Journal of Applied Science, Engineering, Technology, and Education *ISSN: 2685-0591 (online)*
Vol. 8 No. 1 (2026)
https://doi.org/10.35877/454RI.asci4447

Exploring the influence of Retail Value Chain Support Activities on Shoppers' Behaviour: Ordered Probit Model Approach

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Abstract

The support activities that make up the retail value chain also play a role in defining the in-store experiences and their contentment of the customers. The underlying aim of this investigation is thus to explain the impact of core support functions, here firm infrastructure, human resource management, technology management as well as procurement practices in the customer satisfaction within formally-organised retail outlets. A total of 500 consumers visiting hypermarkets and department stores in Visakhapatnam were used to gather primary data through a structured questionnaire that used a five-point Likert scale. Empirical evidence shows that a few activities of the retail value-chain support have a tremendous impact on customer satisfaction, and such activities as technology-enabling services, efficient procurement practices and infrastructure-related service attributes are particularly significant. These findings support the argument that optimisations on the functional aspects in the value chain generate a measurable increase in consumer satisfaction and thereby serve to support the strategic relevance of support activities in the retail sector. This study enhances the existing body of literature on retail-management by integrating the value-chain perspective and consumer-behavioural analysis to provide relevant empirical support on the strategic contribution of support functions in creating shopper-satisfaction.

Keywords: Competitive advantage; retail value chain; support activities; retail; value chain management

Received: 20 November 2025 Revised: 7 April 2026 Published: 30 April 2026

1. Introduction

Retail value chain management will give merchants a competitive edge as well as a differentiator for consumers. The phrase 'value' refers to something for which a consumer or client would pay. It must be offered by the producer of any organization in order for it to be viable in a competitive context. Value Chain Management is the process of creating and managing value at every level of the value chain, from raw material processing to manufacturing, marketing, distribution, and retailing to consumers. Value means something different to each customer. In the retail industry, some shoppers want value in terms of product quality and variety, and others prefer cheap prices and outlet discounts. Similarly, some consumers search for value for money, while others look for money for value. Value Chain Management is the concept of giving additional value to customers via main and secondary activities, resulting in improved profits for the company.

Michael Porter and the term "value chain" are closely intertwined. Michel Porter (1980) published the book "Competitive Strategy." According to Porter (1980), the value chain includes "all actions required from the conceptual design of a product or service through its delivery to the ultimate user." Porter defines the value chain as a technique for departmentalizing a corporation into discrete operations that are strategically related to one another in order to understand a company's current and potential sources of expenditure and difference. According to Michel Porter (1990), a value chain is "an interdependent system or network of activities, connected by linkages". Following that, several researchers defined the value chain in their own ways. Brown (1997) described value chain as a means of

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partitioning a firm into strategically important activities, enabling the organization to identify sources of competitive advantage and conduct these operations more cheaply or better than competitors. The value chain is part of a larger set of activities carried out by channel participants such as suppliers, distributors, and customers. Pathania-Jain (2001) argued that a connection in a well-managed system may be a substantial source of economic gain. Chang and Hwang (2002) defined the value chain as a sequence of processes that add value to the goods and services offered to customers, as well as the company's own products. Lynch (2003) defined 'Value Chain Analysis' as the relationship of two domains. To begin with, the value chain links an organization's activities and its essential functional components. The contributions of each component to the firm's total added value are then evaluated. According to Hill and Jones (2012), a value chain is a series of processes that convert inputs into outputs with the purpose of producing and distributing value to customers.

The value chain analysis technique categorized all corporate operations into two broad categories: “primary activities” and “support activities” as shown in Figure 1. Key activities include incoming logistics, operations, outbound logistics, marketing and sales, and services. Procurement, business infrastructure, human resource management, and technical advancement all fall under support operations. Finally, the model posits that if a corporation conducts these procedures effectively, the product's value will increase, resulting in profits. Several scholars modified Michel Porter's value chain model to produce specialist value chain models for different industries, companies, and management positions (1985).

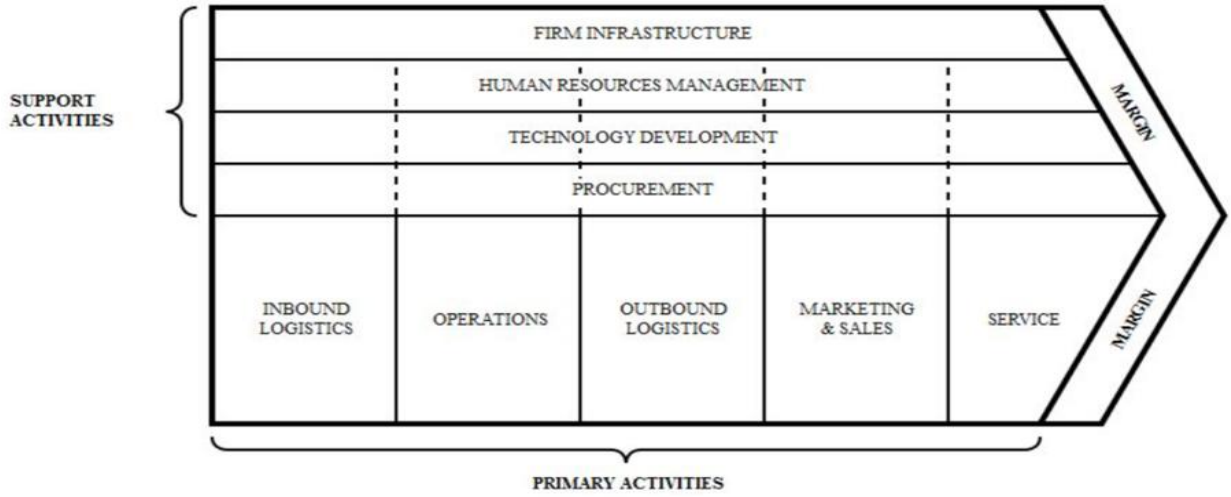

Figure 1. The Generic Value Chain, Source: Michael E. Porter (1985, p.37)

Although the value chain framework proposed by Michael E. Porter has been widely applied to manufacturing and strategic management contexts, its empirical application to organized retail support activities remains relatively limited (Porter, 1985). Existing retail studies have primarily focused on primary operational functions such as logistics, pricing, and merchandising performance, while the influence of support activities including retail infrastructure, HRM practices, technology management, and procurement efficiency on consumer behavioral outcomes has received comparatively less systematic investigation (Reinartz et al., 2019). Extant scholarship has mainly evaluated consumer satisfaction through standard regression or structural-equation model, thus creating a methodological gap with regard to the use of ordered-probabilistic model that best test ordinal satisfaction in ordinal measures (Greene, 2012). Empirical studies that dissociate value-chain support functions with shopper satisfaction are particularly meager in nascent retail markets like India, despite the pace at which global retail modernisation is catching up (Agrawal & Smith, 2015). Further, the bulk of research divides the isolated dimensions of operation, instead of adopting an integrated value-chain perspective that can have the cumulative effect of several mutually supportive activities (Finne 2008, Sivonen 2008). Consumer based research that assesses the managerial level operational decisions in its relationship to perceived shopping value at the point of sale is also lacking (Grewal et al., 2011). A thorough empirical study that could have analyzed the impact of retail support activities on customer satisfaction using an Ordered Probit Model would therefore be the solution to overcome the conceptual, methodological and contextual gaps in the literature.

This is one of the foremost studies which concentrated exclusively on support activities of retail value chain. This study was designed from the standpoint of the consumer to determine the antecedents of customer happiness in retailing from a value chain viewpoint. This study is unique in that it identifies retail value chain activities from retail experts via targeted group interviews and assesses the influence of customer happiness on retail value chain support activities. This research will take forward the theoretical aspects of value chain management by applying to retail sector. The outcomes of the study are very useful for retail sector, it is extremely beneficial for organized retailers to improve consumer satisfaction levels by using the retail value chain idea in their locations, consequently enhancing their profit margins.

This study attempted to assess customer satisfaction with support activities of retail value chain management strategies used by retailers. The goal of this study is to determine which value chain support activities satisfy consumers. The data was collected based on the retail value chain management practices identified in field interviews with retailers in the study area, and the statistical tool 'ordered probit model' was used to determine what are the significant value chain activities and non-significant activities in each of the support activities. The following concerns are addressed in this study.

a. Evaluation on Customer Satisfaction towards Retail Outlet Infrastructure.
b. Evaluation on Customer Satisfaction towards Retail HRM.
c. Evaluation on Customer Satisfaction towards Retail Technology.
d. Evaluation on Customer Satisfaction towards Retail Merchandise Procurement.

There is a strong theoretical basis of the current investigation in the Value Chain framework by Michael E. Porter, which represents the organisational activity as a process chain consisting of interconnected processes, which create the customer value and bring the competitive advantage. The value-chain model separates the primary activities which include inbound logistics, operations, outbound logistics, marketing and sales and service and the support activities which include firm infrastructure, human-resource management, technology development, and procurement. Although primary activities present a direct channel through which service or product delivery is made, support activities help to increase operational efficiency and strengthen the entire process of value creation (Porter 1985).

In the organised retailing sphere, support activities come to play a leading role in determining the consumer experience and satisfaction. A quality of the physical shopping experience is dictated by the infrastructure of a retail outlet and (embracing accessibility, store layout and ease of delivery of services) can influence the way customers perceive these retail outlets and make purchasing decisions directly. The human-resource-management practices, e.g., employee training, attentiveness, service oriented, and customer handling skills have a significant impact on service quality and the development of long lasting customer relations. Similarly, technological adoption in the process of retail, including the billing systems as well as the e-payment systems and inventory-tracking, refresh operations accuracy, shortens the waiting hours, and improves the shopping experience. The procurement and merchandise-management operations are in charge of the availability of high quality items, variety of range and constant supply, and as a result, customer satisfaction and loyalty is directly impacted.

The value-chain model by Porter suggests that the alignment and an appropriate coordination of these support activities creates synergies in the operations that intensifies the ability of an organisation to produce better value in comparison to rivals. In the stores, a customer does not evaluate a product quality only but a total system of service created by infrastructure, technology, human resources, and procurement effectiveness. Analysing customer satisfaction, therefore, within the theoretical framework of the value-chain enables a more systematic approach towards the specifics of internal operational processes into external customer value production.

Based on this theoretical approach, the current study defines the major support activities of the retail value chain such as the firm infrastructure, HRM practices, technology management, and procurement as the explanatory variables that determine customer satisfaction. The empirical testing of these connections through ordered probit modelling the research analyses the applicability of the value-chain theory by Porter in an organised retail environment, proving the importance of strategic management of the support activities in increasing consumer satisfaction and competitive advantage.

2. Review of Literature

Recent sources have noted that Value Chain Analysis (VCA) and Value Chain Management (VCM) have rapidly evolved beyond classic cost-reduction paradigms to dynamic frameworks that focus on digital integration, their ability to be resilient, as well as sustainable in both spirit and form in an array of product sectors. VCM has been redesigned

fundamentally with the introduction of the integration of artificial intelligence and digital tools. In the field of agriculture, AI technologies are already actively rewriting the value chain and optimizing all processes: crop tracking to distribution logistics to increase yield and sustainability (Assimakopoulos et al., 2024). On the same note, digital transformation of manufacturing firms requires full restructuring of the value chain. To press on digital resources the full benefit of maintaining competitive advantage, organizations will need to reorganise their internal routes in operations (Li et al., 2022). Bibliometric review attests to the fact that such digital-first type of VCA has established itself as a trend especially in recent research on a supply chain (Zhang et al., 2022).

The topic of resilience is highly prevalent in post-pandemic writing. This transition to VCM practices to reduce the effects of global disruption is vital as global value chains adjust to the reality after COVID-19 (Gereffi et al., 2021). This is very pronounced in complicated technology products such as electric vehicle (EV) batteries. VCA proves that the vulnerability of a whole supply chain to geopolitical and material disruptions directly depends on the first product design, including which battery chemistry is chosen (Cheng et al., 2024). Future-proofing value chains that predictive management will be essential in the future-facing models of Anticipatory VCM that consider future global economic shocks in the energy-related sector (Kumar et al., 2026). VCA is a key optimization and governance tool of traditional goods despite the high-tech progress. VCA is also used to detect inefficiencies and better governance systems around agricultural commodities such as cauliflower and tomatoes in developing regions directly empowering smallholders (Arafath et al., 2023). The strategic VCM interventions in cereal-legume production equally distinguish between value-chain ready farmers and those who need infrastructure baseline support to guarantee equal access to the market (Thapa et al., 2021). Moreover, the management of the value chain of highly perishable goods still presents a multifaceted strategic challenge, as it is necessary to control physical degradation through the farm gate to consumer (Mohammad et al., 2025). Lastly, VCA is also integrated with core competency frameworks in heavy mining to make the most important outsourcing decisions, showing that it is not limited to simple logistics (Moda et al., 2023).

Over the lifetime of retail value chain management, major developments have transformed operations and consumer experiences. Early in the 20th century, Gordon Selfridge brought American department store ideas into Britain, thereby changing the retail landscape. Establishing the basis for modern retail management, Selfridges's approach concentrated on customer service, product display, and marketing techniques stressing consumer participation. Mark & Spencer (M&S) transformed value chain management by stressing data-driven decision-making and inventory control. The company leveraged its creative stock-management systems that produced cumbersome sales and inventory data, thus enabling it to make a more rational selection of products based on the demand by the consumer. Using this approach, M&S managed to ensure high sales per square foot and reduce wastage at the same time, which explains how profitable business can become with careful attention to inventory management (Scott & Walker, 2017).

The effectiveness of the operations underwent a tremendous change in this period owing to technological changes. The convergence of modern-day office tech and telecommunications allowed companies to rationalise process, which made it cheaper and quicker to deliver the services. These technological advances did not only improve internal functions; they enabled stores to be quick to address the changing consumer needs (Barsukov & Bukhov, 2019). The interest later shifted as the retail industry evolved over time to meet the new times with increasing customer demands and competition. To evade the complexity of current value chains and respond to the established trends in the retailing sector, it would be vital to be keen on such dynamics. This prolonged growth into the market highlights the need by stores to embrace innovative and effective management practices in the quest to be able to remain competitive in the contemporary market.

Recent changes in value chains of retail businesses highlight the increasing role of artificial intelligence assimilation, which has become significant in defining supply-chain management. The retailers are quickly implementing AI technologies to enhance operational effectiveness, optimise the use of inventory, and fulfill the desire of consumers to experience a unique customer experience. Customers are currently expecting faster delivery schedules and extremely customised services; therefore, companies have to readjust strategies to meet these increased expectations. This individualistic tendency is transforming the relationship between the customer and the retailer as retailers use data analytics to understand consumer behavior and preferences (Adeniran et al., 2024). However, the implementation of the advanced AI systems creates unique challenges. Many of these outlets do not succeed in implementing such solutions because of the expenditures on training of their workforce, sustained maintenance, and technological progress. In addition, the unrelenting fears of data insecurity and privacy instil consumer mistrust into the use of personal information. With such implications that have significant consequences in the competitive environment currently held by the current business environment, the factors can damage customer fidelity and confidence, thus endangering consumer loyalty.

Going forward, as retailers struggle to appease consumers with ever-changing demands of a digital economy, the strategic implications of these events will require a very keen attention to innovativeness and flexibility (Anica-Popa et al., 2021). In the future, a combination of multichannel approach, sustainability demands and improved data analytics will most probably define the workings of the retail value-chain governance. Regardless of the transactions that emerge on the internet or the physical shops, retailers are now appreciating the necessity to offer a seamless shopping experience in more than one location outwardly. This highlights the need to have enterprises ensuring the cohesion of their systems, and facilitating the easy movement of customers across different modalities of purchase. Successful omni-channel strategies may increase customer satisfaction and loyalty as consumers want consistent experiences (Burakhanova et al., 2023).

For many stores, sustainability is starting to take front stage. Customers are seeking companies with ethical standards as they are more aware of environmental issues. From sourcing materials responsibly to cutting waste during manufacture and delivery, retailers have to include sustainable practices all throughout their supply lines. This action not only satisfies customer wants but also helps companies to be leaders in corporate responsibility (Waddock et al., 2002). Influencing the direction of retail will depend mostly on data analytics. By gathering and evaluating vast amounts of consumer data, retailers may gain understanding of preferences and buying behavior. This information might assist companies in inventory control, marketing strategies, product development, therefore allowing them to quickly adjust to consumer wants and market changes (Holloway, 2024). In essence, stores going forward have to welcome these changes if they are to strengthen their value chains. Using data analytics and juggling omnichannel experiences with sustainability might lead to more effective operations, therefore enhancing consumer relationships and guaranteeing long-term success in a cutthroat industry (Walter, 1999).

The retail value chain management (RVCM) term is used to refer to the intentionally arranged tasks that retail companies undertake in the quest to create value to their consumers and earn competitive edge. It is based on the wider theoretical perspective of value chain analysis authored by Porter (1985), who argued that the internal operations of a firm could be orchestrated to have a superior value at a lower cost such as procurement, customer support, etc. In the retail case scenario, the chain of value starts with sourcing and procurement, moves through operations and logistics and terminates at the point of sale where the customer interacts with the product or service (SAP Learning Journeys, 2024).

Researchers have noted that retail value chains are increasingly becoming more complex due to the process of market globalisation, long-term continuous technological improvement, and changing consumer demands. As an example, one can refer to the study by Finne and Sivonen into the Retail Value Chain that shows how the issues of internationalisation and consolidation have reshaped the retail structure and established innovative collaboration mechanisms among the supply-chain partners (Finne & Sivonen, 2008). Moreover, the modern value-creation in retail is not just about any line of physical movement of goods; it includes information devolution, customer-data analytics, and strategic alliances that are mutually affecting the shopper behaviour.

A single research stream has been specifically dedicated to the management of retail supply-chains, which is also inherently connected with RVCM. Randall et al. (2011) focused on the influence of agile and responsive supply-chain strategies on managing uncertainty in demand and competitive pressure within the retailer sector, as they find the flexibility and responsiveness in RVCM practices to be the key factors of performance. Similarly, the study by Agrawal and Smith on the use of quantitative models in the operation of a retail supply chain highlights the role of the inventory planning, assortment planned and leveled pricing in the creation of value along the chain, particularly in cases of demand volatility.

The literature that has emerged in recent times also highlights the radical impact of the digital technologies on the retail value chain. Reinartz, Wiegand, and Imschloss (2019) state that the shift to digital transformation redresses the conventional value creation mechanisms in retail due to the opportunity to interact via multichannel and have a deeper understanding of consumers, restructuring the competitive environment to retailers. Online technologies, including RFID, mobile shopping websites, and omni-channel retail, increase the ability of the retailer to respond to customer demands and influence purchase behaviour even further.

Nevertheless, gaps in the literature on the RVCM remain significant, which is why scholars admit significant improvements in the subject. As an example, some global value chain studies provide customer-level understanding on macro-level coordination, but there is relative scarcity of retail-specific models integrating customer analytics on behaviour with value-chain formulation and performance results. This deficiency gives a good opportunity to empirical investigation yielding a correlation between specific RVCM support practice, including collaborative

planning, forecasting, replenishment, etc., and the patterns in shopper behaviour which is of burning interest to the current study.

3. Methodology

3.1. Research Design

To examine the effects that retail value-chain support activities have on customer satisfaction, this study follows a quantitative, cross-sectional approach to the research. The empirical one is a data-based one, in which any structured survey data was taken to an Ordered Probit regression model, which is a reasonable estimation method when the dependent variable is an ordinal one like levels of satisfaction measured at the Likert-type scales. The analytic framework analyzes the relationship between support activities, such as the retail outlet infrastructure (firm infrastructure), the retail human resource management (HRM), the retail technology, and the procurement activities and retailer perceived satisfaction among the shoppers.

3.2. Study Area and Sampling

Primary data was collected in the organized retail stores located in Visakhapatnam in India. The respondents were sampled in the large hypermarkets and department stores among them Reliance Smart, Reliance Bazaar, Spencer Hypermarket, DMart and more retail store. These format options were not accidental since they characterize multi-category retail settings characterized by organised, multi-category value-chain practices that are actively promulgated. A purposive system of sampling was used to ensure that the participants had enough knowledge in terms of the shopping experience to appraise the attributes of retail services with the necessary level of accuracy. The sample only included regulars of such outlets as well as customers enrolled to store loyalty programmes. The responses were accumulated to five hundred usable responses performed by consumers different socioeconomic backgrounds thus securing sufficient variability to apply statistical analysis and increasing the generalisability of the results in the context of organised retail environments.

3.3. Instrument Development

An effusive questionnaire was designed to determine customer satisfaction in regards to the chosen value-chain support activities. The tool included several sections, which were attributed to four major constructs: (1) retail outlet infrastructure; (2) retail HRM practices; (3) retail technology adoption; and (4) procurement and merchandise management practices. All the constructs were operationalised based on various observable qualities as a result of wide qualitative search and consultation.

The first stage involved the use of focus-group discussions and specialised interviews with the retail professionals such as store managers, merchandising managers, floor supervisors and operations executives in order to find out the most relevant value-adding support activities followed in the organised retail locations. The qualitative data presented by these interactions were coded and analysed to provide the attributes applicable to each value-chain activity. These qualities were then used as measurement variable in the questionnaire.

Everything was rated on a five point Likert scale between 1 (strongly disagree) and 5 (strongly agree), thus providing the perceived satisfaction of the respondents on each attribute service of the retailer. To determine clarity, reliability, and content validity, the instrument was pre-tested on a small pilot group of shoppers, and any changes to it were made before the actual data was collected.

3.4. Data Analysis Technique

Since the dependent variable, customer satisfaction, is ordinal in nature, the Ordered Probit regression modelling was used in the estimation of the relationship between the value-chain support activities and customer satisfaction levels. Individual ordered probit models were estimated in respect of each of the dimension of value-chain (HRM, technology, procurement, and infrastructure) allowing a discrete strict assessment of the importance of the various attributes of operations. STATA software was used to obtain the estimates of the model; the measure of statistical significance was determined by z-statistic, p-value, likelihood-ratio chi-square, and pseudo-R 2.

The given methodological approach allows a rigorous study of the impact of certain operations support activities in the retail value-chain on the consumer satisfaction that can provide empirical data to inform management decision-making and to optimize the retail value-chain strategically.

3.5. Model Specification

The 'ordered probit model' was employed to assess customer satisfaction in retailing ‘support activities value chain,' and the statistical program STATA was utilized for execution. Such responses are common in the social sciences, where answer categories are organized but do not form an interval scale. Perceptual questions in public opinion surveys typically take the form of Likert-type scales ranging from 'very unhappy' to 'very pleased' and are commonly coded as 0,1,2,3,4, or 1,2,3,4,5, etc. There is a clear hierarchy among the categories, however discrepancies between neighboring categories should not be deemed equal: (Greene, 1993).

Responses with ordered categories are challenging to model using conventional regression. Ordered linear regression is incorrect because the dependent variable is not an interval. The space between hypothetical possibilities cannot be described as uniform. In these instances, the ordered probit and logit models are helpful. Customer satisfaction levels with retail value chain management support activities were measured using ordinal categorical response data as the key dependent variable of interest. Consider the ordered probit model:

$$Y^* = \beta^1 X_i + \epsilon_i$$

where:

Y^* is underlying latent variable that indexes the seriousness of the problem
X_i is a vector of parameters to be estimated and
ϵ_i is the stochastic error term.

Where Y^* (1, 2, 3, 4 and 5) - is underlying latent variable that indexes the level of agreement of the value-added retail operation asked by the researcher to the customers/respondents.

= 1, Highly Dissatisfied ; = 2, Dissatisfied ; = 3, Slightly Satisfied ; = 4, Satisfied ; = 5, Highly Satisfied

4. Results

4.1. Evaluation on Customer Satisfaction Towards Retail Infrastructure

In this section, an effort is made to measure consumer satisfaction with the retail infrastructure provided by merchants. Retail infrastructure refers to the physical retail outlet infrastructure that makes it easy for customers to shop at the outlet. In conversations with shops, the following value-added activities (attributes of retail infrastructure) were identified: the provision of restrooms, the provision of trail/fitting rooms, and safety measures. Convenient parking facilities, access to the main road Provision of modern equipment and fixtures. Easy internal mobility, cleanliness of the store, availability of food courts on outlet premises, convenient interior design, care for an exciting shopping experience, air conditioning scent/ aroma, gaming zone, entertainment, Drinking water facilities, lift/escalator facilities, fire extinguishment facilities, barrier-free environment for differently abled clients, and a convenient store layout. This study was carried out using all nineteen parameters as independent variables and total consumer satisfaction with retail infrastructure as the dependent variable. The findings are shown in Table 1.

The model is run with nineteen variables and 500 observations. The model is determined to be statistically significant; the chi-square value is 286.08, the log likelihood is -445.15772, and the pseudo R2 value is 0.2432. Seven variables/attributes were found to be statistically significant at the 0.01 level: provision of restrooms, provision of trail/fitness rooms, availability of food courts, convenient interior decoration, care for an exciting shopping experience, scent/aroma, and provision of a fire extinguisher facility. Four factors, including access to the main road, cleanliness of the store, air conditioning, and provision of drinking water, were shown to be significant at the 0.05 level. One variable, Safety Measures, was determined to be significant at the 0.10 level.

Provision of Rest Rooms: The provision of restrooms indicates that a one-percent modification leads to a 36.17 percent boost in consumer satisfaction. The availability of restrooms enhances consumer pleasure. The marginal effect indicates that the influence is expected to increase by 8.1 percentage points in comparison to their counterparts, and vice versa.

Provision of Trail/Fitting Rooms: The provision of trail/fitting rooms indicates that a one-percent adjustment leads to a 25.54 percent improvement in client satisfaction. The availability of fitting rooms significantly enhances client happiness. The marginal effect indicates that the influence is expected to increase by 7.2 percentage points relative to their counterparts, and conversely.

Table 1. Ordered Probit Model – Evaluation Customer Satisfaction w.r.t. Retail Infrastructure

Attribute	Coefficient	Std. Error	z-value	P-value	Significance	95% Confidence Interval
Convenient Interior Decoration	0.519	0.091	5.74	0	***	[0.342, 0.697]
Availability of Food Courts	0.429	0.096	4.47	0	***	[0.241, 0.618]
Care for Exciting Shopping Experience	0.322	0.083	3.87	0	***	[0.159, 0.485]
Provision of Fire Extinction Facility	0.321	0.082	3.92	0	***	[0.161, 0.481]
Provision of Rest Rooms	0.362	0.081	4.44	0	***	[0.202, 0.521]
Scent/Aroma	0.228	0.058	3.91	0	***	[0.114, 0.342]
Access to Main Road	0.232	0.078	2.97	0.003	**	[0.079, 0.384]
Provision of Trail/Fitting Rooms	0.255	0.073	3.5	0	***	[0.112, 0.399]
Cleanliness of the Store	0.174	0.066	2.65	0.008	**	[0.045, 0.302]
Air Conditioning	0.17	0.06	2.86	0.004	**	[0.054, 0.287]
Provision of Drinking Water	0.17	0.058	2.91	0.004	**	[0.055, 0.284]
Safety Measures	0.171	0.086	1.98	0.048	*	[0.002, 0.340]
Provision of Lift	0.135	0.082	1.64	0.101		[-0.027, 0.297]
Convenient Store Layout	0.093	0.071	1.32	0.188		[-0.046, 0.232]
Easy Internal Mobility	0.049	0.081	0.61	0.543		[-0.109, 0.207]
Gaming Zone/Entertainment	0.045	0.062	0.74	0.462		[-0.075, 0.166]
Barrier-Free Environment	0.054	0.071	0.76	0.45		[-0.085, 0.193]
Provision of Modern Equipment	-0.048	0.078	-0.62	0.535		[-0.201, 0.104]
Convenient Parking Facilities	-0.014	0.066	-0.2	0.838		[-0.144, 0.116]
/cut1 | 4.364066 .5419394 3.301884 5.426247				/cut2 | 5.105734 .5526201 4.022618 6.188849		
/cut3 | 6.732316 .5906707 5.574623 7.89001				/cut4 | 9.080188 .6311865 7.843085 10.31729		
LR chi2(19) = 86.08; Prob > chi2 = 0.0000*; Log likelihood = -445.15772;Pseudo R2 = 0.2432;						
* significant at 0.01 level		** significant at 0.05 level			*** significant at 0.10 level	

Source: calculations STATA

Availability of Food Courts: The availability of food courts indicates that a one-percent adjustment leads to a 42.93 percent increase in consumer satisfaction. The presence of food courts definitely enhances consumer pleasure. The marginal effect indicates that the influence is expected to increase by 9.6 percentage points relative to their counterparts, and conversely.

Convenient Interior Decoration: The variable's coefficient indicates that a one-percent adjustment in Convenient Interior Decoration leads to a 51.93 percent enhancement in customer satisfaction. Convenient-Interior-Decoration clearly enhances client pleasure. The marginal effect indicates that the influence is expected to increase by 9 percentage points relative to their counterparts, and conversely.

Care for Exciting Shopping Experience: The Care for Exciting Shopping Experience variable indicates that a one-percent adjustment leads to a 32.30 percent increase in consumer satisfaction. Care-for-Exciting-Shopping-Experience clearly results in enhanced consumer satisfaction. The marginal impact indicates that the influence is expected to increase by 8.3 percentage points relative to their counterparts, and conversely.

Scent/Aroma: The correlation indicates that a one percent variation in Scent/Aroma leads to a 22.79 percent enhancement in customer satisfaction. Scent/Aroma evidently enhances client pleasure. The marginal impact indicates that the influence is expected to increase by 5.8 percentage points relative to their counterparts, and conversely.

Provision of Fire Extinction Facility: The provision of fire extinction facilities indicates that a one-percent alteration leads to a 32.10 percent enhancement in customer satisfaction. The availability of a fire-extinguishment facility enhances client pleasure. The marginal effect indicates that the influence is expected to increase by 8.1 percentage points relative to their counterparts, and conversely.

Access to Main Road: The coefficient for Access to Main Road indicates that a one-percent variation in this variable leads to a 23.17 percent improvement in customer satisfaction. Access to the main road correlates with increased

customer satisfaction. The marginal effect indicates that the influence is expected to increase by 7.7 percentage points in comparison to their counterparts, and conversely.

Cleanliness of the Store: The store's cleanliness: A one-percent enhancement in cleanliness correlates with a 17.67 percent increase in customer happiness, as shown by the variable's coefficient. It is evident that shop cleanliness correlates with increased consumer satisfaction. The marginal impact indicates that the influence is expected to increase by 6.5 percentage points relative to their counterparts, and conversely.

Air Conditioning: The coefficient indicates that a one percent variation in air conditioning leads to a 17.04 percent enhancement in customer satisfaction. Evidence indicates that air conditioning enhances client pleasure. The marginal effect indicates that the influence is expected to increase by 5.9 percentage points relative to its equivalents, and conversely.

Provision of Drinking Water: The provision of drinking water indicates that a one-percent modification leads to a 16.95 percent increase in consumer satisfaction. Provision of drinking water clearly enhances consumer pleasure. The marginal effect indicates that the influence is expected to increase by 5.8 percentage points relative to their counterparts, and conversely.

Safety Measures: A one-percent enhancement in Safety Measures correlates with a 17.10 percent rise in customer satisfaction, as shown by the variable's coefficient. Safety measures evidently enhance consumer pleasure. The marginal effect indicates that the influence is expected to increase by 8.6 percentage points in comparison to their counterparts, and vice versa.

The probabilities of belonging to these categories are defined as the probability of the values of an underlying latent variable passing certain thresholds, which are determined by the value of the cut-off points. In the ordered probit model, with respect to the level of customer satisfaction towards retail infrastructure, the probability of customer highly dissatisfied is Pr($\hat{Z} + \delta_i \leq 4.364066$), dissatisfied is Pr($4.364060 \leq \hat{Z} \leq 0.5419394$), slightly satisfied is Pr($5.105734 \leq \hat{Z} \leq 0.5526201$), satisfied is Pr($6.732316 \leq \hat{Z} \leq 0.5906707$) and highly satisfied is Pr($\hat{Z} + \delta_i \geq 9.080188$).

The findings of the ordered probit model in the determination of the effect of retail infrastructure attributes on customer satisfaction are outlined in Table 1. The statistical significance in the overall model (LR 2 = 86.08, p =.001) proves that the chosen infrastructure variables jointly explain the differences in customer satisfaction. The pseudo R 2 of 0.2432 indicates that behavioral perceptions models can have a satisfactory explanatory power.

Customer satisfaction is affected positively by out of the infrastructure attributes, convenient interior decoration (0.519, p n.d.) has the highest impact, indicating that the aesthetic value has a significant positive impact on the experience that shoppers attach to retail stores. On the same note, food court availability ($\beta = 0.429$, $p < 0.01$) and care about an exciting shopping experience ($\beta = 0.322$, $p < 0.01$) both have a significant positive impact on the satisfaction, thus giving credence to the fact that the relevance of experiential retailing in modern shopping experiences continues to increase.

Simple service facilities go on to show high impacts too. Rest rooms ($\beta = 0.362$, $p < 0.01$), fire extinction facilities ($\beta = 0.321$, $p < 0.01$), and fitting facilities (255) are some of the facilities that greatly enhance customer satisfaction thus emphasizing the need to have functional convenience and safety facilities in enhancing positive perceptions. The additional sources of environmental stimuli of importance to the shopper include store scent/aroma (β = -0.228, p -0.01) and cleanliness (0.174, p -0.05) and air conditioning (0.170, p -0.05).

The infrastructure related to accessibility also helps to achieve satisfaction since the presence of the main road (0.232, p <0.05) significantly positively influences the level of satisfaction. Also, the effects of the provision of drinking water (= 0.170, $p < 0.05$) and safety measures (= 0.171, $p = 0.10$) are moderate but positive.

On the other hand, the convenient parking facilities, modern equipment, gaming/entertaining areas, internal mobility, and store layout do not exhibit significant statistically significant effects which may be interpreted as the features that shoppers may take as their core expectations and which are not sources of satisfaction. The fact that these attributes are not significant, means that as opposed to strictly structural facilities, experiential ambience, safety and comfort facilities are more decisive in determining customer satisfaction.

In general, the results show that the impact of an infrastructure component on customer satisfaction is more influential with experiential, aesthetic, and service-oriented elements as compared to functional or structural (infrastructural) elements. Retail managers should therefore emphasize on ambience, hygiene, accessibility, and customer convenience facilities to improve the level of satisfaction in the shopper.

4.2. Evaluation on Customer Satisfaction Towards Retail Human Resources

In this section, an attempt has been made to evaluate customer satisfaction towards the performance of retail human resources in the outlet. Retail Infrastructure refers to planning, organising, staffing and controlling of recruitment and selection, training and development, wage and salary administration, career planning and development, and performance management of employees of the retail outlet. The list of value-added operations (attributes of retail HRM) identified in interviews with retailers are Availability of customer friendly staff, Immediate response to customer, Individual caretaking, Service by retail salesperson, Courteous communication, Interactive experience, Availability of Salesperson on the floor and Kindliness of staff. Considering all these eight attributes as independent variables and overall customer satisfaction with retail human resources as dependent variable this analysis has been done. The results are shown in Table 2.

Table 2. Ordered Probit Model: Evaluation of Customer Satisfaction w.r.t Retail HRM

Attribute	Coefficient	Std. Error	z-value	P-value	Significance	95% Confidence Interval
Kindliness of the Staff	0.489	0.06	8.1	0	***	).370, 0.607]
Interactive Experience	0.272	0.072	3.77	0	***	).131, 0.414]
Immediate Response to Customer	0.241	0.072	3.35	0.001	***	).100, 0.382]
Courteous Communication	0.221	0.069	3.18	0.001	***	).085, 0.357]
Availability of Customer-Friendly Staff	0.188	0.072	2.61	0.009	**	).047, 0.329]
Service by Retail Salesperson	0.039	0.058	0.68	0.498		0.075, 0.154]
Individual Caretaking	-0.046	0.065	-0.71	0.48		0.174, 0.082]
Availability of Salesperson on Floor	0.014	0.073	0.19	0.846		0.128, 0.156]
/cut1 | 2.180816 .3677941 1.459953 2.901679				/cut2 | 3.699273 .3616771 2.990399 4.408147		
/cut3 | 4.85266 .3786867 4.110447 5.594872				/cut4 | 6.886264 .4279376 6.047522 7.725006		
LR chi2(8) = 241.29; Prob > chi2 = 0.0000*;						
Log likelihood = -510.69719; Pseudo R2 = 0.1911;						
* significant at 0.01 level ** significant at 0.05 level *** significant at 0.10 level						
Source: calculations STATA						

The model is executed with eight variables and 500 observations. The model is found to be statistically significant, chi-square value is found to be 241.29, Log likelihood is -510.69719, Pseudo R^2 value is 0.1911. Two Variables/Attributes i.e Interactive Experience and Kindliness of the Staff are found to be statistically significant at 0.01 level. Three variables i.e. Availability of Customer Friendly Staff, Immediate Response to Customer and Courteous Communication are found to be significant at 0.05 level.

Interactive Experience: A one-percent enhancement in Interactive Experience correlates with a 27.23 percent rise in customer satisfaction, as shown by the variable's coefficient. Interactive experiences unequivocally result in enhanced consumer satisfaction. The marginal impact indicates that the influence is expected to increase by 7.2 percentage points in comparison to their counterparts, and conversely.

Kindliness of the Staff: A one-percent variation in staff kindness correlates with a 24.12 percent rise in customer satisfaction. The staff's compassion evidently results in increased client happiness. The marginal impact indicates that the influence is expected to increase by 7.1 percentage points relative to their counterparts, and conversely.

Availability of Customer Friendly Staff: A one-percent variation in the availability of customer-friendly staff leads to a 22.07 percent rise in customer satisfaction. The presence of customer-oriented personnel results in increased customer satisfaction. The marginal effect indicates that the influence is expected to increase by 6.9 percentage points relative to their counterparts, and conversely.

Immediate Response to Customer: An immediate response to customers, as shown by the coefficient of the variable, leads to a 24.12 percent increase in customer satisfaction for every one-percent improvement. Immediate response to customers unequivocally enhances customer happiness. The marginal effect indicates that the influence is expected to increase by 7.1 percentage points in comparison to their counterparts, and conversely.

Courteous Communication: The coefficient of the variable indicates that a one percent change in Courteous Communication leads to a 22.07 percent enhancement in customer satisfaction. Courteous communication unequivocally results in enhanced customer satisfaction. The marginal effect indicates that the influence is expected to increase by 6.9 percentage points relative to their counterparts, and conversely.

The probabilities of belonging to these categories are defined as the probability of the values of an underlying latent variable passing certain thresholds, which are determined by the value of the cut-off points. In the ordered probit model, with regard to the amount of consumer satisfaction with retail HRM, the probability of customer highly dissatisfied is Pr($\hat{Z} + \delta_i \leq 2.180816$), dissatisfied is Pr($2.180816 \leq \hat{Z} \leq 0.3677941$), slightly satisfied is Pr($3.699273 \leq \hat{Z} \leq 0.3616771$), satisfied is Pr($4.85266 \leq \hat{Z} \leq 0.3786867$) and highly satisfied is Pr($\hat{Z} + \delta_i \geq 6.886264$)

Table 2 outlines the ordered probits estimates which test the effect of the retail human resource management characteristics on consumer satisfaction. The model is statistically significant (LR 2 = 241.29, p = 0.001) and thus validates the theory that the chosen HRM variables together explain a significant amount of customer contentment. The pseudo -R 2 of 0.1911 is otherwise satisfactory in explaining behavioral constructs based on perception.

HRM variables staff kindliness (= 0.489, p < 0.01) is revealed as the most relevant predictor of the satisfaction meaning that a friendly and understanding attitude has a significant effect in enhancing the shopping process. Interactive experience (= 0.272, p < 0.01) and responsiveness in promptness of customers (= 0.241, p < 0.01) also have strong, positive, and significant impact indicating the critical influence of active involvement and customer responsiveness to the development of consumer satisfaction.

Communicative attributes also serve a very important role. The quality of interpersonal service offered by courteous communication (p = 0.01, 0.221) and availability of customer-friendly personnel (p = 0.05, 0.188) is a major factor in customer satisfaction, which demonstrates interpersonal services as a conclusive factor in determining positive shopping experiences. These findings confirm that behavioural skills of retail staff are in the middle of enhancing customer perceptions.

On the other hand, the direct service by a retail salesperson, individual caretaking and just being a salesperson on the sales floor do not have statistically significant effects. This finding indicates that being present and available staffs as well as regular service delivery are not enough to have a significant effect on satisfaction unless it is supported by relevant interaction and timely responsiveness.

The evidence combined highlights that interpersonal service quality, responsiveness, and employee friendliness are the top antecedents of the level of customer satisfaction with regard to HRM interaction, and that structural staffing parameters have a relatively low impact on customer satisfaction alone. Retail operation managers would thus be advantaged by giving more precedence to training programs that would enhance communication skills, customer interaction, and service sensitivity, hence, increasing the level of satisfaction.

4.3. Evaluation on Customer Satisfaction Towards Retail Technology

In this section, an attempt has been made to evaluate customer satisfaction towards the retail technology in the outlet. Retail Technology refers to all equipment, machinery, software, hardware, techniques and other ambience installed inside the outlet to make the retail operations and customer shopping convenient. The list of value-added operations (attributes of retail technology) identified in interviews with retailers are In-store Announcements, In-store Music, Flexible mode of payment, Acceptance of Plastic Money, Error free transactions, Security in transactions and Free Wi-Fi Zone. Considering all these seven attributes as independent variables and overall customer satisfaction with retail technology as dependent variable this analysis has been done. The results are shown in Table 3.

The model is executed with seven variables and 500 observations. The model is found to be statistically significant, chi-square value is found to be 241.29, Log likelihood is -510.69719, Pseudo R^2 value is 0.1911. Four Variables/Attributes i.e In-Store Announcements, Flexible Mode of Payment, Acceptance of Plastic Money and Free Wi-Fi Zone are found to be statistically significant at 0.01 level. One variable i.e. Security in Transactions is found to be significant at 0.05 level.

In-Store Announcements: The coefficient indicates that a one-percent adjustment in In-Store Announcements leads to a 24.88 percent enhancement in customer happiness. It may be shown that in-store announcements enhance

consumer happiness. The marginal effect indicates that the influence is expected to increase by 5.3 percentage points in comparison to their counterparts, and vice versa.

Table 3. Ordered Probit Model – Evaluation of Customer Satisfaction w.r.t Retail Technology

Attribute	Coefficient	Std. Error	z-value	P-value	Significance	95% Confidence Interval
Acceptance of Plastic Money	0.363	0.05	7.28	0	***	[0.265, 0.461]
Flexible Mode of Payment	0.272	0.051	5.33	0	***	[0.172, 0.373]
In-Store Announcements	0.249	0.054	4.63	0	***	[0.143, 0.354]
Free Wi-Fi Zone	0.225	0.045	4.95	0	***	[0.136, 0.315]
Security in Transactions	0.159	0.056	2.83	0.00 5	**	[0.049, 0.269]
Error-Free Transactions	0.106	0.054	1.96	0.05	*	[0.000, 0.211]
In-Store Music	0.022	0.05	0.45	0.65 4		[-0.076, 0.121]
/cut1 | 1.729137	.346263	1.050474	2.4078 3.610974	/cut2 | 2.927634	.3486496	2.244293
/cut3 | 4.060754	.3654195	3.344545	4.776963 6.277768	/cut4 | 5.519007	.3871301	4.760246
LR chi2(7) = 177.48;				Prob > chi2 = 0.0000*;		
Log likelihood = -595.22475;				Pseudo R2 = 0.1297;		
* significant at 0.01 level		** significant at 0.05 level			*** significant at 0.10 level	

Source: calculations STATA

Flexible Mode of Payment: A one-percent variation in the Flexible Payment Method corresponds to a 27.24 percent improvement in customer satisfaction, as shown by the variable's coefficient. Flexible payment options evidently enhance client happiness. The marginal effect indicates that the influence is expected to increase by 5.1 percentage points relative to their counterparts, and conversely.

Acceptance of Plastic Money: The acceptance of plastic money indicates that a one percent increase in its acceptance correlates with a 36.32 percent rise in consumer satisfaction. The acceptance of plastic money results in increased customer satisfaction, shown by a marginal impact that is expected to enhance by 4.9 percentage points relative to their counterparts, and conversely.

Free-Wi-Fi-Zone: The Free-Wi-Fi-Zone coefficient indicates that a one percent increase in Free-Wi-Fi-Zone leads to a 22.53 percent increase in consumer satisfaction. Free Wi-Fi zones have been shown to enhance consumer happiness. The marginal effect indicates that the influence is expected to increase by 4.5 percentage points in comparison to their counterparts, and vice versa.

Security in Transactions: Transaction Security: A one-percent variation in Transaction Security corresponds to a 15.86 percent increase in customer happiness, as shown by the variable's coefficient. Security-in-Transactions clearly enhances client pleasure. The marginal effect indicates that the influence is expected to increase by 5.6 percentage points relative to their counterparts, and conversely.

The probabilities of belonging to these categories are defined as the probability of the values of an underlying latent variable passing certain thresholds, which are determined by the value of the cut-off points. In the ordered probit model, with respect to the level of customer satisfaction towards retail technology, the probability of customer highly dissatisfied is $\Pr(\hat{Z}+\delta_i \le 1.729137)$, dissatisfied is $\Pr(1.729137 \le \hat{Z} \le 0.346263)$, slightly satisfied is $\Pr(4.060754 \le \hat{Z} \le 0.3654195)$, satisfied is $\Pr(4.060754 \le \hat{Z} \le 0.3654195)$ and highly satisfied is $\Pr(\hat{Z}+\delta_i \ge 5.519007)$.

Table 3 shows the ordered probit estimation findings that assess the impact of the attributes of retail technology on customer satisfaction. The total model is also statistic significant (LR 2 = 177.48, p = 0.001), which means that the variables related to technology that have been chosen can explain the differences in customer satisfaction as a set. The pseudo R 2 of 0.1297 indicates that there is a moderate level of expression power, which is replicated by perceptions-based research on behavior in retail stores.

Digital payment acceptance significantly increases the customer satisfaction as the most influential and the most important factor out of the technology attributes is the acceptance of plastic money (= 0.363, = 0.01). In like manner, flexible mode of payment (= 0.272, = -0.01) has a strong positive impact indicating that payment convenience is a key aspect in determining the shopper ratings.

There are also remarkable impacts on communication and connectivity-related technological features. Customer satisfaction has a positive but significant effect on in-store announcements (= + + 0.249, p = - +), and in-store free Wi-Fi zone (= + + 0.225, p = - +), indicating the significance of online communication and the availability of information in the store setting of contemporary retail.

The variables of transaction reliability also lead to satisfaction. Transaction security (= 0.159, p <0.05) contributes to customer confidence and trust to a lot of significance whereas error-free transaction (= 0.106, p <0.10) has a weak but significant influence on them which is why operational accuracy is important in raising customer perceptions.

On the other hand, the in-store music (0.022, p > 0.05) is not statistically significant on customer satisfaction, implying that technological aspects (ambience) may exert a small impact on customer satisfaction relative to functional and transactional technologies.

In general, the results show that the most essential technology-related variables of customer satisfaction are payment flexibility, acceptance of digital transactions, and technological reliability. Secure, flexible and digitally integrated payment systems should therefore be the priority of retailers in order to increase the comfort and satisfaction of shoppers.

4.4. Evaluation on Customer Satisfaction Towards Retail Merchandise Procurement

In this section, an attempt has been made to evaluate customer satisfaction towards the retail procurement in the outlet. Retail Procurement refers to procurement of merchandise to the target customers according to their needs and wants. The list of value-added operations (attributes of retail merchandise procurement) identified in interviews with retailers are Procurement of Right Stock, Putting the stock at Right Place, Availability in Right Quantity, Right Quality, Available at Right Price, Right Time, Right Condition and Availability of Private Labels. Considering all these eight attributes as independent variables and overall customer satisfaction with retail procurement as dependent variable this analysis has been done. The results are shown in Table 4.

Table 4. Ordered Probit Model – Evaluation on Customer Satisfaction w.r.t. Procurement

Attribute	Coefficient	Std. Error	z-value	P-value	Significance	95% Confidence Interval
Availability of Private Label	0.354	0.071	4.96	0	***	[0.214, 0.494]
Putting Stock at Right Place	0.355	0.072	4.95	0	***	[0.215, 0.496]
Right Condition	0.328	0.062	5.3	0	***	[0.206, 0.449]
Availability at Right Quantity	0.275	0.078	3.54	0	***	[0.123, 0.428]
Right Time	0.149	0.058	2.58	0.01	**	[-0.036, 0.262]
Procurement of Right Stock	0.051	0.073	0.7	0.483		[-0.092, 0.194]
Right Quality	0.045	0.071	0.63	0.528		[-0.095, 0.185]
Availability at Right Place	0.02	0.067	0.3	0.765		[-0.112, 0.152]
/cut1 | 1.621982 .3785136 .8801086 2.363855					/cut2 | 2.836876 .3756897	2.100538 3.573214
/cut3 | 3.729701 .3924696 2.960475 4.498927					/cut4 | 6.080796 .4263445	5.245176 6.916416
LR chi2(8) = 193.96 ; Prob > chi2 = 0.0000*;						
Log likelihood = -455.51539 ; Pseudo R2 = 0.1755;						
* significant at 0.01 level ** significant at 0.05 level *** significant at 0.10 level						

Source: calculations STATA

The model is executed with seven variables and 500 observations. The model is found to be statistically significant, chi-square value is found to be 193.96, Log likelihood is -455.51539, Pseudo R^2 value is 0.1755. Four Variables/Attributes i.e Putting the Right Stock at Right Place, Availability at Right Quantity, Availability at Right Condition, Availability of Private Label are found to be statistically significant at 0.01 level. One variable i.e. Availability at Right Time is found to be significant at 0.10 level.

Putting the Right Stock at the Right Place: The coefficient indicates that a one percent variation in optimal stock placement leads to a 35.52 percent enhancement in customer satisfaction. Properly positioning the appropriate goods enhances customer happiness. The marginal impact indicates that the influence is expected to increase by 7.1 percentage points relative to their counterparts, and conversely.

Availability at Right Quantity: The coefficient indicates that a one-percent adjustment in availability at the proper amount leads to a 27.51 percent enhancement in customer satisfaction. Availability-at-Right-Quantity unequivocally enhances customer happiness. The marginal impact indicates that the influence is expected to increase by 7.7 percentage points relative to their counterparts, and conversely.

Availability at Right Condition: Based on the coefficient of the variable, a one percent alteration in Availability-at-Optimal-Condition leads to a 32.76 percent enhancement in customer happiness. It is evident that Availability-at-Right-Condition enhances consumer happiness. The marginal effect indicates that the influence is expected to increase by 6.1 percentage points relative to their counterparts, and conversely.

Availability of Private Label: A one percent variation in the Availability of Private Label correlates with a 35.40 percent increase in customer satisfaction, as shown by the variable's coefficient. The presence of private labels correlates with increased consumer satisfaction. The marginal effect indicates that the influence is expected to increase by 7.1 percentage points in comparison to their counterparts, and vice versa.

Availability at Right Time: The coefficient of the variable indicates that a one-percent alteration in Availability at Right Time leads to a 14.91 percent enhancement in customer satisfaction. Timely availability clearly enhances customer happiness. The marginal effect indicates that the influence is expected to increase by 5.7 percentage points relative to their counterparts, and conversely.

The probabilities of belonging to these categories are defined as the probability of the values of an underlying latent variable passing certain thresholds, which are determined by the value of the cut-off points.In the ordered probit model, with respect to the level of customer satisfaction towards retail technology, the probability of customer highly dissatisfied is Pr($\hat{Z} + \delta_i \leq 1.621982$) , dissatisfied is Pr($1.621982 \leq \hat{Z} \leq 0.3785136$), slightly satisfied is Pr($2.836876 \leq \hat{Z} \leq 0.3756897$) , satisfied is Pr($3.729701 \leq \hat{Z} \leq 0.3924696$) and highly satisfied is Pr($\hat{Z} + \delta_i \geq 6.080796$) .

Table 4 presents the results of ordered probit estimation that assesses the impact of the procurement activities associated activities to profit customer satisfaction. The total model is statistically significant (LR ch 2 = 193.96, p = (0.001) thus indicating that procurement variables that are collectively taken as a whole cause significant changes in perceived satisfaction. The pseudo R 2 of 0.1755 provides a fair level of power of explanation which is consistent with those found in behavioral perception-based models.

The existence of the procurement attributes of the store such as the presence of the label (0.354 and p 0.01) indicates the presence of a strong positive and statistically significant effect on customer satisfaction underpinning the exclusive store brands The perceived value and the range of product choice. Likewise, the right location (2 = 0.355, p < 0.01) of the stock can also significantly help the level of satisfaction through the possibility of obtaining products without any difficulties in the retail store setting.

Condition of goods and variables that concern their availability also have a high level of significance. Satisfaction is positively influenced by products in right condition (= 0.328, p < 0.01) and products at the right quantity (= 0.275, p < 0.01), which is why it is critical to maintain the right by keeping the products in good condition and adequate stock. Further, the availability at the appropriate time (0.149, p < 0.05) also exhibits a moderate and significant impact indicating the urgency of timely replenishment and stock availability.

Other variables like its acquisition of right stock, right quality, and right placement, on the other hand, fail to achieve statistical significance indicating that consumers view these attributes as standard operating procedures but not differentiators to build satisfaction.

Overall, the research results indicate that good inventory location, provision of own label, product quality and sufficient inventory levels are the most powerful procurement related determinants of customer satisfaction. The leaders of the retail industry need to work on the creation of efficient inventory control, the thorough structure of shelves, and the promotion of the growth of its own brand, therefore, to achieve greater levels of satisfaction.

5. Discussions

This paper has analyzed how the four major dimensions of retail value-chain, which include the infrastructure, human resource management (HRM), technology and procurement activities, influence the customer satisfaction measure and growing to the ordered probit modelling. The findings indicate the retail support activities do not have equal impacts on satisfying customers. Rather, characteristics that can improve the experience of being closer to the customer, human connection, transactional convenience, and the availability of the product are compelling factors. These findings add to the general body of literature about the retail operations, validating and broadening tendencies previously found in the literature.

Infrastructure of Retail and Customer Satisfaction: The results from retail infrastructure analysis (Table 1) show that experiential and comfort-related aspects which include convenient interior decoration, availability of food court, restrooms and fire safety have significant and positive impacts on customer satisfaction. These findings are consistent with other prior researches that have found a relationship between the quality of physical environment and the shopper perceptions and behaviours. More specifically, the servicescape model proposed by Bitner (1992) claims that the physical aspects of a shopping setting (e.g., cleanliness, smell, design) have a direct influence on the emotional and satisfaction of the customers. Equally, Turley and Milliman (2000) believe that sensations brought about by the location of a mall like scent and interior beauty influence consumer reactions on the atmosphere. These findings are supported by the strong positive contribution of interior decoration and experiential qualities like thrilling shopping experiences (Spies, Hesse and Loesch, 1997) who determine that visual components and store design can lead to an increase of time they spend in store as well as store satisfaction. Conversely, our model did not concern traditional structural amenities, which included parking spots, state-of-the-art machines, or internal movement systems, greatly. This implies that although consumers may expect basic functional facilities (Parasuraman, Zeithaml, and Berry, 1988) they do not distinguish between satisfaction, except when they are packaged in a more exciting experience. There were also moderate effects of accessibility and convenience. An example is availability of drinking water and proximity to main roads showed high levels indicating that convenience and basic needs are very crucial as components of drawing the satisfaction (Baker et al., 2002). Cleanliness and air conditioning were also found to have a positive significance indicating that comfort and hygiene are always a constant element towards satisfaction as reported in the literature on service environments (Wakefield and Blodgett, 1996). General, the infrastructure aspect confirms the idea that the retail spaces should not be seen as a functionality feature only but rather provide the experience that is comfortable, safe, and engaging. The retailers which make investments in sensory and environmental improvements tend to generate constructive customer assessment.

Customer Satisfaction and Human Resource Management: The results from retail HRM analysis (Table 2) indicate the significant role that HRM attributes play in customer satisfaction, in particular, employee behaviour-related and communication-related attributes. The friendliness of the employees turned out to be the most powerful predictor of HRM, then there were interactive experience, prompt reactions, and polite communication. These findings demonstrate the wider literature of the importance of quality-of-service personnel as a fundamental predictor of satisfaction (e.g., Zeithaml, Berry, and Parasuraman, 1996; Mattila and Enz, 2002). Interpersonal skills in retail have been reported to be important. Babakus and Boller (1992) demonstrate that the quality of service, especially responsiveness and empathy drive customer satisfaction perception and their desire to repeat. Similarly, Harris and Reynolds (2003) discover that friendliness by frontline employees and their communication skills have significant improvements on customer satisfaction in the retail environment. These researches indicate that behaviour skills of employees, including politeness, attention, and responsiveness underlie the satisfaction better than completion of the specific task. We also find that other qualities like availability of salespersons at the floor and personal caretaking were not significant. This implies that clients will evaluate employees in terms of how well they are interacted with rather than simply the existence. This is in line with the argument by Lovelock and Wirtz (2011) that customer satisfaction can be achieved only when there are meaningful interactions between workers and customers and not the level of staffing. Therefore, the retailers need to focus on the interpersonal skill and service responsiveness training, which is facilitated within an expectancy-disconfirmation model, proposed by Tse and Wilton (1988), which emphasizes the importance of surpassing the customer expectations by engaging in a personalized interaction to increase their satisfaction.

Customer Satisfaction and Technology: The results from retail Technology analysis (Table 3) reveals, the conveniences that come with technology use especially those concerning payments and transactions have a great impact on customer satisfaction. Acceptance of plastic money and flexible modes of payments came in as the strongest contributors, then came in-store announcements and free access to Wi-Fi. This confirms the increasing influence of the digital technologies in the form of retail experiences (Verhoef, Kannan, and Inman, 2015). These advantages of acceptance of digital payments and flexible payments options align with the studies by Wang et al. (2017), who established that retail stores that implement more than one payment choice card reduce transaction friction and customer satisfaction increases. As observed by Khalifa and Liu (2007), customers demand flawless and safe online payment systems, which can be influenced by the convenience of technology as the critical factor in retail customer loyalty. The connection (wireless Wi-Fi and in-store announcements) also had a positive impact on satisfaction. These results are consistent with the discussion of omni-channel retailing that Piotrowicz and Cuthbertson (2014) provide since digital connectivity can improve the shopping experience. Nevertheless, the impact of in-store music was not very strong, which means that ambient technological details might not play such a powerful role as functional technologies and their direct influence on the shopping interactions. Moreover, the transactional and error-free processing security exhibited weaker (but not negative) impacts. It has been proposed by research conducted by Jayachandran, Sharma, Kaufman and Raman (2005) that minimisation of errors in transaction and provision of secure payment instills belief and long-term satisfaction. Conversely, non-evidential peripheral technological features (e.g. background music) might have no meaningful impact on customer rating. Generally, the technology dimension shows that the efficiency and convenience technologies of the transactions are more salient to the satisfaction as compared to the purely experience technologies.

Customer Satisfaction and Retail Procurement Activities: The results from retail Technology analysis (Table 4), certain practices in procurement have a significant impact on the customer satisfaction. Specifically, availability of own labels, precise location of stocks, product status and sufficient inventory have proven to be of prime forces. This fact is consistent with previous literature that postulates that the assortment and availability of the product are the cornerstones of the retail value proposition (Lindquist, 1974; Grewal et al., 2011). The importance of the private labels justifies conclusions made by Sethuraman and Cole (1999) who observe that offering quality-like alternatives at competitive prices can enhance customer satisfaction and perception of customer value provided by the offer of a private brand. Equally, the satisfaction and intention to purchase again is adversely affected by inventory stockouts and the product quality which are countermeasures as noted by Kumar and Shah (2004) to ensure the appropriate quantity and the state of products. Surprisingly, properties like the acquisition of right stock and its position at the appropriate location were not found to be significant. This is an argument that customers might assume that the availability and location of baseline product were usual and instead pay attention to how the purchasing processes are converted into the overt product presence and state in the shelf. According to Berry, Seiders, and Grewal (2002), the dissatisfaction is reduced by stockouts and inept managerial assortment but heightened by effective purchase in order to ensure stability in the supply chain. The neutral influence of the right time availability highlights timely refilling and monitoring of inventory. It is important that a customer demand is met at these vital stages of purchase to avoid lost sales and create customer satisfaction (Mollenkopf et al. 2010). The retailers are, therefore, advised to focus on dynamic inventory management and replenishment strategies that can match the consumer expectations with procurement.

Comparing to the four dimensions of the value chain, certain patterns can be observed. Human -human resource administration and structure attributes that promote experiential comfort like interior adorning, cleanliness, and affability of staff seem to have greater impacts than fundamental functional traits. This finding is aligned with the service-dominant logic view (Vargo and Lusch, 2004) whereby value is co-produced by the customer experience as opposed to being offered only through products. Further, technology and procurement are also significant but the change they have appeared to be more transactional and operational than purely experiential. These conclusions have practical implications. Retailers are advised to emphasize HRM functions that improve staff customer relationships, develop products retail space that promotes comfort and interest, make use of technologies with ease in retail transactions, and secure regular availability of products by proactive purchasing.

5.1 MANAGERIAL IMPLICATIONS

Among Retail Infrastructure, it was found that the customers are dissatisfied with the practices i.e. Convenient Parking Facilities, Provision of Modern Equipment, Easy Internal Mobility, Gaming Zone and Entertainment, Barrier free environment and Convenient Store Layout. The retailers have to implement these facilities in the outlet in order to increase the customer satisfaction. Among these, Gaming Zone and Entertainment in the outlet is found to be most expected value chain practices, the retailers must have to provide this attribute in the outlet as first choice of preference in retail infrastructure.

Among Retail Human Resources, it was found that the customers are dissatisfied with the practices i.e. Individual Caretaking, Service by Retail Salesperson and Availability of Salesperson on the Floor. The retailers have to implement these facilities in the outlet in order to increase the customer satisfaction. Among these, Service by Retail Salesperson in the outlet is found to be most expected value chain practices, the retailers must have to provide this attribute in the outlet as first choice of preference in retail human resources.

Among Retail Technology, it was found that the customers are dissatisfied with the practices i.e. In-Store Music and Error Free Transactions. The retailers have to implement these facilities in the outlet in order to increase the customer satisfaction. Among these, In-Store Music in outlet is found to be most expected value chain practices, the retailers must have to provide this attribute in the outlet as first choice of preference in retail technology.
Among Retail Procurement, it was found that the customers are dissatisfied with the practices i.e. Availability of Right Stock, Right Quality and Availability at Right Place. The retailers have to implement these facilities in the outlet in order to increase the customer satisfaction. Among these, Availability of Right Quality and Availability at Right Place in outlet is found to be most expected value chain practices, the retailers must have to provide these attributes in the outlet as first choice of preference in retail procurement.

5.2 THEORETICAL IMPLICATIONS

The empirical research given in this paper makes a great contribution to the existing body of knowledge on the retail value chain. With the restatement of the relevant outlines of Michael E. Porters classic framework, the analysis proves that the support activities, especially the procurement processes and application of retail technology, have a significant impact on customers satisfaction, as well as behavioral tendencies that follow it (Porter, 1985).

Additionally, the results support the resource-based paradigm presented by Jay Barney where the high-level technological competences and effective procurement processes are considered as strategic resources which can be used to strengthen the competitive advantage of a firm through the improvement of customer experiences (Barney, 1991). The fact that the effect of some of the procurement variables is negligible is further evidence to the contingency hypothesis that not all careful functions are translationally similar into perceived value and supports existing views in the research on retail management.

Moreover, the research article will be added to the literature on retail service quality by demonstrating that the use of technology as a medium to enable transactions, such as secure transactions and Wi-Fi services everywhere will be used as support to achieve the results of satisfaction. This kind of evidence is a persuasive one when it comes to theory of technology-acceptance in the retailing context (Dabholkar et al., 1996). The use of an ordered -probit analytical model is a methodological improvement, servicing the ordinal characteristics of the data of customer satisfaction and reflects a more comprehensive theoretical interest into how incremental additions to support functions can be diagnosed as behavioral reactions.

Overall, the study is a synthesis of the findings of the value-chain theory, resource-based perspectives, and technological infrastructure adoption approaches, which factually support their stance that balancing customer-relevant competitiveness in modern retail businesses is necessarily achieved by harmonizing procurement effectiveness and technological infrastructure.

Based on the survey results and talks with retail professionals, this study presented the retail value chain management model depicted in Table 5. Retailers and retail managers should adopt the retail value chain management model in their outlets to offer value to the client and make them perceive differentiated advantage.

Table 5: Proposed Model of Support Activities of Retail Value Chain Management

	Infrastructure	***HRM***	***Technology Development***	***Procurement***
Support Activities	Provision of Rest rooms, Provision of Trail/fitting rooms, Safety Measures, Convenient parking facilities, Access to Main Road, Provision of Modern Equipment and Fixtures, Easy Internal mobility, Cleanliness of the Store, Availability of Food courts in outlet premises, Convenient Interior decorating, Care for Exciting Shopping experience, Air Conditioning, Scent/Aroma,Gaming Zone, Entertainment, Provision of Drinking Water Facilities, Provision of Lift facility/Escalator, Provision of Fire Extinction Facilities, Barrier-free environment for Differently-abled customers, Convenient Store Layout.	Availability of customer friendly staff. Immediate response to customer. Individual caretaking. Service by retail salesperson. Courteous communication. Interactive experience. Availability of salesperson on the floor. Kindliness of staff.	In-store Announcements. In-store Music. Flexible mode of payment. Acceptance of Plastic Money. Error free transactions. Security in transactions. Free Wi-Fi Zone.	Procurement of Right Stock. Putting the stock at Right Place. Availability in Right Quantity. Right Quality. Available at Right Price. Right Time. Right Condition. Availability of Private Labels.

5.3 CONCLUSION

The current study aims at explaining how retail value chain support practices, with strong emphasis to retail technology and purchase practices, affect customer satisfaction measurements using an ordered probit estimation model. The empirical results indicate a statistically significant positive effect of a set of technology-based initiatives, such as digital payment modalities adoption, flexible payment options adoption, in-store communication infrastructure deployment, and secure transactional mechanism's introduction on customer satisfaction indices. All these results highlight the importance of technology integration in the work of retailers as a critical factor in ensuring pleasant customer experiences and healthy engagement. Similarly, the determinants associated with procurement such as the delivery of the own-labelled products, the correct location of stocks, the preservation of the state of the product, and the accurate adequacy of stocks showed a strong positive impact on the satisfaction of customers. These findings underscore a successful matching and effective supply-chain and inventory management to enhance perceived quality in service and ensure product availability. However, some of the procurement dimensions, which are getting the right stock, the right quality, and the right place, owed no significant effects, and this suggests that consumers perceive the mentioned variables as operational must-have factors and do not differentiate between them and value-adding factors.

To conclude, the factual material stresses that the effectiveness of the retail value-chain support activity depends not only on the operational efficiency but also on whether it is perceptible and affects the experience of the customer directly. Retail companies that strategically invest their resources in advanced technological systems, strengthened payment systems, and well-organized procurement procedures are preconditioned to achieve high customer satisfaction and loyalty. This question enhances the expanding body of literature by empirically demonstrating that alleged backstage support activities have a physical impact on the perceptions and consequent reactions of the consumers.

5.4 LIMITATIONS

The key constraint of this study is that Michel Porter's basic value chain management model includes both primary and support operations. However, this study did not take into account the impact of main activities in affecting customer satisfaction. Only organised retail locations, notably all-in-one hypermarkets and department shops, were

studied. The study does not apply to unorganised retail establishments or other retail verticals such as garment retailing, jewellery retailing, furniture retailing, and so on. Because this study was done in the city of Visakhapatnam, the conclusions cannot be applied to the entire country or the entire world.

5.5 DIRECTIONS FOR FUTURE RESEARCH

Future research can contribute to the development of this analytical framework through the addition of longitudinal data, cross-city comparative studies, and emergent technologies, with particular focus on artificial-intelligence-based retail services, to take a closer look at the changing demands of customers in the modern retail environments. Researchers can perform a comparable study in organised retailing that focuses just on primary activities or on both primary and secondary activities in the same study. The researchers can do a comparable study in unorganised retailing as well, as value chain management procedures differ in unorganised retailing. A similar study might be carried out in retail verticals such as garment retailing, leisure items retailing, electronics retailing, and so on. As customer expectations for value-added operations shift, this study might be expanded to small retail formats such as supermarkets and convenience shops.

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Acknowledgements: The author wants to acknowledge retailers, retail managers, floor managers, retail professionals, merchandise managers who were part of focused group interview.

Conflicts of Interest: The authors declare that they have no conflicts of interest to report regarding the present study.

Contribution: Bogala: Conceptualization, design, data analysis, writing. Uppu: Design, data analysis, supervision, final approval. Kotni: Design, supervision, data analysis, critical revision of manuscript. Tanikella: Interpretation, drafting manuscript, technical support. Varalakshmi: data acquisition, drafting manuscript, technical support. Vemula: Interpretation, drafting manuscript.

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