed
6	3	-0.45	Removed	33	10	0.81	Retained
7	9	0.63	Retained	34	9	0.63	Retained
8	11	1.00	Retained	35	2	-0.63	Removed
9	9	0.63	Retained	36	0	-1.00	Removed
10	0	-1.00	Removed	37	9	0.63	Retained
11	11	1.00	Retained	38	0	-1.00	Removed
12	1	-0.81	Removed	39	1	-0.81	Removed
13	11	1.00	Retained	40	9	0.63	Retained
14	0	-1.00	Removed	41	1	-0.81	Removed
15	11	1.00	Retained	42	0	-1.00	Removed
16	11	1.00	Retained	43	0	-1.00	Removed
17	0	-1.00	Removed	44	0	-1.00	Removed
18	2	-0.63	Removed	45	10	0.81	Retained
19	3	-0.45	Removed	46	1	-0.81	Removed
20	11	1.00	Retained	47	0	-1.00	Removed
21	0	-1.00	Removed	48	0	-1.00	Removed
22	2	-0.63	Removed	49	0	-1.00	Removed
23	9	0.63	Retained	50	9	0.63	Retained
24	0	-1.00	Removed	51	0	-1.00	Removed
25	7	0.27	Removed	52	0	-1.00	Removed
26	9	0.63	Retained	53	0	-1.00	Removed
27	0	-1.00	Removed				

Steps 2 and 3: Sampling and Data Collection Procedure

The population of this study consists of small and medium-sized food retailers (SMEs) operating in Tekirdağ province, located in the Thrace region of Türkiye. A random sampling method was utilized to enhance the representativeness of the sample. Data were collected using a mixed-mode survey approach (online and face-to-face) between July and August 2022 to maximize response rates and minimize coverage error (Dillman et al., 2014).

- **Pilot Study (Pre-test):** The initial 19-item draft was tested with a pilot group of 178 retailers to assess item clarity and explore the preliminary factor structure
- **Main Study:** The final survey was administered to a separate group of 259 food retailers. Of these, 107 responses were obtained via face-to-face interviews to reach retailers with limited digital access, while 152 were collected through online platforms.

Measurement Instrument

The questionnaire was structured into two primary sections. The first section included demographic questions to develop a profile of each retailer (e.g., business type, years of experience, monthly income). The second section comprised items measuring the “Impact of Trade Promotions on Supplier Selection.” Participants rated each item on a 5-point Likert scale, where 1 represented “Not at all influential” and 5 indicated “Very influential.” This scale format is widely used in social science research to measure attitudes and perceptions (Hair et al., 2019).

Data Analysis

Data analysis was conducted in two phases, in line with standard scale development procedures. In the first phase, an Exploratory Factor Analysis (EFA) was conducted using SPSS 22.0 to identify the underlying structure of the scale. Prior to the analysis, data suitability was assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett’s Test of Sphericity. Given the potential correlations among trade promotion dimensions, Principal Component Analysis (PCA) with Direct Oblimin rotation was employed.

In the second phase, Confirmatory Factor Analysis (CFA) was performed using AMOS 24.0 to validate the factor structure identified through EFA. Model fit was evaluated using standard indices, including the chi-square/df ratio, RMSEA, CFI, GFI, and SRMR. To assess reliability and convergent validity, Cronbach’s alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) were calculated (Hair et al., 2019). Additionally, common method bias was mitigated by ensuring respondent anonymity and employing multiple data collection modes (Podsakoff et al., 2003).

Pre-test: The 19-item scale was pre-tested with 178 participants. The purpose of the pre-test was to assess the extent to which the items effectively measured the intended construct and to ensure that all statements were interpreted consistently by respondents. Based on the feedback obtained, six items were revised for clarity and simplicity. The sample size was deemed sufficient for preliminary analysis, in line with recommendations in the literature (Hollebeek et al., 2019; Lu et al., 2019).

Study 1: Pre-Test Analysis of 178 Individuals

As shown in Table 3, the sample was predominantly male (84.80%) and married (68.50%). A substantial proportion of participants were aged 30 years or younger (29.80%) and had a high school education or lower (64.60%). In terms of business type, grocers constituted the largest group (39.90%). Additionally, 38.20% of respondents reported a monthly average income of 10,000 TL or less, and most participants had seven years or more of experience in the sector.

Table 3

Demographic Features (n=178)

Variables	Groups	n	%	Variables	Groups	n	%
Sex	Female	27	15.20	Average monthly income (TL)	< 20.000	68	38.20
	Male	151	84.80		20.001-25.000	41	23.00
Marital status	Single	56	31.50		25.001-30.000	17	9.50
	Married	122	68.50		30.001-35.000	12	6.80
Age group(years)	≤ 30	53	29.80		>35.001	40	22.50
	31-40	46	25.80	Professional experience (years)	< 3	40	22.50
	41-50	49	27.50		3-6	34	19.10
	51 ≥	30	16.90		7-10	36	20.20
Education	Lyceé and less	115	64.60		11-14	21	11.80
	Associate degree	29	16.30		15 ≥	47	26.40
	Bachelor's degree	24	13.50				
	Post-graduate (master's and doctorate)	10	5.60				
Food retailers' business type	Grocery shop	71	39.90				
	Buffet shop	55	30.90				
	Supermarket	52	29.20				

Normality Test: Before proceeding with further analysis, the distribution of key variables was assessed through normality testing. This step is essential, as the validity of many statistical techniques depends on the assumption of normality (Drezner et al., 2010). As noted by Justel et al. (1997), confirming this assumption helps guide the selection of appropriate parameter estimation methods. Various tests are available for assessing normality, including the Shapiro-Wilk and Shapiro-Francia tests, as well as tests based on empirical cumulative distribution, such as the Kolmogorov-Smirnov, Anderson-Darling, and Cramer-von Mises tests (Cong et al., 2011).

Table 4

Normality Analysis

Measure	Kolmogorov-Smirnov			Measures of Central Tendency			
	Statistic	df	Sig.	Mean	Median	Skewness	Kurtosis
Impact of trade promotions on food retailers' supplier selection	0.18	178	0.000	3.88	4.00	-1.03	1.09

As shown in Table 4, the data are normally distributed, as both skewness and kurtosis values fall within the acceptable range of -1.96 to +1.96 (Hair et al., 2019).

Table 5

Exploratory Factor Analysis (EFA) and Parallel Analysis (PA)

Statements			Factor load value (SPSS)	Cronbach's alpha (α) AVE CR	PA Results (Ncases: 178; Nvar: 11; Ndataset:100; Percent: 95; Brian Oc)		
					Raw Data	Means	Percently
Economic Incentives					5.65	1.41	1.50
% of Variance: 47,772; Eigen-value: 5,651							
Item 1	Off-invoice allowances provided by the supplier	0.68	$\alpha=.88$ AVE=.53 CR=.88				
Item 3	Supplier's provision of free products	0.52					
Item 6	Supplier offering installment payment options via credit card	0.82					
Item 9	Refunds provided by the supplier	0.83					
Item 10	Inventory financing by the supplier (e.g. provision of equipment such as cupboards or desks)	0.49					
Item 14	Supplier setting up promotional stands for new products at the retailer's premises	0.86					
Item 19	Grant (cash) support provided by the supplier	0.78					
Physical and Distribution Incentives					1.47	1.29	1.36
% of Variance: 9,958; Eigen-value: 1,473							
Item 5	Supplier providing gift or bonus products	0.76	$\alpha=.84$ AVE=.49 CR=.79				
Item 12	Supplier facilitating product delivery to the retailer's premises (logistics support)	0.70					
Item 13	Support for maintenance, repair, or renovation (e.g. whitewashing, flooring, lighting) upon meeting sales quotas	0.82					
Item 15	Suppliers offering various gifts (e.g., gold, hotel stays, travel opportunities, car rental discounts, fuel discounts)	0.47					
Extraction Method: Maximum Likelihood (ML)							
Rotation Method: Direct Oblimin							
KMO: 0.90;							
Bartlett's test of sphericity; ($\chi^2=1.060,266$; df=55; p=.000)							
Cronbach's alpha (α) = 0.90							

Step 4: Factorization of the Scale

Survey data were processed using SPSS 22.0 and AMOS 24.0 software packages. Exploratory Factor Analysis (EFA) was conducted on the same sample of 259 participants, which was the accessible sample size. As shown in Table 5, the results indicate a KMO value of 0.90 and factor loadings of 0.47 and above. Key indicators-including a significant Bartlett's test ($p<0.05$), Cronbach's alpha of 0.903, AVE of 0.532,

and Composite Reliability (CR) of 0.885-confirmed the adequacy and validity of the analysis (Hair et al., 2019). To determine the number of factors, Horn's (1965) Parallel Analysis (PA) was employed, which provides a more robust alternative to the Kaiser-Guttman "eigenvalue > 1" rule, as the latter assumes that the sample correlation matrix perfectly represents the population (Cho et al., 2009).

Table 6

Deleted Statements

Item 2	Supplier offering a promotional product	Note: Items were deleted due to factor loadings below 0.47.
Item 4	Supplier providing a price promotion	
Item 7	Supplier offering consigned goods to me (e.g., returning unsold goods to the supplier and replacing them with new ones)	
Item 8	Supplier offering discount vouchers in various forms	
Item 11	Shelf arrangement of products by the supplier	
Item 16	Supplier offering sweepstakes (chances to win cars, vacations, etc.)	
Item 17	Supplier providing bonus points	
Item 18	Supplier provides vouchers for various purposes	

Furthermore, item distribution across the scale was examined using the Kaiser-Guttman rule, despite its known limitations.

Table 7

Unidimensionality Analysis (Kaiser-Gutman Criteria)

Dimensions	Item numbers	1.Eigen value	2.Eigen value	Total Variance
Economic Incentives (EI)	7	4.22	0.74	54.54
Physical and Distribution Incentives (PDI)	4	2.74	0.57	58.81

Step 5 – 9

Following Carpenter's (2018) guidelines for Steps 5 through 9, EFA parameters and factor loading thresholds were specified. The Maximum Likelihood extraction method was applied, with a factor loading cut-off of 0.47, using Direct Oblimin rotation. Throughout the scale development process, CFA was conducted three times, alongside EFA and PA.

Table 8

Deleted Statements

Supplier accepting bill-backs	Factor Loadings were deleted because they were below 0.47.
Supplier making arrangements at my workplace	
Supplier offering discounts on interchangeable products	
Supplier offering point-based reward products	
Competitions and raffles organized among my sales staff by the supplier	
Supplier offering buy-one-get-one-free promotions	
Supplier delivering products directly to the workplace	
I would change my supplier if they do not offer promotions	
The supplier offers different sales strategies	
Price-quantity promotions such as “50% discount on the second product” or “buy 3, pay for 2”	
Supplier frequently organizing promotional offers	
Supplier providing branded products	
Supplier increasing product diversity	
Supplier offering installment payment options	
Supplier distributing discount coupons	
Supplier offering sturdily packaged products	
Awarding points accumulated through membership cards	
Supplier offering price discounts on special occasions	
Supplier distributing product samples	
Supplier ensuring short delivery times	
Supplier providing gifts with special logo imprinting	
Supplier providing unconditional in-kind and cash support for my workplace	
Supplier providing product display and advertising in my workplace	
Supplier offering incentive payments to sales staff	
Supplier collaborating with our sales staff	
Supplier engaging in joint advertising and marketing activities	
Supplier offering special sales contract for certain products	
Unconditional replacement of damaged or defective products by the supplier	
It is more important that the supplier provides quality products than promotions	
Supplier trust is more important than promotions.	
Promotions are not a priority in supplier selection.	
Supplier promotions provide me with good opportunities	
Supplier promotions reduce my costs	
Supplier promotions remind me which product I need	

Table 9

Goodness of Fit Values

X ² (df)	p	RMSEA	CFI	GFI	SRMR	AVE	CR
1.856	0.000	0.07	0.96	0.92	0.05	0.55	0.93

Model fit was evaluated against established thresholds (Schermelele-Engel et al., 2003), including a Chi-square/df ratio below 5 with a significant p-value (<0.05), RMSEA and SRMR values below 0.08, and CFI and GFI values above 0.90. Additionally, convergent validity was assessed using thresholds of Average Variance Extracted (AVE > 0.50) and Composite Reliability (CR > 0.70).

Step 10

CFA was employed primarily to evaluate psychometric properties and validate the construct of the instrument, while also serving to detect method effects and assess factor invariance (Hair et al., 2017).

Figure 1

DFA-Path diagram

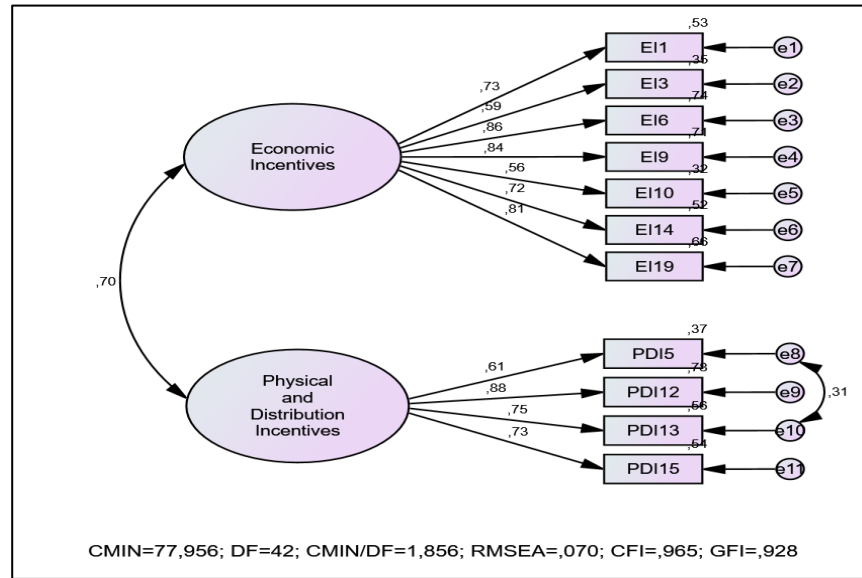


Table 10

Measurement Model

		$\beta 1$	$\beta 2$	Ss	t	p
Measurement Model-Pre-test						
Item 1	←	0.72	1.00			
Item 3	←	0.59	0.77	0.10	7.66	<0.001
Item 6	←	0.85	1.08	0.09	11.16	<0.001
Item 9	←	0.84	1.10	0.10	10.93	<0.001
Item 10	←	0.56	0.77	0.10	7.23	<0.001
Item 14	←	0.72	0.84	0.09	9.36	<0.001
Item 19	←	0.81	1.13	0.10	10.58	<0.001
Item 5	←	0.61	1.00			
Item 12	←	0.88	1.29	0.15	8.25	<0.001
Item 13	←	0.75	1.29	0.13	9.29	<0.001
Item 15	←	0.73	0.94	0.12	7.60	<0.001
		$\beta 1$: Standard coefficients	$\beta 2$: Non-standard coefficients			

The measurement model retained all items, as none fell below the 0.50 factor loading threshold, resulting in an 11-item scale across two dimensions. However, since these analyses depend on the specific respondent group's comprehension, testing the scale on a larger and more diverse sample is recommended for further validation (Wulani et al., 2014).

Study 2: Second Test Analysis (n = 259)

The developed scale was validated using a separate sample of 259 SME food retailers, applying the procedures outlined in Carpenter's (2018) 10-step framework.

Table 11

Demographic Features (n=259)

Variables	Groups	N	%	Variables	Groups	n	%
Sex	Female	39	15.10	Average monthly Income (TL)	< 20.000	102	39.40
	Male	220	84.90		20.001-25.000	50	19.30
Marital status	Single	83	32.00		25.001-30.000	28	10.80
	Married	176	68.00		30.001-35.000	21	8.10
Age group (years)	≤ 30	65	25.10		>35.001	58	22.40
	31-40	74	28.60	Professional experience (years)	< 3	55	21.20
	41-50	68	26.30		3-6	53	20.40
	51 ≥	52	20.00		7-10	45	17.40
Education	Lyceé and less	164	63.30		11-14	31	12.00
	Associate degree	36	13.90		15 >	75	29.00
	Bachelor's degree	44	17.00				
	Post-graduate (master's and doctorate)	15	5.80				
Food retailer business type	Grocery shop	104	40.20				
	Buffet shop	82	31.60				
	Supermarket	73	28.20				

As shown in Table 10, most participants were male (84.90%) and married (68.00%). The largest age group was 31-40 (28.60%), and most respondents had a high school education or lower (63.30%). In terms of business profile, the majority were grocery store owners (40.20%), with a monthly average income of 10,000 TL or less (39.40%), and most had seven years or more experience.

Table 12

Normality Analysis

Scale	Kolmogorov-Smirnov			Central Tendency Measurements			
	Statistic	df	Sig.	Mean	Median	Skewness	Kurtosis
Impact of Trade Promotions on Food Retailers' Supplier Selection	0.12	259	0.000	3.86	4.00	-0.82	0.85

An examination of the scale data confirmed a normal distribution, with skewness and kurtosis values falling within the +/- 1.96 range (Hair et al., 2019). The mean response score of approximately 4 indicates that the participants clearly understood the scale and generally held a positive perception of the influence of trade promotions on supplier selection.

Table 13

Exploratory Factor Analysis (EFA) and Parallel Analysis (PA)

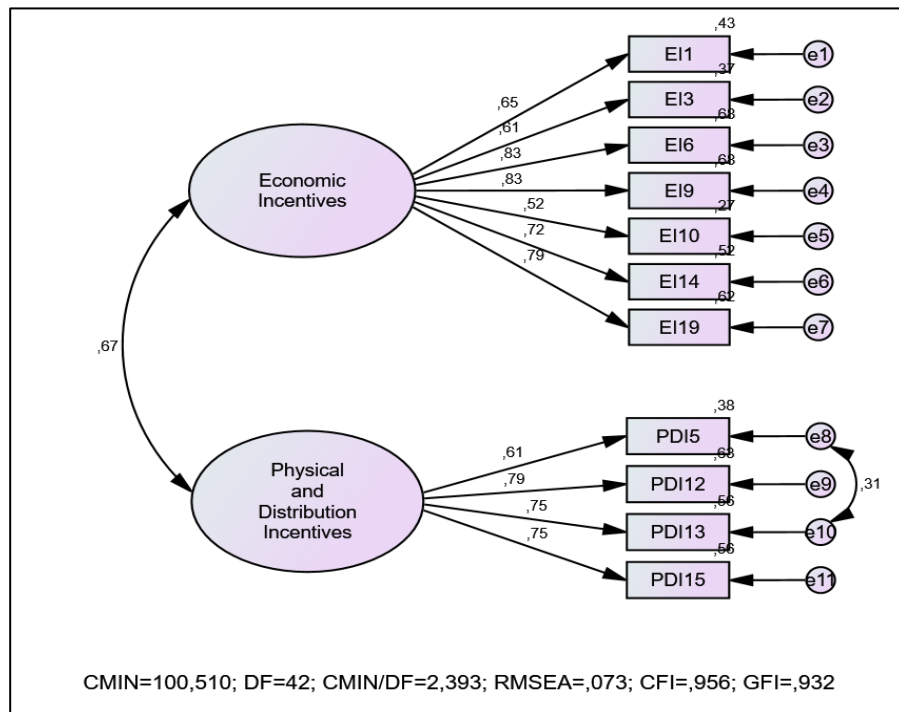
Statements		Factor load value (SPSS)	Cronbach's alpha (α) AVE CR	PA Results (Ncases: 259; Nvar: 11; Ndataset:100; Percent: 95; Brian Oc)		
				Raw Data	Means	Percently
Economic Incentives				5.28	1.34	1.46
% of Variance: 44,155; Eigen-value: 5,289						
Item 1	Off-invoice allowances provided by the supplier	0.61	α= 0.87 AVE= 0.49 CR= 0.86			
Item 3	Supplier's provision of free products	0.47				
Item 6	Supplier offering the option to pay in installments via credit card	0.80				
Item 9	Refunds provided by the supplier	0.81				
Item 10	Inventory financing by the supplier (e.g., provision of items such as cupboards or desks)	0.42				
Item 14	Supplier setting up promotional stands for new products at my workplace	0.84				
Item 19	Cash grant support from the supplier	0.79				
Physical and Distribution Incentives				1.54	1.24	1.32
% of Variance: 10,472; Eigen-value: 1,545						
Item 5	Supplier providing gift or bonus products	0.77	α= 0.83 AVE= 0.50 CR= 0.79			
Item 12	Supplier facilitating delivery of goods to my workplace (logistics services)	0.58				
Item 13	Support for maintenance, repair, or renovation (e.g., whitewashing, flooring, lighting) when quotas are met	0.85				
Item 15	Supplier providing various gifts (e.g. gold, hotel stays, vacations, travel opportunities, car rental discounts, fuel discounts)	0.58				
Extraction Method: Maximum Likelihood (ML)						
Rotation Method: Direct Oblimin						
KMO: 0.90						
Bartlett's test of sphericity; (χ2=1.357,972,266; df=55; p=.000)						
Cronbach's alpha (α) = 0.89						

Given the item averages and normal distribution, the EFA was re-run, confirming a consistent item structure. To assess randomness, PA was applied. The results reaffirmed the adequacy of the scale, with a KMO value of 0.905, a significant Bartlett's test ($p=0.000$), Cronbach's alpha of 0.890, and both AVE and CR exceeding their respective thresholds of 0.50 and 0.70 (Hair et al., 2017). While these values were satisfactory, the distribution of items across sub-dimensions was further examined using the Kaiser-Guttman rule, which confirmed the appropriateness of the scale's factor structure.

Table 14*Unidimensionality Analysis (Kaiser-Gutman Criteria)*

Dimensions	Item numbers	1.Eigenvalue	2.Eigenvalue	Total variance
Economic Incentives	7	4.01	0.77	50.99
Physical and Distribution Incentives	4	2.67	0.53	56.28

Although the EFA results met all criteria, CFA was performed to leverage its superior validation capabilities (Hair et al., 2017).

Figure 2*DFA-path Diagram***Table 15***Goodness of Fit Values*

X ² (df)	p	RMSEA	CFI	GFI	SRMR	AVE	CR
2.393	0.000	0.07	0.95	0.93	0.05	0.51	0.92

Table 15 shows that, although fit indices fluctuated with the larger sample size, all model fit measures remained within the acceptable limits defined by Schermelleh-Engel et al. (2003). The measurement model (Table 16) further confirmed that all factor loadings exceeded 0.50, supporting the validity of the 11-item, two-dimensional structure. However, testing across separate samples alone does not ensure full validity and consistency; therefore, measurement invariance was further examined.

Table 16

Measurement Model

		$\beta 1$	$\beta 2$	Ss	t	p
Measurement Model						
Item 1	<---	0.65	1.00			
Item 3	<---	0.60	0.90	0.10	8.64	<0.001
Item 6	<---	0.82	1.15	0.10	11.15	<0.001
Item 9	<---	0.82	1.21	0.10	11.13	<0.001
Item 10	<---	0.52	0.80	0.10	7.58	<0.001
Item 14	<---	0.72	0.91	0.09	10.03	<0.001
Item 19	<---	0.78	1.15	0.10	10.74	<0.001
Item 5	<---	0.61	1.00			
Item 12	<---	0.79	1.09	0.12	9.00	<0.001
Item 13	<---	0.75	1.25	0.11	10.78	<0.001
Item 15	<---	0.74	0.99	0.11	8.77	<0.001
$\beta 1$: Standard coefficients		$\beta 2$: Non-standard coefficients				

Multi-group analysis was conducted in AMOS to test measurement invariance by comparing and modeling the data across both samples, following the procedure outlined by Byrne (2016).

Table 17

Invariance Analysis

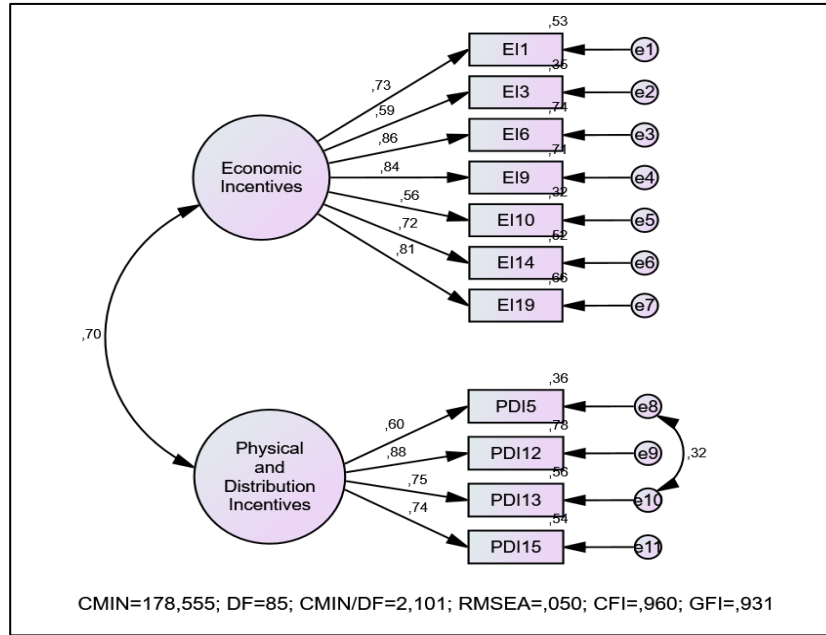
Model	χ^2	df	χ^2/df	RMR	SRMR	CFI	RMSEA	$\Delta\chi^2$	Δdf	ΔCFI	p-value for $\Delta\chi^2$
Grup1	77.95	42	1.85	0.06	0.05	0.96	0.07	-	-	-	-
Grup2	100.51	42	2.39	0.06	0.05	0.95	0.07	-	-	-	-
Model 1: Configural	178.46	84	2.12	0.06	0.05	0.96	0.05	-	-	-	-
Model 2: Weak (Metric)	182.57	93	1.96	0.07	0.05	0.96	0.04	4.10	9	0.002	0.90
Model 3: Scalar	183.41	96	1.91	0.07	0.05	0.96	0.04	0.83	3	0.001	0.84
Model 4: Strong	188.98	108	1.75	0.07	0.06	0.96	0.04	5.57	12	0.003	0.93
Model 5: Partial (SP :a5)	178.77	85	2.10	0.06	0.05	0.96	0.05	10.21	23	0.006	0.99

$\Delta\chi^2$: χ^2 change ($|\chi^2_n - \chi^2_{n-1}|$); Δdf : df change ($|\text{df}_n - \text{df}_{n-1}|$); $\Delta\chi^2/\text{df}$: χ^2/df change ($|\chi^2_n/\text{df}_n - \chi^2_{n-1}/\text{df}_{n-1}|$); ΔCFI : CFI change ($|\text{CFI}_n - \text{CFI}_{n-1}|$); $\Delta\text{CFI} < 0.01^{**}$; p-value for $\Delta\chi^2$: χ^2 significance value of change ($p < 0.05^*$)

Since the ΔCFI value between the samples remained below 0.01 (Cheung & Rensvold, 2002), it was concluded that the scale demonstrates measurement invariance and is suitable for broader application (Byrne, 2016).

Figure 3

DFA-path Diagram



The scale measuring attitudes toward the impact of trade promotions on supplier selection consists of two factors and 11 items in total. The first factor, Economic Incentives, comprises seven items, while the second factor, Physical and Distribution Incentives, comprises four items. Factor loadings for the scale items ranged from 0.56 to 0.88.

DISCUSSION AND IMPLICATIONS

The primary objective of this study was to develop and validate a scale for measuring food retailers' attitudes toward trade promotions in supplier selection. The findings confirm that the *Scale of Impact of Trade Promotions on Food Retailer Supplier Selection (SITPFRSS)* demonstrates sound psychometric properties. The final scale comprises 11 items across two dimensions: *Economic Incentives* (7 items) and *Physical and Distribution Incentives* (4 items). Factor loadings ranged from 0.56 to 0.88, and model fit indices (e.g., CFI = 0.945, RMSEA = 0.078) indicate a stable and well-fitting structure.

The first factor, *Economic Incentives*, encompasses financial benefits such as favorable payment terms and direct discounts. This finding aligns with Walters (1989), who emphasizes that economic incentives strengthen commercial agreements. Similarly, Bauner and Hossain (2023) report that retailers tend to favor promotions that effectively reduce wholesale prices. More recent studies by Chen et al. (2021) and Pourmohammadreza et al. (2025) further support the view that price-related promotions significantly influence buyer decisions by cutting costs.

The second factor, *Physical and Distribution Incentives*, encompasses logistics, delivery efficiency, and in-store support. This finding is consistent with Ünver and Ayvaz (2023) and Rattanasakolpatt et al. (2024), who identify delivery efficiency and reliability as key supplier selection criteria. This dimension highlights that, for retailers, promotions extend beyond price considerations to include operational efficiency and seamless processes (Okwu & Tartibu, 2020).

The robustness of these findings is further supported by the rigorous methodological framework employed. Unlike studies that rely solely on a single mode of data collection, the mixed-mode survey approach (face-to-face and online) used in this study helps minimize coverage error and ensures a more representative sample across diverse retail formats (Dillman et al., 2014). Furthermore, strict adherence to Carpenter's (2018) ten-step scale development protocol-ranging from expert-based content validity assessment to a dual-stage factor analysis (EFA and CFA) ensures that the SITPFRSS is not only statistically sound but also conceptually comprehensive. This approach effectively addresses several methodological limitations identified in prior research.

Our SITPFRSS developed in this study differs from prior research in both its methodological approach and its measurement focus. To date, most studies on supplier selection have relied on mathematical models or Multi-Criteria Decision-Making (MCDM) techniques. For example, Frej et al. (2017) used the FITradeoff method, while Aungkulanon et al. (2024) combined Fuzzy AHP with PROMETHEE II to rank suppliers. Although these approaches are effective for evaluating alternatives based on objective criteria such as cost and quality, they often overlook the behavioral dimension-specifically, how retailers perceive and respond to trade promotions. The present study addresses this gap by developing a scale that captures retailers' subjective attitudes, thereby incorporating behavioral insights that are typically neglected in purely mathematical models. Furthermore, a review of survey-based studies indicates that they generally focus on broad performance criteria or specific domains such as sustainability. For instance, Choi et al. (2024) measured buyer satisfaction using general factors such as product competency and delivery reliability, while Wu and Yang (2011) and Ada (2022) developed scales for green or sustainable supplier selection. While these contributions are valuable, none specifically measure the impact of trade promotion tools-such as shelf support, cash grants, or payment terms-on supplier selection. This is where the SITPFRSS offers a distinct contribution. By directly focusing on these specific promotional mechanisms, it responds to Gómez and Rao's (2009) call for a deeper understanding of how retailers perceive and respond to trade marketing efforts.

This study offers important contributions to both theory and practice in the fields of B2B marketing and supply chain management. From a theoretical perspective, it extends the supplier selection literature by conceptualizing trade promotions as a multidimensional construct comprising both economic and physical/distributional incentives. While prior studies, such as Ahn and Kim (2023), primarily emphasize price and quality, the present study demonstrates that logistical support is equally important in supplier evaluation. This dual dimensional framework provides researchers with a basis for examining the relationship between trade promotions and relational variables such as trust (Görçün et al., 2023). Additionally, Yazdani et al. (2022) highlight supplier selection as a critical component of sustainable supply chain management. In this context, the proposed scale contributes to the literature by operationalizing the promotional dimension within sustainability considerations.

From a managerial perspective, the SITPFRSS offers practical applications for both suppliers and retailers. Suppliers can use the scale to segment retailers based on their responsiveness to different types of incentives. For instance, economic incentives may be more effective for volume-focused retailers (Etim & Sunday, 2019), whereas physical and distribution-related incentives may be more relevant for retailers focused on operational efficiency (Amorim et al., 2016). Retail managers can also use the scale to enhance the objectivity of their supplier evaluation processes. As noted by Frej et al. (2017), subjective factors such as reputation play an important role in decision-making. The SITPFRSS enables managers to standardize this subjective evaluations by grounding them in measurable criteria, thereby improving consistency and decision quality.

CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Reflecting the evolving landscape of the food retail sector, supplier selection has become increasingly crucial due to rising consumer demand for safe and reliable food, as well as the need for efficient supply chain management. This context calls for a comprehensive approach that balances traditional criteria with broader strategic considerations. First, economic incentives play a significant role in food retailers' supplier selection decisions, as such incentives strengthen retailer-supplier agreements. Trade promotions, in particular, serve as a powerful mechanism influencing retailer preference and decision-making processes. Second, the findings highlight the importance of specific promotional tools in shaping these decisions. In this regard, the present study validated the *Scale of Impact of Trade Promotions on Food Retailers' Supplier Selection (SITPFRSS)*, demonstrating its reliability in measuring retailer attitudes toward supplier selection. This study makes a meaningful contribution to the literature by developing and validating a sector-specific scale that captures how trade promotions influence supplier selection decisions. While existing research often emphasizes traditional criteria such as cost, quality, and delivery, the SITPFRSS addresses an important gap by offering a more nuanced understanding of the role of trade promotions.

The scale development process was strengthened by the rigorous use of both quantitative and qualitative methods. The comprehensive dataset-derived from literature review, expert evaluation, and field research—enhanced the content validity of the scale. In addition, statistical techniques, including factor analysis and reliability testing, confirmed the scale's psychometric properties, offering a robust measurement instrument for the field. Another significant contribution of this study lies in its practical implications for food retailers and suppliers. The scale enables the identification of trade promotion types that are most valued by retailers, thereby assisting suppliers in optimizing their marketing strategies. At the same time, retailers can use the scale to make more informed and strategic supplier selection decisions by systematically evaluating the potential impacts of trade promotions. For example, retailers may determine whether specific promotional tools contribute to increased customer loyalty or reduced inventory costs. Furthermore, this study provides a foundation for future research. Testing the scale across different geographical regions and various food retail formats (e.g., supermarkets, grocery stores, online retailers) would enhance the scale dimensions and key performance indicators—such as supply chain performance, customer satisfaction, and profitability—which could offer more in-depth insights into the broader implications of trade promotions. However, certain limitations should be acknowledged. The study is limited to the Thrace region of Türkiye, which may constrain the generalizability of the findings. Despite this limitation, the study addresses a significant research gap by providing a tool that captures how retailers integrate both traditional and strategic factors in their supplier selection processes.

A key limitation of this study is that, due to sample size constraints, EFA and CFA were conducted on the same dataset, rather than on separate samples. Additionally, the data were collected from a convenience sample of small food retailers—including supermarkets, kiosks, and grocery stores—which may limit the generalizability of the findings. Therefore, caution should be exercised when extrapolating the results to other types of food retailers or to different sectors. Future research could investigate potential variations in supplier selection behavior across different retail formats and industries. It would also be valuable to examine the relationships between retailer characteristics—such as gender, age, specialization, experience, and key decision criteria—and their responses to trade promotions. The two-factor structure of the SITPFRSS represents an initial model. Although the scale's fit indices fall within acceptable ranges, further refinement is warranted to enhance the model's overall fit and robustness. Future studies should employ larger and more diverse samples to strengthen external validity. In addition, the application of more advanced statistical techniques may further contribute to the development and validation of the scale. Expanding the use of this scale across a wider range of retail contexts would provide deeper insights into how different types of retail managers respond to trade promotions during supplier selection and evaluation processes.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

During the preparation of this work, the authors utilized generative artificial intelligence tools, including NotebookLM, Gemini, and ChatGPT, for specific tasks such as translating secondary sources, summarizing content, formatting references, and correcting linguistic errors. These tools were employed to enhance the clarity, readability, and accuracy of the manuscript. The authors reviewed and edited all AI-generated content and took full responsibility for the final version of the publication.

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