On-Premise Service Bundling and E-commerce Service Bundling: Implications for Warehouse Club Foot Traffic

Agata Miler

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Signed by the final Examining Committee:

_____ Chair

Dr. Satyaveer Chauhan

_____ Examiner

Dr. Salim Lahmiri

_____ Supervisor

Dr. Xiaodan Pan

Approved by _____

Dr. Satyaveer Chauhan

_____ 2023 _____

Dr. Anne-Marie Croteau

ABSTRACT

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This study delves into the impact of on-premise and e-commerce service bundling strategies on foot traffic within warehouse clubs in the fiercely competitive US grocery retail sector. The on-premise service bundle incorporates services such as optometry, pharmacy, fuel stations, and tire centers, while e-commerce service bundle includes standard delivery, omnichannel pickup, and platform delivery options. The focus of our research is to investigate how these service bundling strategies can effectively retain customers and sustain the physical presence of warehouse clubs. We postulate that enhancing on-premise service bundling can lessen the unfavorable correlation between e-commerce service bundling and physical store traffic.

Our research unveils a favorable connection between on-premise service bundling and customer visits, contrasting with an inverse correlation between amplified e-commerce service offerings and foot traffic. Intriguingly, this downward trajectory can be offset by strategically incorporating on-premise service offerings. However, the influence of these services fluctuates across on-premise service categories (such as healthcare and automotive) and e-commerce service categories (such as standard delivery, omni-pickup, and platform delivery). Additionally, these effects vary based on the geographical proximity of households (classified as less than 5 miles, 5-10 miles, 10-30 miles, 30-50 miles, and beyond 50 miles). These results underscore the strategic need for a harmonious mix of on-premise and e-commerce service offerings to uphold and augment foot traffic within warehouse clubs.

In conclusion, the adoption of a balanced and strategic approach to service bundling not only allows warehouse clubs to meet their customers' needs more effectively, but also safeguards their brick-and-mortar presence. By fine-tuning the combination of on-premise and e-commerce service offerings, warehouse clubs can better adapt to evolving consumer preferences, maintain their competitive edge, and potentially increase foot traffic. This comprehensive approach not only bolsters customer engagement but also ensures resilience in a rapidly changing retail landscape. Our findings, thus, contribute to the advancement of theoretical understanding in multi-channel retail strategies, and present actionable insights for practical implementation within the retail industry, ultimately supporting sustained growth and profitability for warehouse clubs in the face of increasing competition.

Key words: *warehouse club industry, on-premise service, e-commerce service, consumer foot traffic*

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Introduction

Over the past two decades, the retail industry has experienced significant transformations, characterized by two primary narratives: the dominance of online sales and the continued popularity of large brick-and-mortar stores, such as warehouse clubs and supercenters (Hortaçsu & Syverson, 2015). Warehouse clubs like Costco, Sam's Club, and BJ's Wholesale Club have gained popularity among customers seeking diverse products, delivery options, and services, adopting various bundling strategies to remain competitive (Panou et al., 2015). The warehouse club industry in the United States has flourished due to its distinctive blend of extensive store layouts, bulk products, private-label merchandise, and membership-based shopping experiences. Major players have experienced rapid sales growth, generating over $250 billion in annual sales and catering to approximately 40% of US households (Lim et al., 2021). According to Kohan et al. (2021), warehouse clubs and discount retailers witnessed an 8% increase in fiscal 2020 (February 2020 through January 2021), emerging as one of the retail categories that benefited during the pandemic due to their essential store classification, offering grocery products. January 2021 sales rose by 9.6%, indicating a strong start to the year.

Their business model concentrates on providing competitive prices for a curated assortment of nationally branded and select private-label items across numerous merchandise categories, resulting in high sales volumes and rapid inventory turnover. Two primary marketing strategies enable this: selling goods in bulk quantities and offering private-label products. Stambor et al. (2022) reported that BJ's Wholesale Club's private label brand penetration increased by two percentage points YoY to 24% in the first quarter of 2022. This development, coupled with an increase in petrol sales, contributed to a 16.3% revenue increase and a 20.8% growth in adjusted net income per share. Ninety percent of US adults who switched to a private label brand did so because of the perceived better value for money. Additionally, warehouse clubs maintain two notable operational strategies, a low product assortment and a limited location network, to keep prices competitive and simplify the shopping experience (Messinger & Narasimhan, 1997). This multifaceted approach fosters customer loyalty and distinguishes warehouse clubs from traditional retailers.

In the highly competitive US grocery retailing industry, warehouse clubs face challenges stemming from recent consolidations, mergers, and the emergence of innovative retail formats that are reshaping the competitive landscape. This study aims to investigate the impact of on-premise service bundling and e-commerce service bundling on consumer foot traffic in warehouse clubs, an area that has received limited attention in existing literature. On-premise service bundling includes offerings such as optometry, pharmacy, gas station, and tire centers, which attract foot traffic by providing added value beyond discounted retail products (Sirmon et al., 2008). In contrast, e-commerce service bundling offers convenient fulfillment options, such as standard delivery, omnichannel pickup, and platform delivery (Jones et al.,

2021). Our research seeks to uncover the potential of these service bundling strategies to help warehouse clubs retain customers who might otherwise be drawn to retailers with more extensive store networks. By examining these factors, we aim to contribute valuable insights to the understanding of warehouse clubs' competitive positioning and customer retention strategies.

On-premise service bundling is a multi-service delivery approach that coordinates value chains to address customers' complex demands. By bundling various interactive retail services, retailers can offer a one-stop-shop experience that increases convenience, reduces transaction costs, and enhances the overall value proposition for customers (Panou et al., 2015). On-premise service bundling can contribute to a store's financial success, higher customer satisfaction and loyalty, and provide a competitive advantage over other retailers (Jones et al., 2021). Warehouse clubs can capitalize on on-premise service bundling by offering a wide range of services, increasing the perceived value of their membership, and providing a more compelling reason for customers to renew their membership annually. However, on-premise service bundling may not be suitable for all types of retailers or store formats; thus, retailers should consider their target market and the services most valuable to them before adopting this approach. Based on the advantages of on-premise service bundling, a positive correlation is hypothesized between on-premise service bundling and the warehouse club footprint.

E-commerce fulfillment strategies, including traditional online shipping, omni-channel services, and delivery-platform fulfillment, have become essential for retailers, providing customers with greater flexibility and convenience. However, each approach has its advantages and disadvantages, and their impact on warehouse club foot traffic is uncertain. Traditional online shipping offers fast home delivery but can be expensive and lead to decreased foot traffic (Saphores & Xu, 2021). Omni-channel services provide a cohesive shopping experience, potentially increasing foot traffic, but come at a higher cost and logistical challenges (Gawor & Hoberg, 2019). Delivery-platform fulfillment offers a new distribution channel, but may cannibalize traditional channels, reducing foot traffic (Li & Wang, 2020; van Nierop et al., 2011). It is expected that e-commerce service bundling negatively impacts warehouse club footprints, and warehouse clubs need to evaluate and tailor their bundling strategies to balance consumer needs with maintaining their physical store presence.

Nevertheless, the extent to which on-premise service bundling strategies, such as offering a diverse range of healthcare and automotive services, can offset the adverse effects of e-commerce service bundling on warehouse club foot traffic remains uncertain. According to Avery et al. (2012), the capabilities of a new channel determine whether it complements or substitutes existing channels. A new channel may exhibit complementary capabilities if it provides unique services or products that differentiate it from existing channels. In this case, the new channel can positively impact existing channel sales in the long term by

attracting new customer segments or enhancing the overall value proposition of the combined channels. On the other hand, if the new channel's capabilities do not significantly differ from those of existing channels, it may lead to reduced sales in those channels by dividing the existing customer base and diminishing overall market share. With distinct channel capabilities, on-premise service bundling strategies can amplify the webrooming effects of e-commerce service bundling strategies. This approach caters to a variety of customer needs while maintaining foot traffic and in-store sales. Consequently, our hypothesis posits that a higher level of on-premise service bundling offerings at a warehouse club can mitigate the negative relationship between e-commerce service bundling offerings and the store's physical footprint.

Our research offers insightful observations into how various service offerings affect customer foot traffic at warehouse clubs. It's notable that offering more services on-premise directly correlates with an increase in the physical footprint of these clubs. Conversely, an upsurge in e-commerce services generally reduces in-store visits, although this trend can be softened with a complementary increase in on-premise services. Moreover, different services have varied impacts, underscoring the importance of a thoughtful approach to service provision.

To elaborate, we found that on-site healthcare services are more successful at attracting customers than automotive services. On the e-commerce side, standard delivery services seem to discourage in-store visits more than other online services. When looking at the interplay between service types, it appears that offering a wide range of on-site healthcare services can neutralize the adverse effect of e-commerce services, like omni-pickup. However, enhancing automotive services tends to intensify the negative link between omni-pickup services and foot traffic. These findings emphasize the need for a carefully constructed balance between on-site and online service offerings to maximize the store's size and customer visits.

Considering geographical factors, we observed how service offerings impact foot traffic at different distances from the store. On-site services enhance foot traffic within 5-10 miles, this effect diminishes between 10-50 miles, but reappears for distances beyond 50 miles. In contrast, online services typically deter in-store visits within a 5-30 mile radius. However, a balanced mix of both service types can alleviate the negative impact of online services on in-store visits within the 5-30 mile range. Interestingly, this balance shifts for distances over 50 miles, underscoring that the location of customers is a vital factor to consider.

Further, our research examined the specific effects of different service types at various distances. Notably, on-site healthcare services boost foot traffic within 0-5, 5-10, and over 50 mile ranges, while curiously deterring it within 30-50 miles. On-site automotive services decrease foot traffic within a 5-mile radius but gain appeal over greater distances. In contrast, standard delivery services have a negative

correlation with foot traffic within 5-30 miles, whereas the effects of omni-pickup and platform delivery services vary, with the former significant within 10-30 and over 50 miles, and the latter appealing to customers located 30 miles and beyond.

Lastly, we noticed that increasing on-site services can mitigate the negative impact of specific online services over certain distances. For instance, more on-site healthcare services can neutralize the adverse effect of omni-pickup services within 5-10 miles, and an increase in automotive services can offset the negative influence of standard delivery services within 10-30 miles. Yet, beyond 50 miles, the positive impact of both on-site healthcare and automotive services appears to decline with an increase in standard delivery and omni-pickup services. This serves as a reminder of the complexity involved in designing effective service provision strategies.

Our scholarly exploration delves into the transformative shifts within the retail sector, with a particular emphasis on the consequences of amalgamating on-premise and e-commerce service bundling strategies on foot traffic in warehouse clubs. This research enriches the current discourse on the inherent value of resource bundling within the paradigm of multi-channel operations. Guided by resource management theory, we posit that the strategic bundling of resources and services to generate innovative capabilities can provide a distinct competitive advantage. We highlight the critical interplay of harmonized capabilities between on-premise and e-commerce service bundling in formulating a robust multi-channel strategy, especially in the context of warehouse clubs. Our empirical evidence suggests that a balanced and strategic application of service bundling can ensure sustained triumph in a marketplace increasingly characterized by competitive intensity. By exploiting the synergistic potential embedded in the conjunction of on-premise and e-commerce service bundling, warehouse clubs can more adeptly cater to the evolving needs and preferences of their clientele. This, in turn, propels both theoretical advancement and practical implementation within the ambit of the retail industry.

Theoretical Foundations

Warehouse club Industry

The warehouse club industry has emerged as a dominant force in the United States retail landscape, driven by a unique combination of vast store layouts, bulk product offerings, private-label merchandise, and a membership-based shopping experience. Major players in the warehouse club industry, such as Costco, Sam's Club, and BJ's Wholesale Club, have captured the attention of consumers seeking value and convenience. These companies have expanded their reach across the nation, with hundreds of locations providing consumers with access to a vast assortment of products ranging from groceries and electronics to furniture and automotive supplies. Bronnenberg & Ellickson (2015) report that warehouse clubs have sustained one of the fastest sales growth rates in the industry, averaging an annual growth rate of 3.9 percent. By 2021, these retailers generated over $250 billion in annual sales and catered to approximately 40% of US households (Lim et al., 2021).

Warehouse clubs' business model centers around offering members competitively-priced, nationally-branded, and select private-label items across a wide range of merchandise categories, resulting in high sales volumes and rapid inventory turnover (Courtemanche & Carden, 2014). By requiring customers to pay an annual membership fee, warehouse clubs provide access to a wide variety of products at discounted prices, attracting and retaining customers who value the combination of low prices, bulk purchasing options, and a constantly-evolving product selection. The strategic adoption of a low product assortment and sparse location network enables warehouse clubs to focus on their core strengths, minimize costs, and deliver exceptional value to their loyal customer base (Bhatnagar & Ratchford, 2004).

Warehouse clubs employ two primary marketing strategies to offer customers a unique shopping experience and exceptional value: selling goods in bulk quantities and offering private label products (Fox et al., 2004). Warehouse clubs are known for offering goods in bulk quantities at lower prices, catering to a wide range of product categories such as groceries, apparel, gardening, and automotive items. Members of warehouse clubs pay a membership fee to gain access to items stored in expansive, warehouse-like spaces and presented in bulk quantities within a no-frills environment (Courtemanche & Carden, 2014). By buying products in bulk, households can enjoy significant cost savings, particularly for items that they consume in large amounts or have a long shelf life. This bulk purchasing strategy also results in lower packaging and transportation costs, leading to further savings for both retailers and customers. Moreover, bulk buying promotes a more environmentally friendly approach by reducing packaging waste and decreasing the frequency of shopping trips, which in turn lowers carbon emissions from transportation.

Another key marketing strategy employed by warehouse clubs is the development and promotion of private label products. These products are exclusive to the retailer and are often comparable in quality to well-known brands but available at more affordable prices (Fox et al., 2004). Private label products allow warehouse clubs to differentiate themselves from competitors and cater to customers seeking both value and quality. By offering private label products, warehouse clubs can exercise greater control over product quality, pricing, and supply chain management. This control enables them to ensure consistent quality, competitive pricing, and better inventory management. Additionally, private label products can help warehouse clubs build customer loyalty, as these products are exclusively available at their stores, giving customers a unique reason to maintain their membership and continue shopping at these establishments.

Warehouse clubs also employ two notable operational strategies: low product assortment and a sparse location network. Warehouse clubs typically provide a more limited assortment of products within each category compared to traditional retailers (Fox et al., 2004). By focusing on a select range of stock-keeping units (SKUs), warehouse clubs can achieve operational efficiencies, reduce inventory management complexity, and minimize costs (Food Marketing Institute, 1993; Boatwright & Nunes, 2001). This low-assortment approach enables them to maintain competitive prices and pass on the cost savings to customers (Kahn et al., 2013). The limited assortment also simplifies the shopping experience for customers, as they can quickly find the items they need without being overwhelmed by excessive choices (Kahn et al., 2013). Moreover, by carefully curating their product selection, warehouse clubs can ensure they offer only the most popular and essential items, which further contributes to their overall cost savings and customer satisfaction (Courtemanche & Carden, 2014). This targeted approach allows warehouse clubs to cater to customer preferences while optimizing operational efficiency.

Unlike traditional retailers that opt for dense store networks, warehouse clubs tend to expand into new markets by opening standalone locations (Lim et al., 2021). This strategy allows them to minimize capital investments in facilities and inventory costs (Bhatnagar & Ratchford, 2004) while concentrating on their core strengths and competitive pricing. Although a sparse location network may increase travel expenses for households, it appeals to customers who are willing to travel further to benefit from warehouse clubs' lower prices and unique offerings (Messinger & Narasimhan, 1997). This approach to location planning allows warehouse clubs to optimize their resources and maintain lower operational costs, which can be passed on to their customers through competitive pricing (Bhatnagar & Ratchford, 2004). However, as Lim et al. (2021) point out, the benefits of warehouse clubs' sparse location network may diminish as the distance between locations and families increases. In these cases, customers may choose to shop at closer traditional retailers or convenience stores to save time and travel costs. Despite this potential drawback,

warehouse clubs continue to attract a loyal customer base by offering exceptional value, quality, and convenience in a unique shopping environment (Courtemanche & Carden, 2014).

Overall, Warehouse clubs' success can be attributed to a combination of effective marketing and operational strategies. They offer goods in bulk quantities, promote private label products, maintain a low product assortment, and adopt a sparse location network. These features enable them to deliver exceptional value, quality, and convenience, setting them apart from traditional retailers and attracting a loyal customer base. This multifaceted approach caters to customers seeking value, quality, and convenience, while also differentiating warehouse clubs from their competitors and fostering customer loyalty (Courtemanche & Carden, 2014).

However, warehouse clubs face intense competition in the U.S. retailing industry, with recent consolidations, mergers, and the emergence of new retail formats altering the competitive landscape significantly (Carpenter & Moore, 2006). To stay competitive, retailers have adopted a range of strategies, including pricing strategies, distribution services, product selection, and shopping convenience (Courtemanche & Carden, 2011).

In terms of pricing strategies, grocers may respond to warehouse club competition by offering unique promotions, events, or services to differentiate themselves and entice customers (Courtemanche & Carden, 2014; Ellickson, 2007). For example, grocers could offer discounts for senior citizens, students, or military personnel, or provide loyalty programs that reward repeat customers with discounts or free items. Additionally, some retailers may enhance their quality and variety, catering to less price-sensitive customers and mitigating the impact of warehouse clubs' lower prices (Ellickson, 2006, 2007). Retailers can also offer subscription services, such as meal kits, that provide convenience and value to customers while reducing their grocery costs.

For distribution services, local grocers and supermarkets can establish a robust online presence to reach customers who prefer to shop online or lack the time or ability to visit a physical store (Courtemanche & Carden, 2014). Retailers can use advanced technologies such as artificial intelligence and machine learning to analyze customer data and offer personalized recommendations and a tailored shopping experience (Tang et al., 2021). They can also offer faster delivery options, such as same-day or two-hour delivery, to compete with the instant gratification offered by warehouse clubs. Furthermore, retailers can offer flexible delivery options such as locker pickups or home delivery at a specific time window.

For product selection, grocers can focus on specialized products or services not offered by warehouse clubs, such as organic produce, gourmet cheeses, or unique handmade items (Courtemanche & Carden, 2014; Ellickson, 2007). This differentiation allows them to appeal to customers seeking specific

products or services and maintain a unique market position. Retailers can also offer locally sourced products, emphasizing freshness and sustainability, or focus on private-label brands, which are often cheaper than national brands but of comparable quality. Additionally, retailers can offer exclusive products from popular brands or up-and-coming local businesses, providing customers with unique items not found at warehouse clubs.

Regarding shopping convenience, online merchants can compete with warehouse clubs by providing easy-to-use interfaces, mobile apps, quick delivery options, and a more extensive assortment of products due to fewer space constraints (Tang et al., 2021). Retailers can also offer curbside pickup or in-store pickup options, allowing customers to shop online and pick up their items without leaving their cars or waiting in long checkout lines. Furthermore, retailers can invest in customer service and offer personalized assistance and support to customers, which can help build brand loyalty and increase customer retention. For example, retailers can offer online chatbots to answer customer queries or provide 24/7 customer support for assistance with product returns or other issues. Finally, retailers can offer value-added services such as cooking classes, wine tastings, or nutrition consultations to enhance the shopping experience and encourage customers to return to their stores.

Service Bundling Strategy

Warehouse clubs face intense competition in the U.S. retail industry and have adopted bundling strategies to remain competitive. These bundling strategies include on-premise service offerings and e-commerce service offerings (Panou et al., 2015; Ailawadi et al., 2018). By combining and selling multiple distinct services, these bundling strategies offer various advantages to customers, including increased convenience, enhanced value, reduced transaction costs, and a one-stop-shop experience. The adoption of bundling strategies enables warehouse clubs to extend their monopolistic power, exercise price discrimination, and deter potential competitors from entering the market (Chung et al., 2013). Moreover, warehouse clubs can leverage bundling to form strategic partnerships with other businesses and deliver greater value to their customers. To attract foot traffic despite competition, warehouse clubs use various bundling strategies that align with service and resource bundling concepts. These strategies enable warehouse clubs to differentiate themselves from their competitors and offer a unique shopping experience to their customers.

Resource management theory suggests that simply having a unique set of resources is insufficient to maintain a competitive advantage (Jones et al., 2021). Instead, the ability to combine or bundle resources and services to develop new capabilities can offer a competitive edge. Retail assortments are frequently reported by customers as an important criterion for selecting a retailer, ranked third after convenient locations and affordable prices (Briesch et al., 2009). An increasing number of customers prefer to engage

with businesses across multiple channels, which encourages higher spending and fosters loyalty (Jones et al., 2021). Possessing a greater depth and breadth of resources allows for more bundling opportunities, potentially leading to a competitive advantage. In industries where rival resources are similar, resource bundling and deployment have the most significant impact on competitive positioning (Jones et al., 2021).

On-premise Service Bundling Strategy

The first decade of the twenty-first century was a turbulent period for retail services. Popkowski Leszczyc et al. (2004) observed a significant decrease in the average number of household trips to grocery stores, while the average number of household visits to supercenters increased. Shoppers saved time by making multi-purpose shopping trips, bundling purchases across various product categories, and reducing the number of trips within a given time period. In response to these changing circumstances, retailers quickly realized that long-term success required innovation in service delivery (Berry et al., 2010).

To meet the complex demands of customers unfulfilled by a single service, retailers began adapting by altering service levels or offering new services, utilizing technology, or redeploying staff. Consequently, a new retail model emerged in the form of on-premise service bundling, which is a flexible, multi-service delivery approach that requires coordinating value chains. One of the key features of on-premise service bundles is their ability to generate value by combining service components from the same or different companies (Panou et al., 2015).

According to Krafft and Mantrala (2005), on-premise service bundling enables customers to save time and money by purchasing everything they need from a single location. Retailers can offer a one-stop-shop experience that increases convenience, reduces transaction costs, and enhances the overall value proposition for customers by bundling various interactive retail services such as food courts, pharmacies, optical centers, gas stations, and tire services (Berry et al., 2010). On-premise service bundling reduces the perceived risks associated with service availability, which can be crucial for enhancing customer retention. Additionally, it is a part of a broader trend of channel integration that coordinates multiple service channels to provide customers with seamless experiences (Herhausen et al., 2015; Emrich et al., 2015).

Studies have found that on-premise service bundling can contribute to the financial success of a store, which may allow for investment in larger physical footprints (Emrich et al., 2015; Krafft & Mantrala, 2005; Wallin et al., 2011). Furthermore, on-premise service bundling can lead to higher customer satisfaction and loyalty (Popkowski Leszczyc et al., 2004). Supercenters with more on-premise services had higher customer satisfaction ratings than those with fewer services. Food courts and pharmacies can act as anchors that draw customers to a store and increase the likelihood of repeat visits (Krafft & Mantrala, 2005).

It's worth noting that on-premise service bundling may not be suitable for all types of retailers or store formats. Small convenience stores, for instance, may not have enough physical space to offer multiple services, while luxury boutiques may prioritize offering a high-end shopping experience over bundling services. Therefore, retailers should take into account their target market and the types of services that are most valuable to them (Popkowski Leszczyc et al., 2004). Additionally, it's crucial to consider the potential risks and drawbacks of on-premise service bundling, such as cannibalization or unfavorable spillover effects from one channel to another (Herhausen et al., 2015; van Nierop et al., 2011).

However, on-premise service bundling may be particularly beneficial for warehouse clubs, which rely on customer loyalty to drive sales (Berry et al., 2010). By offering a wide range of services, warehouse clubs can increase the perceived value of their membership and provide a more compelling reason for customers to renew their membership each year. Moreover, on-premise service bundling can provide warehouse clubs with a competitive advantage over other retailers by offering additional services such as optical centers or gas stations (Emrich et al., 2015).

In conclusion, on-premise service bundling is a strategic approach that can greatly benefit retailers by providing a one-stop-shop experience that enhances convenience, reduces transaction costs, adds value to the overall proposition, and contributes to financial success. It also leads to higher customer satisfaction and loyalty, providing a competitive edge over other retailers. However, it's crucial for retailers to consider their target market and the type of services that are most valuable to them before adopting this approach.

Based on the advantages of on-premise service bundling, we hypothesize a positive correlation between on-premise service bundling and the warehouse club footprint. Warehouse clubs aim to offer a one-stop-shop experience, so they may be more likely to adopt on-premise service bundling strategies to achieve this goal. By bundling services such as pharmacies, gas stations, and tire service centers, warehouse clubs can increase the value proposition for their customers and differentiate themselves from other retailers, leading to increased customer retention and market share gains. We, therefore, hypothesize that:

H1: A higher level of on-premise service offerings at a warehouse club is positively associated with the size of the store's physical footprint.

E-commerce service bundling strategy

E-commerce fulfillment services have become a vital component of retail operations, particularly during the COVID-19 pandemic. As e-commerce has grown, retailers have implemented various methods

for fulfilling online orders, including traditional shipping, buy online pick up in-store (BOPIS), and delivery platform services. These methods offer retailers diverse order fulfillment options while providing customers with increased flexibility and convenience (Wan et al. 2018). However, the impact of e-commerce fulfillment methods on warehouse club foot traffic remains uncertain.

The first e-commerce fulfillment model, standard shipping, delivers products directly to the customer's doorstep. Due to the rising popularity of one-day deliveries offered by companies like Amazon, customers now expect rapid home delivery (Wertz, 2020). Saphores and Xu (2021) argue that fast home delivery can improve the competitiveness of grocery retailers. However, e-commerce retailers face logistical challenges when fulfilling orders containing diverse groceries and perishable items. Furthermore, e-commerce retailers assume responsibilities once performed by customers, such as selecting, packaging, and shipping items, leading to increased costs. Boyer and Hult (2005) propose that e-commerce retailers should adopt a low-price marketing strategy combined with a low-cost operational plan to address these challenges. Despite these difficulties, traditional online shipping remains a crucial aspect of e-commerce fulfillment, offering customers a convenient and hassle-free method for receiving purchases. However, it may contribute to a decline in in-store foot traffic.

The second e-commerce fulfillment model, omni-channel services, refers to the coordinated management of various channels and customer touchpoints to create a seamless shopping experience across all channels (bloomreach.com, 2022). Bloomreach (2021) reports that nearly half of B2C (business-to-customer) shoppers (44%) and 58% of B2B (business-to-business) buyers frequently research products online before visiting a physical store. Even while shopping in-store, they may continue their research online. Omni-channel operations' key attraction is the ability to leverage retail assets and distribution capabilities while offering customers enhanced service options, such as BOPIS, ship-from-store, and in-store returns. Gallino and Moreno (2014) suggest that providing omni-channel services can generate foot traffic within the store itself. For instance, implementing a BOPIS service is associated with increased in-store foot traffic due to concurrent phenomena: higher store sales from customers utilizing BOPIS and purchasing additional products in-store (cross-selling effect), and customer shifts from online to brick-and-mortar channels, as well as the conversion of non-customers into store customers (channel-shift effect). However, omni-channel services also present disadvantages; Jones et al. (2021) observe that a wider range of service options entails higher costs. Additionally, omni-channel retailers encounter significant logistical challenges in the e-fulfillment process due to unpredictable demand, narrow delivery windows, and the small order quantities typical of e-commerce.

The third e-commerce fulfillment model, delivery-platform fulfillment, involves retailers partnering with companies that offer a platform for customers to order groceries. These companies'

personnel handle selecting, packing, and delivering products in exchange for fees from both retailers and customers. Coelho et al. (2003) assert that on-demand delivery platforms can provide a new distribution channel for retailers, potentially attracting new customers. Collaborating with a gig fulfillment firm can benefit retailers by enabling faster last-mile delivery than traditional methods and reducing logistical burdens associated with delivering items to the end customer (Dolan, 2022). However, adopting on-demand delivery might also harm retailers if it cannibalizes existing traditional channels. As penetration into new online sectors grows and expansion slows, cannibalization may occur across channels. This could potentially lead to reduced foot traffic in retailers' physical stores. Moreover, Boyer et al. (2005) note that the emerging market for grocery home delivery through internet ordering puts significant pressure on marketing and operations integration, as retailers need to focus on their marketing strategy while maintaining tight control.

An analysis of the three e-commerce fulfillment models reveals that each approach has its advantages and disadvantages. Standard delivery shipping offers fast home delivery, but it can be costly and presents unique challenges when delivering to a customer's home. Omni-channel services provide customers with enhanced service options, which can, somewhat paradoxically, generate foot traffic within the store itself. However, broader service options come at a higher cost, and omni-channel retailers face significant logistical challenges in the e-fulfillment process. Delivery-platform fulfillment can introduce a new distribution channel for retailers, potentially helping them attract new customers. However, it might also harm retailers if it cannibalizes existing traditional channels, resulting in reduced foot traffic in their physical stores.

Considering the pros and cons of e-commerce fulfillment, it is expected that e-commerce fulfillment strategies may have a negative impact on warehouse club foot traffic. While e-commerce fulfillment may increase convenience and flexibility for consumers, the associated costs and logistical challenges could lead to decreased foot traffic at physical stores. This reduction in foot traffic may affect sales and revenue for warehouse clubs, ultimately resulting in a negative impact on their bottom line. Therefore, it is crucial for warehouse clubs to carefully evaluate the advantages and disadvantages of various e-commerce fulfillment models and tailor their strategies to meet their consumers' needs while maintaining their physical store presence.

H2: A higher level of ecommerce service offerings at a warehouse club is negatively associated with the size of the store's physical footprint.

We anticipate that a higher level of on-premise service bundling offerings at warehouse clubs will mitigate the negative association between e-commerce service bundling offerings and the size of the store's physical footprint. As competition intensifies among retailers in multi-channel businesses, a diverse array of e-commerce fulfillment models has emerged, connecting online alternatives with traditional offline channels (Melis et al., 2015; Rapp et al., 2015). Previous research suggests that the successful implementation of multi-channel services, driven by retail shoppers' growing use of technology and information searches (Wallace et al., 2004), fosters a complementary relationship between a store's online and offline channels. "Research shopping" exemplifies this trend, with customers seeking product information in one channel and making purchases in another (Rapp et al., 2015).

According to Avery et al. (2012), the capabilities of a new channel will determine whether it complements or substitutes existing channels. If the new channel is perceived to have complementary capabilities by offering unique services or products that differentiate it from existing channels, it can positively impact existing channel sales in the long term. This may attract new customer segments or increase the overall value proposition of the combined channels. Conversely, if its capabilities are not distinct from those of existing channels, it may reduce sales in those channels by dividing the existing customer base and diluting the overall market share.

Customers may use one channel for research purposes and another for making purchases (Lemon & Verhoef, 2016; Verhoef et al., 2007). Multi-channel usage arises when one channel offers superior search attributes, such as comprehensive product information, a user-friendly interface, or extensive customer reviews, while another provides enhanced purchase attributes like competitive pricing, convenient pick-up locations, or personalized customer service. Sellers can maximize sales by offering options that merge both types of channels, as demonstrated by the showroom and webroom effects.

The showroom effect promotes the online channel within an offline setting. Wang et al. (2017) emphasize the long-established importance of physical storefronts in enhancing brand image. Local offline businesses, akin to showrooms, can generate brand awareness and attract new customers by offering unique in-store experiences, allowing customers to interact with products before buying them online, and providing valuable expert advice. This approach ultimately boosts online sales by leveraging the advantages of physical stores to create a seamless customer experience across channels (Wang & Goldfarb, 2017).

Conversely, the webroom effect promotes the offline channel in an online setting. Webrooming, where customers research products online but purchase them in physical stores, can generate additional foot traffic and sales in brick-and-mortar establishments by capitalizing on the convenience and immediacy of in-store purchases. Retailers can facilitate webrooming by offering price matching, reserving items online for in-store pick-up, or providing exclusive in-store promotions. Fernández et al. (2018) illustrate a

connection between offline and online services offered by retailers, suggesting that the mere presence of one channel can enhance sales in the other by creating a symbiotic relationship catering to different customer preferences and needs.

Warehouse clubs must recognize that e-commerce fulfillment bundling strategies could potentially diminish foot traffic. Online shopping enhances customer convenience but may decrease the frequency of visits to warehouse clubs, adversely affecting foot traffic and sales (Chen & Li, 2017). Warehouse clubs can employ on-premise service bundling strategies to enhance webrooming effects, meaning on-premise service bundling can help enhance the attractiveness of the physical store channel as a purchase medium, providing customers with the convenience of online shopping while also maintaining foot traffic and sales in-store. This approach aligns with research on the complementary relationship between online and offline channels and the benefits of service bundling in enhancing customer satisfaction and loyalty (Melis et al., 2015; Rapp et al., 2015).

In conclusion, while e-commerce service bundling strategies can have negative impacts on warehouse club foot traffic, on-premise service bundling strategies, such as providing a variety of service options, can counteract these effects. Retailers should carefully consider their e-commerce service and on-premise service bundling strategies to strike a balance between customer convenience and maintaining foot traffic and sales in-store. By optimizing the integration of online and offline channels, warehouse clubs can leverage the strengths of each channel to create a seamless, multi-faceted shopping experience that caters to diverse customer needs and preferences. Therefore, we hypothesize that:

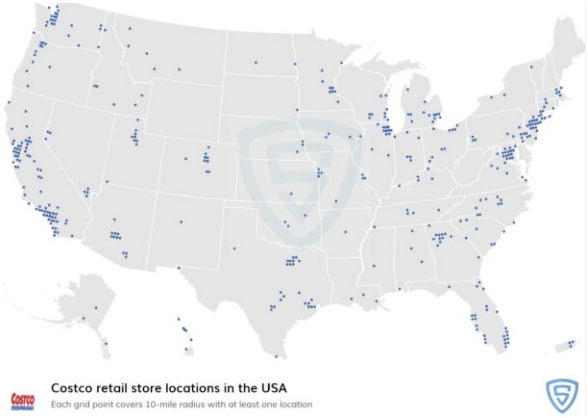
H3: A higher level of on-premise service offerings at a warehouse club mitigates the negative association between ecommerce service offerings and the size of the store's physical footprint.

Research Methodology

Research Context

The objective of this study is to examine how the provision of on-premise and e-commerce service bundles affects customer foot traffic at warehouse clubs (WCs) in the United States from January 2018 to December 2019. The study concentrates on the three major WCs in the US, namely Sam's Club, Costco Wholesale, and BJ's Wholesale Club.

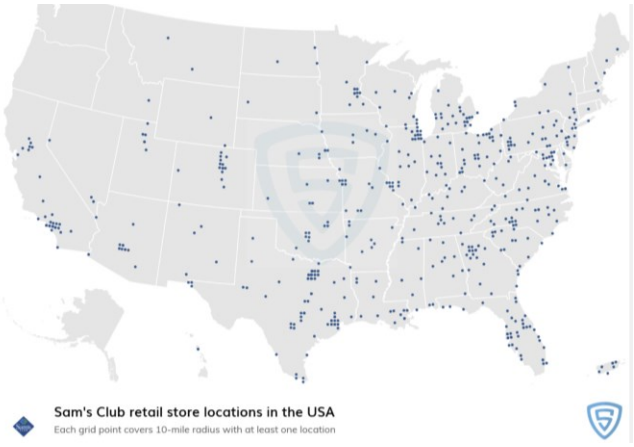
Costco Wholesale is a global corporation based in the United States that owns and runs a chain of membership-only big-box retail facilities. As of 2016, Costco was the world's fifth biggest retailer and the leading retailer of choice and prime beef, organic groceries, rotisserie chicken, and wine ("Costco," 2022). As of April 2023, there are 587 Costco retail shops in the United States (see Figure 1 for a map of Costco's U.S. locations)[1]. California has the most Costco locations in the United States, with 133 retail shops, accounting for about 23% of all Costco retail stores in the United States (Number of Costco Locations in the USA in 2023, 2023).



Source: https://www.scrapehero.com/location-reports/Costco-USA/

Figure 1: Costco Store Locations

Sam's Club is a Walmart-owned and managed American membership-only retail warehouse club created in 1983 and named after Walmart founder Sam Walton. With $57.839 billion in sales (in fiscal year 2019), Sam's Club is second in sales volume among warehouse clubs, second to only Costco Wholesale ("Sam's Club," 2022). As of April 2023, there are 600 Sam's Club retail shops in the United States (see Figure 2 for a map of Sam's Club U.S. locations)[2]. Texas has the most Sam's Club locations in the United States, with 82 retail shops, accounting for about 14% of all Sam's Club retail stores in the United States.



Source: https://www.scrapehero.com/location-reports/Sams%20Club-USA/

Figure 2: Sam's Club Store Locations

On the East Coast of the United States, BJ's Wholesale Club is a leading warehouse club operator. To give a distinct shopping experience, it offers a selected assortment focusing on perishable items, continuously restocked general merchandise, petrol, and other auxiliary services, as well as omnichannel services (BJ's Wholesale Club, Inc. - BJ's Wholesale Club Investor Relations, n.d.). As of April 2023, there are 247 BJs Wholesale Club retail locations in the United States (see Figure 3 for a map of BJ's Wholesale Club U.S. locations)[3]. New York has the most BJs Wholesale Club locations in the US, with 47 retail shops, accounting for about 19% of all BJs Wholesale Club retail stores in the US (*Number of BJ's Wholesale Club Locations in the USA in 2023*, *2023*).

Source: (https://www.scrapehero.com/location-reports/BJs%20Wholesale%20Club-USA/)

Figure 3: BJ's Wholesale Club Store Locations

Data and Variables

We collect data from various of sources using different techniques. Initially, we gathered consumer foot traffic and warehouse club location data from Placer.ai (https://www.placer.ai/). Subsequently, we collected data on on-premise services and e-commerce services using multiple techniques tailored to each warehouse club. For Costco, we employed an automated Selenium Python bot to collect data on on-premise services and e-commerce services across 466 locations. For Sam's Club, we manually gathered the on-premise services and e-commerce services data for 518 locations from the company's website. Lastly, for BJ's, we obtained data for 198 locations from the company's website using an automated Selenium Python bot.

Our dependent variable is customer foot traffic at store locations. The variable represents the number of client visits to store location i of chain j in county c during week w of year y. Placer.ai provided the traffic statistics for the footprints, which were gathered using anonymized data from mobile devices to estimate shop visits. In our analysis, we log-transformed the dependent variable due to observed heteroscedasticity in our initial model - an asymmetry in the plot of residuals versus fitted values. This transformation was intended to stabilize the variance across the range of predictors, a key assumption for valid linear regression. Additionally, the log transformation enhanced the linearity of our model, simplifying the representation of relationships within our data and ensuring more reliable and interpretable results.

Our primary independent variables measure *on-premise service bundling offerings.* We first define *on-premise healthcare service offerings* as a count variable representing the number of available healthcare-related on-premise services (e.g., pharmacies, optical departments, independent optometrists, and hearing aids). Similarly, we define *on-premise automotive service offerings* as a count variable representing the number of available on-premise automotive-related services (e.g., gas stations, diesel fuel, tire service centers, and auto buying programs). To create an overall measure for on-premise service bundling offerings, we standardize the variables for both healthcare and automotive service offerings, and then sum the two standardized variables.

Our secondary independent variables focus on measuring *e-commerce service bundling offerings*. We define *e-commerce standard delivery service offerings* as a dummy variable indicating the availability of two-day shipping services. We define *e-commerce omni pickup service offerings* as a count variable representing the availability of buy online club pickup and buy online curbside pickup services. We define *e-commerce platform delivery service offerings* as a dummy variable indicating the availability of delivery platform services. To create an overall measure for e-commerce service bundling offerings, we standardize

the variables for standard delivery service, omni pickup service, and platform delivery service offerings, and then sum the three standardized variables.

We account for the population and median household income of the county where the store is located, as they may affect the frequency with which a household shops at a WC. The population and income data are sourced from the U.S. Census Bureau, defined as the population and median household income of county c in year y. We also control for retailer chain-effect as well as year-month-effect, as each WC chain has unique features related to customer footprints and seasonality might impact purchasing behaviors.

The variable definitions are presented in Table 1. Tables 2 and 3 present the summary statistics and correlations for the primary variables used in our estimation models. Table 4 illustrates the considerable variation among warehouse clubs in their on-premise service bundling offerings, specifically in on-premise healthcare and automotive services. Additionally, it highlights the diversity in e-commerce service bundling offerings, encompassing standard delivery service, omni-channel pickup service, and delivery platform service.

Table 1: Variable Definitions

No.	Variable	Type	Definition
1	$STOR\_VSIT_{ijcwmy}$	Count	This refers to the number of client visits to store location i of chain j in county c during week w in month m of year y.
2	$ONPR_{ij}$	Index	This refers to a composite metric representing the breadth of on-premise service bundling offerings. This measure is derived by standardizing the variables associated with two distinct services: healthcare and automotive service offerings, and subsequently aggregating these two standardized variables.
4	$ONPR\_HLTH_{ij}$	Count	This is a count variable, representing the tally of healthcare-related services available on-site. These services may include, but are not limited to, pharmacies, optical departments, independent optometrists, and hearing aid centers.
5	$ONPR\_AUTO_{ij}$	Count	This is a count variable that represents the total number of automotive-related services available on-site. Such services encompass a range of offerings, including gas stations, diesel fuel availability, tire service centers, and auto buying programs).
6	$ECOM_{ijwy}$	Index	This refers to a composite metric representing the breadth of e-commerce service offerings. This measure is created by standardizing variables associated with three distinct services: standard delivery service, omni pickup service, and platform delivery service offerings, and subsequently aggregating these three standardized variables.
7	$ECOM\_SHIP_{ijwy}$	Dummy	This is defined as a binary variable that signifies the presence or absence of two-day shipping services in the e-commerce platform. A value of 1 represents the availability of such expedited shipping options, while a value of 0 indicates their absence.
8	$ECOM\_OMNI_{ijwy}$	Count	This represents a count variable that reflects the total number of specific services available at a store. It quantifies the range of options provided to customers for omni purchases, including buy online club pickup and buy online curbside pickup.
9	$ECOM\_PLTF_{ijwy}$	Dummy	This a binary variable indicating the presence or absence of delivery platform services. This dummy variable takes a value of 1 if delivery platform services are available, and 0 if they are not.
10	POP_{cy}	Count	This is the population of county c in year y.
11	INC_{cy}	Count	This is the median household income of county c in year y.

Table 2: Summary Statistics

No.	Variable	Units	Mean	SD	Min	Max
1	$STOR\_VSIT_{ijcwmy}$	visits/week	10.103	1.516	0.000	12.036
2	$ONPR_{ij}$	index	-0.003	2.171	-9.847	2.791
4	$ONPR\_HLTH_{ij}$	count	0.000	1.000	-2.532	1.140
5	$ONPR\_AUTO_ij$	count	0.000	1.000	-4.214	0.940
6	$ECOM_{ijwy}$	index	0.000	1.520	-6.048	1.615
9	$ECOM\_SHIP_{ijwy}$	count	0.000	1.000	-2.760	0.362
8	$ECOM\_OMNI_{ijwy}$	count	0.000	1.000	-1.366	0.732
7	$ECOM\_PLTF_{ijwy}$	count	0.000	1.000	-1.923	0.520
11	POP_{cy}	million persons	1.475	2.245	0.065	10.074
12	INC_{cy}	10K Dollars	6.819	1.752	3.489	12.661

Table 3: Correlation Table

No.	Variables	1	2	3	4	5	6	7	8	9	10
1	$STOR\_VSIT_{ijcwmy}$	1.000									
2	$ONPR_{ij}$	0.153	1.000								
3	$ONPR\_HLTH_{ij}$	0.061	0.447	1.000							
4	$ONPR\_AUTO_{ij}$	0.173	0.756	0.764	1.000						
5	$ECOM_{ijwy}$	0.091	0.196	0.223	0.273	1.000					
6	$ECOM\_SHIP_{ijwy}$	-0.028	0.368	0.319	0.145	0.458	1.000				
7	$ECOM\_OMNI_{ijwy}$	0.145	0.202	0.293	0.474	0.597	-0.054	1.000			
8	$ECOM\_PLTF_{ijwy}$	0.021	-0.272	-0.274	-0.205	0.466	-0.251	-0.040	1.000		
9	POP_{cy}	0.138	-0.178	-0.148	-0.154	0.027	-0.178	0.106	0.112	1.000	
10	INC_{cy}	0.061	-0.166	-0.308	-0.226	-0.094	-0.183	-0.125	0.166	0.028	1.000

Table 4.1: On-Premise Healthcare Service Offerings

Data Variability	Pharmacy			Optical Department			Independent Optometrist			Hearing Aids		
	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?
Costco	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
Sam's Club	Yes	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No
BJ's	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	No

Table 4.2: On-Premise Automotive Service Offerings

Data Variability	Gas Station			Diesel			Tire Service Center			Auto Buying Program		
	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?
Costco	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
Sam's Club	Yes	Yes	No	Yes	No	No	Yes	Yes	No	Yes	Yes	No
BJ's	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No

Table 4.3: E-Commerce Fulfillment Service Offerings

Data Variability	Two-Day Delivery			Buy Online Pick Up in Store			Buy Online Curbside Pickup			Platform Delivery		
	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?	Available?	Location?	Time?
Costco	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes	Yes
Sam's Club	Yes	No	No	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes
BJ's	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes

Estimation Models

In our study we investigate how e-commerce service offerings interacts with on-premise service offering in affecting WCs foot traffic. We estimate a two-way random-effects panel model with store-specific effects and year-month effects, taking into account that one of the main variables of interest, on-premise service offerings does not change over time. We also estimate our models using two-way fixed effects as a robustness check. In fixed effects model, the variables that do not change over time will be absorbed by the store fixed effects in the estimation model. The results using both random and fixed effects models are very consistent.

In the first step, Equation (1), we only include the direct effects from e-commerce and on-premise service bundling. In the second step, Equation (2), we include moderating effects by adding the interaction term between e-commerce and on-premise service offerings. The inclusion of an interaction term enables us to examine whether the postulated negative relationship between e-commerce service bundling offerings and the volume of store foot traffic might be contingent upon the magnitude of the store's on-premise service offering. In both equations (1) and (2), ηijc denotes the unobserved store specific effect and Ɛijcwmy represents the error term.

$$LN\left(STOR\_VSIT_{ijcwmy}\right) = \alpha_0$$
$$+\alpha_1 * ONPR_{ij}$$
$$+\alpha_2 * ECOM_{ijwy}$$
$$+ \alpha_3 * POP_{cy}$$
$$+\alpha_4 * INC_{cy}$$
$$+\overline{\alpha_5} * \overline{YEAR_y}$$
$$+\overline{\alpha_6} * \overline{MONTH_m}$$
$$+\overline{\alpha_7} * \overline{RETAILER_J}$$
$$+ \eta_{ijc} + \varepsilon_{ircwmy}$$

Equation (1)

$$LN\left(STOR\_VSIT_{ircwmy}\right) = \beta_0$$

$$+\beta_1 * ONPR_{ij}$$

$$+\beta_2 * ECOM_{ijwy}$$

$$+ \beta_3 * ECOM_{ijwy} * \ ONPR_{ij}$$

$$+ \beta_4 * POP_{cy}$$

$$+\beta_5 * INC_{cy}$$

$$+\overline{\beta_6} * \overline{MONTH_m}$$

$$+\overline{\beta_7} * \overline{YEAR_y}$$

$$+\overline{\beta_8} * \overline{RETAILER_J}$$

$$+ \eta_{ijc} + \ \varepsilon_{ircwmy}$$

Equation (2)

Estimation Results

Our study's results are presented in Table 5, where we analyze the direct and moderating effects of e-commerce and on-premise service bundling on customer foot traffic. Model 1.1 examines the direct impacts, while Model 1.2 explores the two-way moderating effects of these strategies.

Hypothesis 1 proposes that higher levels of on-premise service offerings positively impact WCs' foot traffic. The coefficients for on-premise service bundling in both Models 1.1 and 1.2 are positive and significant, at 0.041 ($p<0.05$) and 0.041 ($p<0.05$), respectively. These findings support Hypothesis 1, suggesting that on-premise service bundling offerings have a positive impact on the size of WCs' physical footprint.

Hypothesis 2 suggests that higher levels of e-commerce service offerings negatively impact WCs' foot traffic. In Model 1.1, the coefficient for the e-commerce service offering is negative and significant (-0.006, $p<0.05$), supporting Hypothesis 2. However, the coefficient changes to insignificant in Model 1.2, suggesting that the impact of e-commerce service offerings on WC foot traffic may depend on on-premise service offerings.

Hypothesis 3 posits that higher levels of on-premise service offerings weaken the negative effect of e-commerce service offerings on WC foot traffic. Model 1.2 reveals that the coefficient for the two-way interaction term of e-commerce and on-premise service bundling strategies is significantly positive (0.003, $p<0.01$). These findings support Hypothesis 3, suggesting that on-premise service offerings can mitigate the negative association between e-commerce service offerings and the size of WCs' physical footprint.

Table 5: 1st tier analysis: on-premise and e-commerce service bundling

Dependent Variables	Random Effects		Fixed Effects	
$LN(\text{STOR\_VSIT}_{ijcwmy})$	Model 1.1	Model 1.2	Model 1.3	Model 1.4
$ONPR_{ij}$	**0.041** (0.018)**	**0.041** (0.018)**	-	-
$ECOM_{ijwy}$	**-0.006** (0.003)**	-0.002 (0.002)	**-0.006** (0.003)**	-0.001 (0.002)
$ONPR_{ij}$* $ECOM_{ijwy}$		**0.003*** (0.001)**		**0.003*** (0.001)**
POP_{cy}	0.050*** (0.006)	0.049*** (0.006)	-0.194 (0.124)	-0.246** (0.124)
INC_{cy}	-0.002 (0.001)	-0.002 (0.001)	-0.005*** (0.002)	-0.005*** (0.002)
$\overline{YEAR_y}$	Included	Included	Included	Included
$\overline{RETAILER_j}$	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included
$CONSTANT$	9.611*** (0.060)	9.611*** (0.060)	10.536*** (0.187)	10.617*** (0.187)
N	132210	132210	132210	132210
$Wald\ chi2$	5770.09***	5751.68***		
F			291.47***	273.47***
$R\ Squared$	0.513	0.513	0.101	.104

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

To gain a deeper understanding of the results, we decomposed the on-premise service offerings and e-commerce service offerings into subcategories. Table 6 presents the estimation results. In Model 2.1, we find that the size of the physical footprint is positively associated with on-premise healthcare service offerings (0.120, $p<0.01$) and negatively associated with standard delivery service offerings (-0.018, $p<0.01$). However, the coefficients for the other service offerings are not statistically significant. These findings suggest that warehouse club visits are more positively swayed by the presence of on-premise healthcare services than automotive services. Simultaneously, standard delivery services seem to exert a more pronounced negative influence on these visits compared to other e-commerce offerings such as omni-pickup and platform delivery services.

Furthermore, we analyze the interaction effect between on-premise service offerings and e-commerce service offerings. In Model 2.2, the coefficient for on-premise healthcare service offerings is significantly positive (0.118, $p<0.01$), and the coefficient for e-commerce omni-pickup service offerings is significantly negative (-0.006, $p<0.1$). The coefficient for the two-way interaction between on-premise healthcare offerings and e-commerce omni-pickup service offerings is significantly positive (0.006, $p<0.05$). These results suggest that a higher level of healthcare service offerings weakens the negative association between omni-pickup services and the size of the warehouse club's physical footprint. On the other hand, the coefficient for the two-way interaction between on-premise automotive offerings and e-commerce omni-pickup service offerings is significantly negative (-0.010, $p<0.05$). This finding implies that a high level of automotive service offerings amplifies the negative relationship between omni-pickup service offerings and foot traffic in warehouse clubs.

Our research provides valuable insights into the interplay between various service offerings and customer foot traffic in warehouse clubs. The study indicates that while on-premise service bundling positively influences the warehouse's physical footprint, an increase in e-commerce offerings corresponds with reduced foot traffic. Notably, these impacts vary across different service types. For instance, on-premise healthcare services have a stronger positive influence on customer visits than automotive services. Conversely, standard delivery services negatively impact these visits more significantly than other e-commerce offerings. Moreover, strategic interactions between services matter: heightened healthcare offerings can mitigate the negative effect of e-commerce on foot traffic, while an increased automotive service offering can intensify it. Overall, these findings underscore the importance of strategically bundling service offerings for optimal physical footprint and enhanced foot traffic.

Table 6: 2nd tier analysis: on-premise and e-commerce service bundling

$LN(STOR\_VSIT_{ijcwmy})$	Random Effects Model		Fixed Effects Model	
	Model 2.1	Model 2.2	Model 2.3	Model 2.4
$ONPR\_HLTH_{ij}$	**0.120*** (0.033)**	**0.118*** (0.032)**	-	-
$ONPR\_AUTO_{ij}$	-0.005 (0.016)	-0.002 (0.016)	-	-
$ECOM\_SHIP_{ijwy}$	**-0.018*** (0.006)**	-0.005 (0.019)	**-0.018*** (0.006)**	0.006 (0.021)
$ECOM\_OMNI_{ijwy}$	-0.001 (0.002)	**-0.006* (0.003)**	-0.001 (0.002)	**-0.006* (0.003)**
$ECOM\_PLTF_{ijwy}$	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)
$ONPR\_HLTH_{ij}$* $ECOM\_SHIP_{ijwy}$		0.006 (0.007)		0.012 (0.008)
$ONPR\_HLTH_{ij}$*$ECOM\_OMNI_{ijwy}$		**0.006** (0.003)**		**0.006** (0.003)**
$ONPR\_HLTH_{ij}$*$ECOM\_PLTF_{ijwy}$		-0.001 (0.002)		-0.001 (0.002)
$ONPR\_AUTO_{ij}$*$ECOM\_SHIP_{ijwy}$		0.002 (0.003)		0.002 (0.003)
$ONPR\_AUTO_{ij}$* $ECOM\_OMNI_{ijwy}$		**-0.010** (0.005)**		**-0.010* (0.005)**
$ONPR\_AUTO_{ij}$* $ECOM\_PLTF_{ijwy}$		0.002 (0.002)		0.003 (0.002)
POP_{cy}	0.053*** (0.006)	0.053*** (0.006)	-0.216* (0.121)	-0.232* (0.120)
INC_{cy}	-0.002 (0.001)	-0.002 (0.001)	-0.004*** (0.001)	-0.004*** (0.001)
$\overline{YEAR_y}$	Included	Included	Included	Included
$\overline{RETAILER_J}$	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included
$CONSTANT$	9.674*** (0.067)	9.680*** (0.067)	10.572*** (0.182)	10.597*** (0.182)
N	132210	132210	132210	132210
$Wald\ chi2$	6870.99***	7740.05***		
F			298.46***	260.37***
$R\ Squared$	0.523	0.523	0.108	0.105

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table 7: Main Findings (Main Analysis)

Hypotheses	On-premise & E-commerce	Subcategory Service Bundling
H1 (Supported)	*H1: A higher level of on-premise service offerings at a warehouse club is positively associated with the size of the store's physical footprint.*	Visits to warehouse clubs are more favorably influenced by the inclusion of on-site healthcare services than by automotive services.
H2 (Supported)	*H2: A higher level of ecommerce service offerings at a warehouse club is negatively associated with the size of the store's physical footprint.*	The impact of standard delivery services and omnichannel pickup services appears to be more negatively potent on these visits than that of platform delivery services.
H3 (Supported)	*H3: A higher level of on-premise service offerings at a warehouse club mitigates the negative association between ecommerce service offerings and the size of the store's physical footprint.*	An expanded range of healthcare services mitigates the negative relationship between omnichannel pickup services and the physical size of the warehouse club. Conversely, a high level of automotive services intensifies the negative correlation between the offering of omnichannel pickup services and customer foot traffic within warehouse clubs.

Extended Analysis

For this extended analysis, we have introduced a new set of dependent variables to measure foot traffic data based on the distance customers travel from their households. Notably, around 93% of the physical footprint of warehouse clubs comes from customers who travel less than 50 miles. The variable, $\text{STOR\_VSIT\_5\_blw}_{\text{ijcwmy}}$, indicates the number of client visits to a store location i of chain j in county c in week w of month m in year y within 5 miles from store location during week w of month m in year y. Variables $\text{LN}(\text{STOR\_VSIT\_5\_10}_{\text{ijcwmy}})$, $\text{LN}(\text{STOR\_VSIT\_10\_30}_{\text{ijcwmy}})$, $\text{LN}(\text{STOR\_VSIT\_30\_50}_{\text{ijcwmy}})$, and $\text{LN}(\text{STOR\_VSIT\_50\_abv}_{\text{ijcwmy}})$ represent different distances from the household equal to 5-10, 10-30, 30-50 and above 50 miles, respectively. Our findings are shown in Table 8 and Table 9.

In our extended analysis, we probed the impact of on-premise service bundling on footfall within WC stores, with particular attention to the varying distances from customers' residences. Our findings demonstrated that the significance of on-premise service bundling begins to materialize within a range of 5-10 miles from customers' homes, as evidenced by a coefficient of 0.093 ($p<0.01$) in Model 4.3. This significance, however, wanes for a range of 10-30 miles from customers' homes, as reflected by a diminished coefficient of 0.046 ($p<0.05$) in Model 4.5. Moreover, within the 30-50 mile range, the effect of on-premise service bundling loses its statistical significance entirely, with Model 4.7 presenting a coefficient of 0.058 ($p>0.1$). Interestingly, for homes situated more than 50 miles away, the significance of on-premise service bundling reappears, as depicted by a coefficient of 0.098 ($p<0.01$) in Model 4.9. These observations indicate that on-premise service bundling exerts a positive influence on foot traffic in WC stores from a distance of 5 miles and beyond. However, this effect subsides for distances between 5-50 miles, only to rebound for distances exceeding 50 miles. It is noteworthy that our study did not observe a significant correlation between on-premise service bundling and foot traffic within a 5-mile radius from customers' homes.

In our subsequent exploration, we examined the correlation between e-commerce service bundling and the volume of foot traffic in WC stores across different distances from customers' homes. The results suggested that an intensified level of e-commerce service bundling corresponded with a decrease in customer store visits, with this negative influence becoming statistically significant ($p<0.05$) within a range of 5-30 miles. Notably, the coefficients for e-commerce service bundling consistently registered a negative value for the 5-10 mile and 10-30 mile distances, denoted by -0.006 ($p<0.01$) and -0.009 ($p<0.01$), respectively. This analysis further highlighted the strengthening of the negative impact of e-commerce service bundling with increasing distance, as indicated by the growing coefficients.

Delving further into the interplay between on-premise and e-commerce service bundling, as detailed in Models 4.2, 4.4, 4.6, 4.8, and 4.10, we uncovered noteworthy insights. The two-way interaction term between on-premise and e-commerce service bundling manifested a positive trajectory, escalating with distance up to 30 miles. This was supported by coefficients of 0.002 ($p<0.05$), 0.004 ($p<0.01$), and 0.004 ($p<0.01$) for distances of 5 miles, 5-10 miles, and 10-30 miles, respectively. Conversely, this pattern shifted for the 30-50 mile range, where the coefficient became statistically insignificant, and for distances beyond 50 miles, where it assumed a marked negative value. These findings suggest that an elevated level of on-premise service bundling could potentially offset the negative ramifications of e-commerce service bundling on the physical footprint of a store, specifically within a radius of 5 to 30 miles from customers' homes. However, for distances exceeding 50 miles, an intensified e-commerce service bundling strategy appears to undermine the positive association between on-premise service bundling and the store's physical footprint. Hence, we posit that amalgamating on-premise and e-commerce service bundling strategies could be an efficacious approach to address the challenges inherent in increasing customer distances from warehouse clubs. This strategy, however, appears to be most potent within a 30-mile radius.

In summary, our extended study unveils the complex interplay of on-premise and e-commerce service bundling strategies on foot traffic in WC stores across varying distances from customers' residences. We observed that on-premise service bundling significantly bolsters foot traffic within a 5-10 mile radius, with this effect waning between 10-50 miles, and intriguingly resurfacing for distances exceeding 50 miles. Conversely, e-commerce service bundling tends to deter in-store visits, particularly within a 5-30 mile radius. However, when both strategies are employed concurrently, an elevated level of on-premise service bundling appears to offset the negative impact of e-commerce service bundling on the physical store's footprint, particularly within a 5-30 mile radius. Beyond 50 miles, this dynamic shifts, suggesting that the effectiveness of service bundling strategies may largely depend on the geographical proximity of customers. These insights underscore the criticality of a carefully calibrated, distance-conscious approach in deploying on-premise and e-commerce service bundling strategies.

Table 8: 1st tier analysis: on-premise and e-commerce service bundling with respect to household distances (random effect model)

$LN(STOR\_VSIT_{ijcwmy})$	$LN(STOR\_VSIT\_5\_blv_{ijcwmy})$		$LN(STOR\_VSIT\_5\_10_{ijcwmy})$		$LN(STOR\_VSIT\_10\_30_{ijcwmy})$		$LN(STOR\_VSIT\_30\_50_{ijcwmy})$		$LN(STOR\_VSIT\_50\_abv_{ijcwmy})$	
	Model 4.1	Model 4.2	Model 4.3	Model 4.4	Model 4.5	Model 4.6	Model 4.7	Model 4.8	Model 4.9	Model 4.10
$ONPR_{ij}$	0.027	0.027	**0.093*** **	**0.092*** **	**0.046** **	**0.045** **	0.058	0.058	**0.098*** **	**0.098*** **
	(0.024)	(0.024)	**(0.019)**	**(0.019)**	**(0.018)**	**(0.018)**	(0.037)	(0.037)	**(0.021)**	**(0.021)**
$ECOM_{ijwy}$	-0.004	-0.001	**-0.006** **	0.001	**-0.009*** **	-0.003	0.005	0.005	0.006	0.000
	(0.004)	(0.003)	**(0.003)**	(0.003)	**(0.003)**	(0.003)	(0.006)	(0.005)	(0.005)	(0.004)
$ONPR_{ij} * ECOM_{ijwy}$		**0.002** **		**0.004*** **		**0.004*** **		-0.000		**-0.004** **
		(0.001)		**(0.001)**		**(0.001)**		(0.002)		**(0.002)**
POP_{cy}	0.122***	0.121***	0.045***	0.043***	-0.063***	-0.065***	-0.136***	-0.136***	-0.047***	-0.046***
	(0.009)	(0.009)	(0.008)	(0.008)	(0.010)	(0.010)	(0.021)	(0.021)	(0.008)	(0.008)
INC_{cy}	0.001	0.001	0.001	0.001	-0.005**	-0.004**	-0.011*	-0.011*	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.006)	(0.003)	(0.003)
$\overline{YEAR_y}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{RETAILER_j}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$CONSTANT$	8.807***	8.807***	8.200***	8.200***	7.645***	7.645***	4.955***	4.955***	6.401***	6.402***
	(0.086)	(0.086)	(0.069)	(0.069)	(0.068)	(0.068)	(0.127)	(0.127)	(0.071)	(0.071)
N	132210	132210	132210	132210	132210	132210	132210	132210	132210	132210
$Wald\ chi2$	3577.30***	3661.72***	3653.70***	3696.38***	2709.32***	2697.53***	958.90***	985.14***	6044.89***	6046.66***
$R\ Squared$	0.368	0.369	0.362	0.363	0.310	0.309	0.203	0.203	0.438	0.439

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table 9: 1st tier analysis: on-premise and e-commerce service bundling with respect to household distances (fixed effect model)

$LN(STOR\_VSIT_{ijcwmy})$	$LN(STOR\_VSIT\_5\_blw_{ijcwmy})$		$LN(STOR\_VSIT\_5\_10_{ijcwmy})$		$LN(STOR\_VSIT\_10\_30_{ijcwmy})$		$LN(STOR\_VSIT\_30\_50_{ijcwmy})$		$LN(STOR\_VSIT\_50\_abv_{ijcwmy})$	
	Model 5.1	Model 5.2	Model 5.3	Model 5.4	Model 5.5	Model 5.6	Model 5.7	Model 5.8	Model 5.9	Model 5.10
$ONPR_{ij}$	-	-	-	-	-	-	-	-	-	-
$ECOM_{ijwy}$	-0.004 (0.004)	-0.001 (0.003)	**-0.006**** **(0.003)**	0.001 (0.003)	**-0.009***** **(0.003)**	-0.003 (0.003)	0.005 (0.006)	0.004 (0.005)	0.006 (0.005)	0.001 (0.004)
$ONPR_{ij}*\ ECOM_{ijwy}$		**0.002**** **(0.001)**		**0.004***** **(0.001)**		**0.004***** **(0.001)**		-0.000 (0.002)		**-0.004**** **(0.002)**
POP_{cy}	-0.057 (0.165)	-0.094 (0.164)	-0.159 (0.147)	-0.248* (0.146)	-0.126 (0.176)	-0.208 (0.179)	0.792 (0.541)	0.800 (0.543)	-0.240 (0.212)	-0.169 (0.209)
INC_{cy}	-0.004* (0.002)	-0.004* (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004* (0.002)	-0.004* (0.002)	0.003 (0.005)	0.003 (0.005)	-0.003 (0.002)	-0.003 (0.002)
$\overline{YEAR_y}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{RETAILER_j}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$CONSTANT$	9.469*** (0.248)	9.527*** (0.246)	8.996*** (0.220)	9.134*** (0.219)	8.582*** (0.265)	8.709*** (0.270)	4.993*** (0.802)	4.980*** (0.806)	7.708*** (0.317)	7.597*** (0.313)
N	132210	132210	132210	132210	132210	132210	132210	132210	132210	132210
F	196.32***	190.30***	205.10***	195.56***	134.09***	125.25***	32.74***	31.01***	321.42***	302.61***
R Squared	0.134	0.159	0.052	0.056	0.004	0.003	0.008	0.008	0.001	0.002

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

In a more detailed examination, we explored the effect of on-premise and e-commerce service bundling subcategories on foot traffic, with a focus on varying distances from customers' residences. The results, as presented in Table 10, indicated a positive and significant influence of on-premise healthcare service offerings on the store's physical footprint, evident in Models 6.1, 6.3, and 6.9. The coefficients for distances of 0-5, 5-10, and above 50 miles were 0.149 ($p<0.01$), 0.176 ($p<0.01$), and 0.179 ($p<0.01$), respectively. Notably, for the 30-50 mile range (Model 6.7), these health offerings demonstrated a significant but negative impact, with a coefficient of -0.114 ($p<0.1$). Interestingly, the effects of higher levels of on-premise automotive services varied with distance, exerting a negative impact up to 5 miles from customers' homes, and turning positive beyond this point. This suggests a potential customer preference for stores offering comprehensive healthcare services, with the appeal of automotive services becoming significant beyond a 5-mile radius.

In line with our previous findings, the study confirmed a significant, negative correlation between the provision of standard delivery service and the store's physical footprint, particularly within 5-10 and 10-30 mile ranges. The dynamics of omni pickup services and e-commerce platform delivery, however, proved to be more complex. Omni pickup services displayed mixed effects across distances, but became significant within 10-30 mile range and for distances over 50 miles. Delivery platforms, meanwhile, seemed to attract customers dwelling 30 miles and beyond, suggesting their potential as a strategic tool for expanding customer reach.

Lastly, we assessed the interaction between on-premise and e-commerce service offerings. Model 6.2 revealed that none of the interaction coefficients were significant up to a 5-mile distance. Yet, within the 5-10 mile range, increased on-premise healthcare services mitigated the negative impact of omni pickup services on WC foot traffic, as indicated by a coefficient of 0.010 ($p<0.01$). For 10-30 miles, enhanced on-premise automotive services countered the negative influence of standard delivery services, as shown by a coefficient of 0.008 ($p<0.1$). Beyond 50 miles, a surge in standard delivery and omni pickup services seemed to reduce the positive impact of on-premise healthcare services, while omni pickup services also weakening the positive influence of on-premise automotive services on WC foot traffic.

Overall, our detailed analysis reveals that various service bundling subcategories affect customer foot traffic at warehouse clubs differently depending on the distance from the customer's residence. We found that on-premise healthcare services generally had a positive influence, except within the 30-50 mile range where they had a negative impact. In contrast, on-premise automotive services negatively affected foot traffic within a 5-mile radius, but this effect turned positive at larger distances. Standard delivery services typically led to reduced foot traffic, while the effects of omni pickup services and e-commerce platform delivery varied across distances. Interactions between services also played a role: increased

healthcare services mitigated the negative impact of omni pickup services within the 5-10 mile range, while heightened automotive services countered the negative influence of standard delivery services from 10-30 miles. However, beyond 50 miles, an increase in standard delivery and omni pickup services seemed to reduce the positive effect of on-premise healthcare and automotive services.

Table 10: 2nd tier analysis: on-premise and e-commerce service bundling with respect to household distances (random effect model)

$LN(STOR\_VSIT_{ijcwmy})$	$LN(STOR\_VSIT\_5\_blw_{ijcwmy})$		$LN(STOR\_VSIT\_5\_10_{ijcwmy})$		$LN(STOR\_VSIT\_10\_30_{ijcwmy})$		$LN(STOR\_VSIT\_30\_50_{ijcwmy})$		$LN(STOR\_VSIT\_50\_abv_{ijcwmy})$	
	Model 6.1	Model 6.2	Model 6.3	Model 6.4	Model 6.5	Model 6.6	Model 6.7	Model 6.8	Model 6.9	Model 6.10
$ONPR\_HLTH_{ij}$	**0.149*** **	**0.146*** **	**0.176*** **	**0.176*** **	0.022	0.018	**-0.114* **	**-0.126* **	**0.179*** **	**0.203*** **
	(0.042)	**(0.042)**	**(0.033)**	**(0.033)**	(0.034)	(0.034)	**(0.068)**	**(0.069)**	**(0.037)**	**(0.039)**
$ONPR\_AUTO_{ij}$	**-0.044* **	**-0.041* **	**0.043* **	**0.047** **	**0.059** **	**0.063** **	**0.159*** **	**0.163*** **	**0.050** **	**0.053** **
	(0.024)	**(0.024)**	**(0.023)**	**(0.023)**	**(0.025)**	**(0.025)**	**(0.047)**	**(0.048)**	**(0.023)**	**(0.023)**
$ECOM\_SHIP_{ijwy}$	-0.011	0.009	**-0.019** **	-0.018	**-0.028*** **	-0.001	-0.001	0.061	-0.002	**-0.171*** **
	(0.010)	(0.032)	**(0.008)**	(0.026)	**(0.007)**	(0.023)	(0.012)	(0.077)	(0.009)	**(0.065)**
$ECOM\_OMNI_{ijwy}$	0.002	-0.003	-0.005	**-0.008* **	**-0.005* **	**-0.009** **	-0.004	-0.013	**0.010* **	0.003
	(0.004)	(0.004)	(0.004)	**(0.004)**	**(0.003)**	**(0.004)**	(0.009)	(0.011)	**(0.005)**	(0.007)
$ECOM\_PLTF_{ijwy}$	-0.002	-0.003	0.002	0.005	0.002	0.001	**0.015** **	0.010	**0.010** **	0.002
	(0.005)	(0.005)	(0.004)	(0.004)	(0.003)	(0.004)	**(0.007)**	(0.008)	**(0.004)**	(0.005)
$ONPR\_HLTH_{ij}$*		0.009		-0.005		0.012		0.038		**-0.096** **
$ECOM\_SHIP_{ijwy}$		(0.013)		(0.010)		(0.009)		(0.045)		**(0.038)**
$ONPR\_HLTH_{ij}$*		0.006		**0.010*** **		0.005		-0.001		**-0.016*** **
$ECOM\_OMNI_{ijwy}$		(0.004)		**(0.004)**		(0.003)		(0.008)		**(0.006)**
$ONPR\_HLTH_{ij}$*		-0.003		0.002		-0.004		-0.005		-0.001
$ECOM\_PLTF_{ijwy}$		(0.004)		(0.003)		(0.003)		(0.007)		(0.004)
$ONPR\_AUTO_{ij}$*		0.005		0.007		**0.008* **		0.002		-0.004
$ECOM\_SHIP_{ijwy}$		(0.005)		(0.005)		**(0.005)**		(0.010)		(0.007)
$ONPR\_AUTO_{ij}$*		-0.009		-0.008		-0.006		-0.016		**-0.013* **
$ECOM\_OMNI_{ijwy}$		(0.006)		(0.005)		(0.005)		(0.012)		**(0.008)**
$ONPR\_AUTO_{ij}$*		0.004		0.002		0.003		0.003		0.000
$ECOM\_PLTF_{ijwy}$		(0.004)		(0.002)		(0.003)		(0.006)		(0.003)
POP_{cy}	0.128***	0.127***	0.049***	0.048***	-0.065***	-0.066***	-0.146***	-0.146***	-0.043***	-0.040***
	(0.009)	(0.009)	(0.008)	(0.008)	(0.010)	(0.010)	(0.021)	(0.021)	(0.008)	(0.008)
INC_{cy}	0.001	0.001	0.001	0.001	-0.004**	-0.004**	-0.011*	-0.011*	-0.008***	-0.008***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.006)	(0.003)	(0.003)
$\overline{YEAR_y}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{RETAILER_j}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$CONSTANT$	8.927***	8.930***	8.272***	8.293***	7.583***	7.584***	4.758***	4.733***	6.479***	6.489***
	(0.090)	(0.091)	(0.070)	(0.069)	(0.073)	(0.074)	(0.143)	(0.143)	(0.077)	(0.080)
N	132210	132210	132210	132210	132210	132210	132210	132210	132210	132210
$Wald\ chi2$	4521.95***	4913.09***	4291.26***	4462.32***	2914.61***	3010.44***	1044.71***	1098.22***	6194.62***	6539.44***

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table 11: 2nd tier analysis: on-premise and e-commerce service bundling with respect to household distances (fixed effect model)

$LN(STOR\_VSIT_{ijcwmy})$	$LN(\text{STOR\_VSIT\_5}_{\text{ijcwmy}})$		$LN(\text{STOR\_VSIT\_5\_10}_{\text{ijcwmy}})$		$LN(\text{STOR\_VSIT\_10\_30}_{\text{ijcwmy}})$		$LN(\text{STOR\_VSIT\_30\_50}_{\text{ijcwmy}})$		$LN(\text{STOR\_VSIT\_50abv}_{\text{ijcwmy}})$	
	Model 7.1	Model 7.2	Model 7.3	Model 7.4	Model 7.5	Model 7.6	Model 7.7	Model 7.8	Model 7.9	Model 7.10
$ONPR\_HLTH_{ij}$	-	-	-	-	-	-	-	-	-	-
$ONPR\_AUTO_{ij}$	-	-	-	-	-	-	-	-	-	-
$ECOM\_SHIP_{ijwy}$	-0.011 (0.010)	0.021 (0.035)	**-0.019**** **(0.008)**	-0.019 (0.028)	**-0.028***** **(0.007)**	0.001 (0.024)	-0.002 (0.012)	-0.064 (0.058)	-0.002 (0.009)	**-0.163**** **(0.082)**
$ECOM\_OMNI_{ijwy}$	0.002 (0.004)	-0.003 (0.004)	-0.005 (0.004)	**-0.008*** **(0.004)**	**-0.005*** **(0.003)**	**-0.008**** **(0.004)**	-0.003 (0.009)	-0.012 (0.011)	**0.010*** **(0.005)**	0.004 (0.007)
$ECOM\_PLTF_{ijwy}$	-0.002 (0.005)	-0.003 (0.005)	0.002 (0.004)	0.005 (0.004)	0.002 (0.003)	0.001 (0.004)	**0.015**** **(0.007)**	0.011 (0.008)	**0.010**** **(0.004)**	0.002 (0.005)
$ONPR\_HLTH_{ij}$* $ECOM\_SHIP_{ijwy}$		0.016 (0.015)		-0.006 (0.011)		0.013 (0.010)		-0.036 (0.032)		**-0.091*** **(0.048)**
$ONPR\_HLTH_{ij}$*$ECOM\_OMNI_{ijwy}$		0.006 (0.004)		**0.011***** **(0.004)**		0.005 (0.003)		-0.002 (0.008)		**-0.016***** **(0.006)**
$ONPR\_HLTH_{ij}$*$ECOM\_PLTF_{ijwy}$		-0.004 (0.004)		0.002 (0.003)		-0.004 (0.003)		-0.004 (0.007)		-0.001 (0.004)
$ONPR\_AUTO_{ij}$*$ECOM\_SHIP_{ijwy}$		0.004 (0.005)		0.007 (0.005)		**0.008*** **(0.005)**		-0.000 (0.010)		-0.005 (0.007)
$ONPR\_AUTO_{ij}$* $ECOM\_OMNI_{ijwy}$		-0.009 (0.006)		-0.008 (0.005)		-0.005 (0.005)		-0.015 (0.012)		-0.012 (0.008)
$ONPR\_AUTO_{ij}$* $ECOM\_PLTF_{ijwy}$		0.004 (0.004)		0.002 (0.002)		0.003 (0.003)		0.002 (0.006)		0.000 (0.003)
POP_{cy}	-0.066 (0.163)	-0.086 (0.164)	-0.188 (0.142)	-0.247* (0.143)	-0.167 (0.176)	-0.190 (0.176)	0.760 (0.546)	0.813 (0.542)	-0.254 (0.213)	-0.127 (0.207)
INC_{cy}	-0.003* (0.002)	-0.003* (0.002)	-0.003 (0.002)	-0.003 (0.002)	-0.004* (0.002)	-0.004* (0.002)	0.002 (0.005)	0.002 (0.005)	-0.003 (0.002)	-0.002 (0.002)
$\overline{YEAR_y}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{RETAILER_s}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$\overline{MONTH_m}$	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
$CONSTANT$	9.482*** (0.245)	9.511*** (0.247)	9.043*** (0.213)	9.146*** (0.215)	8.647*** (0.264)	8.680*** (0.265)	5.048*** (0.809)	4.989*** (0.804)	7.729*** (0.318)	7.576*** (0.312)
N	132210	132210	132210	132210	132210	132210	132210	132210	132210	132210
F	212.84***	167.45***	215.78***	164.59***	124.74***	97.19***	29.30***	22.24***	283.79***	214.24***

Note: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

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Table 12: Summary of Main Findings: Extended Analysis

Distance Range	On-premise & E-commerce	Subcategory Service Bundling
0-5 miles	Neither on-premise nor e-commerce service bundling has a significant correlation with foot traffic. Their impacts, however, are complementary.	The on-premise healthcare services significantly increase foot traffic, whereas on-premise automotive services discourage visits.
5-10 miles	On-premise service bundling notably increases foot traffic, whereas e-commerce service bundling results in fewer store visits. Nonetheless, the positive influence of on-premise bundling can counterbalance the negative effects of e-commerce.	On-premise healthcare and automotive services positively influence foot traffic. Any negative effect from omni pickup services is lessened by the presence of more on-premise healthcare services.
10-30 miles	While the impact of on-premise service bundling gradually declines, it remains positive. E-commerce service bundling continues to deter foot traffic, but this effect can be offset by on-premise service bundling.	The negative effects of standard delivery services are balanced by an increase in on-premise automotive services. Omni pickup services have a negative impact on foot traffic within this range.
30-50 miles	The effect of on-premise service bundling becomes statistically insignificant. E-commerce service bundling has no significant correlation with foot traffic.	While on-premise healthcare services appear to reduce foot traffic, on-premise automotive services, in contrast, exert a positive effect on store visits. Delivery platforms have an attractive effect on customers who live further away.
> 50 miles	The positive effect of on-premise service bundling re-emerges and significantly boosts foot traffic. However, an aggressive e-commerce service bundling strategy hampers the positive relationship between on-premise service bundling and foot traffic.	Omni pickup and platform delivery services seem to draw customers from distances over 50 miles. The positive effects of on-premise healthcare and automotive services lessen with an increase in standard delivery and omni pickup services.

Theoretical Implications

Our study has provided valuable insights into the relationship between on-premise service bundling, e-commerce service bundling, and the size of a warehouse club's physical footprint. Our research underscores that on-premise service bundling significantly influences the physical footprint of warehouse clubs in a positive manner. In contrast, an increase in e-commerce service offerings is associated with a reduction in foot traffic. Interestingly, this downward trend in foot traffic can be tempered by the strategic integration of on-premise service offerings. Importantly, the impacts of these service categories vary, underlining the necessity of a nuanced approach in service provision.

Specifically, our findings suggest that on-premise healthcare services yield a more potent positive impact on customer visits than automotive services. Conversely, standard delivery services tend to exert a more pronounced negative effect on visits compared to other e-commerce alternatives. Analyzing the interactions between service types, we found that a robust offering of on-premise healthcare services can offset the negative influence of e-commerce omni-pickup services. However, an enhanced provision of automotive services tends to exacerbate the negative relationship between omni-pickup services and foot traffic. This highlights the strategic importance of carefully balancing on-premise and e-commerce service offerings to optimize the physical size of warehouse clubs and boost foot traffic.

In terms of geographic proximity, our study reveals how service bundling strategies impact foot traffic within distinct distance ranges from customers' homes. Specifically, on-premise service bundling boosts foot traffic within 5-10 miles, lessens its effect between 10-50 miles, and then re-emerges for distances over 50 miles. In contrast, e-commerce service bundling generally discourages in-store visits within a 5-30 mile radius. Yet, an equilibrium of both strategies can alleviate the negative effect of e-commerce on a physical store's footprint within 5-30 miles. This dynamic, however, changes beyond 50 miles, underlining the geographical proximity of customers as a key factor.

Our research also delves into the nuanced effects of various service bundling subcategories at different distances. For instance, on-premise healthcare services generally increase foot traffic within 0-5, 5-10, and over 50 mile ranges but curiously discourage it within 30-50 miles. On-premise automotive services, on the other hand, reduce foot traffic within a 5-mile radius but become more appealing at greater distances. Meanwhile, standard delivery services have a negative impact within 5-30 miles, while the influence of omni pickup services and platform delivery services vary, the former being significant within 10-30 miles and over 50 miles and the latter attracting customers dwelling 30 miles and beyond.

Interestingly, the study notes that increased on-premise services can counteract the negative effects of certain e-commerce services within specific distances. For instance, a rise in on-premise healthcare

services can offset the negative impact of omni pickup services within 5-10 miles, and increased automotive services can counteract the negative influence of standard delivery services within 10-30 miles. However, beyond 50 miles, the positive effect of both on-premise healthcare and automotive services seems to wane with an increase in standard delivery and omni pickup services. This reinforces the complexity of crafting efficient service provision strategies.

Managerial Implications

Our study offers several practical managerial implications that can assist warehouse clubs and retailers in enhancing their service bundling strategies. Firstly, our findings suggest that offering a diverse range of on-premise services is an effective way of encouraging foot traffic to physical stores, and can ultimately lead to an increase in the store's physical footprint. Warehouse clubs should therefore prioritize investing in on-premise service bundling offerings that provide value to customers beyond discounted retail items, such as optometry, pharmacy, and tyre centres. By doing so, they can incentivize customers to visit their physical stores, increasing the likelihood of in-store purchases and enhancing customer loyalty.

Secondly, our research highlights the importance of balancing on-premise and e-commerce service bundling offerings to maximize the synergies between these channels. Warehouse clubs should invest in crafting distinct, value-added services across both on-premise and e-commerce platforms, ensuring that customers have access to a wide array of offerings tailored to their specific needs and preferences. By strategically coordinating their on-premise and e-commerce service bundling offerings, warehouse clubs can foster a more seamless and cohesive shopping experience for their customers, ultimately enhancing customer satisfaction and loyalty.

Thirdly, our study emphasizes the importance of continually evaluating and adjusting service bundling strategies in response to evolving customer needs and market dynamics. Warehouse clubs must remain agile and adaptable, closely monitoring the performance of their on-premise and e-commerce service bundling offerings and refining their strategies as necessary to maintain a robust presence in both the physical and digital realms. By staying responsive to changes in customer preferences and industry trends, warehouse clubs can ensure their continued success in an increasingly competitive market landscape.

Lastly, our study highlights the importance of considering the geographical location of the store and tailoring service bundling strategies accordingly. By understanding the impact of distance on the effectiveness of service bundling offerings, warehouse clubs can better target and cater to customers in different geographic regions. For instance, if a store is located in a more rural area with customers travelling longer distances, warehouse clubs can increase their on-premise service bundling offerings to incentivize customers to visit the physical store. Conversely, if a store is located in a more urban area with a higher density of customers, warehouse clubs may want to focus more on e-commerce service bundling offerings. By tailoring their service bundling strategies to the geographic location of their stores, warehouse clubs can maximize their foot traffic and sales.

Future Research

Our research offers considerable insights that carry both theoretical and practical implications, specifically for warehouse clubs and the broader retail industry. The findings from our study are poised to inspire further investigations in this pivotal area of retail strategy, potentially informing the design of successful multi-channel strategies. These strategies should ideally strike a balance between on-premise and e-commerce service offerings, thereby maximizing the synergistic benefits that can arise from an integrated approach. However, several limitations inherent to our study should be noted.

Firstly, the scope of our findings is tailored to the unique operational context of warehouse clubs within the United States. This specificity may limit the direct applicability of our results to other retail settings or geographical regions with different cultural, economic, or logistical nuances. Thus, future research endeavors could enhance the generalizability of our findings by extending the scope of investigation to include various types of retailers in different geographical regions.

Additionally, while our focus has been on service bundling, we recognize that customer behavior is a multifaceted phenomenon influenced by a wide range of factors. Elements such as pricing strategies, promotional activities, the store's layout, product assortment, and the overall shopping experience can significantly sway customer decisions. Consequently, an exploration of how these factors interact with service bundling strategies could provide a more comprehensive understanding of their collective influence on customer behavior, thereby opening avenues for more nuanced retail strategies.

Lastly, our study is based on pre-COVID-19 data, a time when the retail landscape was considerably different from the present. The COVID-19 pandemic has drastically altered retail dynamics, including customer behavior, shopping habits, and expectations from retailers. The impact of these changes on the relationship between service bundling and foot traffic is not yet fully understood. Thus, future research should factor in the evolving post-pandemic retail scenario to assess the ongoing and potential shifts in the effectiveness of service bundling strategies and their impact on foot traffic. Such research could provide crucial insights for retailers as they navigate the post-pandemic retail landscape.

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