

# Costco Wholesale: Performance, Strategies, and Outlook

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## ABSTRACT

This study explores the strategic and financial development of Costco Wholesale Corporation, emphasizing its membership-based revenue model, expansion strategy, and digital transformation. Drawing on linear regression of nine years of historical data from Costco's SEC filings (2016–2024), this analysis projects the company's financial performance through the period 2025 to 2034. The models yield R-squared values of 99%, 97%, and 86% for membership revenue, total sales, and profit margin, respectively, indicating strong growth stability from 2016 to 2024. Membership fees, which accounted for approximately 66% of net income in fiscal year 2024, are identified as a key driver of profitability. The model forecasts a 56% increase in membership revenue by 2034 compared to 2024, with membership fees projected to comprise approximately half of total operating income. The study also highlights emerging challenges, including market saturation in the United States and slower international expansion, particularly in China due to localization barriers. Comparative analysis with Walmart and Amazon reveals lagging adoption of e-commerce and artificial intelligence. The findings suggest that while Costco's core model remains robust, future competitiveness will depend on its ability to adapt to digital innovation and evolving global market conditions.

**Keywords:** Costco; Retail; Business strategy; Bulk sale; Membership model; International expansion; Digital transformation; Artificial intelligence

## INTRODUCTION

Costco Wholesale Corporation has emerged as a dominant force in the retail industry, known for its membership-based model, low-margin pricing strategy, and disciplined operational efficiency (1). Unlike traditional retailers, Costco generates a substantial portion of its income from membership fees (1), which have proven to be a stable and predictable revenue stream. Its business strategies have worked very

successfully in the past years (1). It has outperformed its competitors such as Walmart, Sam's Club, Amazon, Target, Kroger, and BJ's Wholesale.

Since their emergence in the early 1980s, warehouse clubs as a whole have generally expanded more rapidly than traditional grocery stores (2). This retail format may have played a role in accelerating Americans' overall consumption rates (2), with a notable rise in per capita servings of packaged food potentially linked to warehouse club shopping behaviors (3). These trends suggest that warehouse clubs not only influence retail competition but also shape broader patterns in food consumption, household budgeting, and supply chain dynamics.

However, digital transformation presents a significant challenge for warehouse stores like Costco,

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as it continues to reshape logistics and supply chain operations across the retail industry (4). Walmart's integration of online and offline channels exemplifies the growing importance of omnichannel strategies in today's retail landscape (4). Shifting consumer preferences toward online shopping and the impact of digital reviews highlight the need for a strong and adaptive digital presence (5). Meanwhile, Artificial Intelligence (AI) is revolutionizing retail by driving major gains in operational efficiency, customer engagement, and strategic decision-making (6). Retailers that effectively leverage AI can enhance performance, elevate customer experiences, and foster innovation—though they must also navigate the associated costs and cybersecurity risks (7).

International expansion is a natural progression for warehouse retailers seeking growth, and companies like Costco and its competitors have extended their operations into global markets. However, success abroad is far from guaranteed. Localization—adapting to local consumer preferences, regulatory environments, and cultural norms—remains a critical challenge, especially in emerging economies where shopping behaviors and infrastructure may differ significantly from those in the U.S. (5, 8). For instance, Costco's entry into China required adjustments in product selection, packaging sizes, and membership marketing to align with local tastes and urban shopping habits (9). To thrive internationally, warehouse clubs must balance their core value proposition—bulk savings and efficiency—with tailored strategies that respect local expectations, supply chain realities, and competitive dynamics.

## METHODS AND MATERIALS

### Methodology and Data Collection

The majority of data used in this study were sourced from the annual reports (10-K filings required by the U.S. Securities and Exchange Commission) of Costco and its key competitors—Walmart, Amazon, Target, Kroger, and BJ's Wholesale (1, 10-44). These reports are publicly available on the respective companies' websites, with some provided in Excel format for ease of analysis. Additional data were obtained from the Yahoo! Finance platform (45) and the U.S. Census Bureau website (46), offering complementary financial and demographic insights.

The price comparison data presented in Table 1 were gathered through direct observation at local retail locations for Costco, Walmart, Target, Harris

Teeter, and BJ's Wholesale near zip code 28105 on June 8, 2025. Prices for Amazon were obtained from the Amazon.com website on the same date to ensure consistency. This sampling approach provides a snapshot of competitive pricing across major retailers serving the Matthews, North Carolina area.

The regression analysis was primarily conducted using historical financial data—such as sales, profit margins, and operating income—organized by fiscal years or reporting quarters. This temporal structure enabled the identification of performance trends and relationships across time, providing a foundation for evaluating strategic and operational factors influencing retail outcomes.

This study has several limitations. Price comparisons were limited to one geographic area and a single date, which may not reflect broader trends. Financial data were drawn from public filings, which may omit operational nuances.

### Historical Performance

The mission statement in Costco's code of ethics states they wish to 'Obey the law; Take care of our members; Take care of our employees; Respect our suppliers; Reward our shareholders' (47). The following sections present Costco's performance across these strategic dimensions, alongside comparative insights from its leading competitors.

#### To members – Low gross margin ratio

Costco established a strict pricing guideline to support its low-margin business model: "The gross margin cannot be greater than 14% for brand items and less than 15% for Kirkland Signature items" (48). This policy reflects the company's first core strategy of maintaining minimal markups to deliver value to members.

Costco maintains a notably low sales margin relative to other major retail corporations, averaging approximately 10.9% over the past five years (Figure 1). This lean margin structure reflects the company's commitment to affordability, enabling consumers to purchase goods at lower prices.

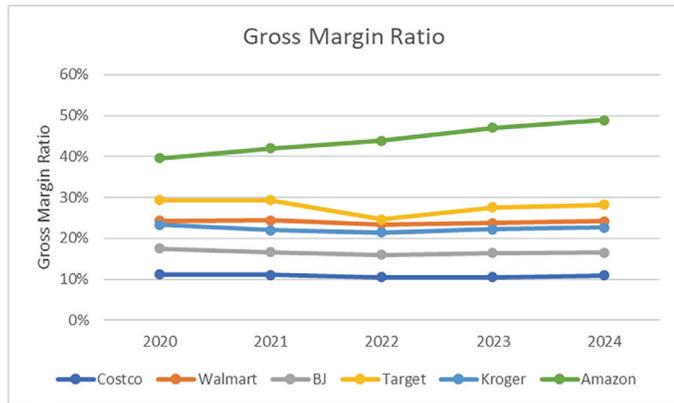
Costco's low gross margin strategy resonates strongly with cost-conscious consumers, fueling membership growth and driving sales, as demonstrated in Figure 2. Costco's sales have increased more than 50% from 2020 to 2024.

In addition to competitive pricing, Costco's emphasis on bulk packaging and a limited, curated product

selection encourages larger, more efficient purchases, contributing to its high sales volume (1). This approach reflects Costco’s second core business strategy: maximizing sales through bulk purchasing and limiting product selections.

To members – High quality goods at the lowest possible price

Costco’s third core business strategy centers on delivering high-quality goods and services at the lowest



**Figure 1.** Gross margin ratios over the past five years from 2020 to 2024 of Costco and its major competitors Walmart, BJ, Target, Kroger, and Amazon. The gross margin ratio is defined as the ratio of the difference of sales revenue and cost of goods sold to sales revenue. It is represented as percentage as shown in y-axis. The data sources are from the annual reports of these companies.



**Figure 2.** Net sales accumulative growth rates over the past five years from fiscal year 2020 to 2024 of Costco and its major competitors Walmart, BJ’s, Target, Kroger, and Amazon. The data sources are from the annual reports of these companies.

possible prices—a principle clearly stated in its mission: “To continually provide our members with quality goods and services at the lowest possible prices” (47).

Costco’s low gross margin is directly reflected in the pricing of its merchandise. On June 8, 2025, a comparative pricing study was conducted across seven major retailers—Costco, Sam’s Club, Target, Walmart, BJ’s club, Amazon, and Harris Teeter (A local grocery store operating as a subsidiary of Kroger) —focusing on commonly purchased items. Units of measurement were standardized based on product type; for instance, egg prices were calculated per egg, while sugar was measured per pound. The sample consisted of twelve randomly selected common products, evenly split between household goods and food or beverage items.

Costco consistently offers the lowest unit prices across nearly all items surveyed, with particularly notable savings on products such as Huggies Diapers and Scott Toilet Paper (Table 1). This pricing advantage stems from Costco’s commitment to maintaining a low gross margin and high operational efficiency, enabling significant reductions in unit costs that are often unattainable at traditional retail outlets. For instance, if a customer spends \$10 on each item listed in Table 1 at Costco, purchasing the same quantity would cost approximately 4% more at BJ’s, 22% more at Walmart, 30% more at Target, 34% more at Amazon, and a striking 89% more at Harris Teeter.

Moreover, Costco holds private-label brand, Kirkland Signature, to offer high-quality products at lower prices by eliminating traditional brand markups. Spanning a wide range of categories—from groceries and household essentials to apparel and fuel—Kirkland products are often manufactured by well-known national brands under confidential agreements. This strategy supports Costco’s low-margin, high-volume business model while reinforcing customer loyalty through consistent value and quality.

To members – Good customer experience & convenience

To enhance customer experience and drive foot traffic, Costco offers complimentary food samples, a food court featuring its iconic \$1.50 hot dog combo, and rotisserie chickens priced at \$4.99. While these offerings serve as effective customer drawings, they represent a deliberate trade-off that places downward pressure on profit margins. Additionally, as illustrated in Panel A of Table 2, Costco employs significantly more staff per store compared to other major retailers, reflecting its operational emphasis on service and efficiency.

**Table 1.** Unit prices of some merchants from Costco, Walmart, BJ’s, Target, Harris Teeter, and Amazon. All numbers are represented in cents per unit listed. The prices of Sam’s club aren’t listed because they are almost identical to Costco’s. All prices were observed on June 8, 2025.

Merchandise	Unit	Costco	Walmart	BJ	Target	Harris Teeter	Amazon
Diaper - Huggies (Size 5)	Count	24.5	34.3	32.4	45.0	63.8	43.3
Detergent - TIDE	Ounce	14.7	15.1	14.7	15.4	15.2	15.1
Paper Towel-Bounty	Square feet	3.9	5.0	4.0	5.0	8.6	5.4
Toilet Paper - Scott	Roll	67.4	83.3	75.0	84.7	108.3	87.7
Toothpaste - Colgate Optic	Ounce	109.7	135.0	107.1	135.3	213.0	135.0
Medicine-Advil	Count	5.6	9.0	5.6	9.0	9.0	9.0
Bagels	Count	66.6	66.2	66.5	66.5	88.2	58.2
Large White Egg	Count	24.0	24.2	23.3	24.9	28.3	31.6
Sugar-Domino	Pound	84.0	89.4	78.9	97.8	143.0	149.0
Water - Deer Park	500ml Bottle	16.2	19.9	16.7	23.4	49.8	17.9
Drink-Coca Cola	355ml Bottle	50.0	49.9	54.3	63.3	91.6	58.3
Chacolate -Ferrero Rocher	Count	37.5	56.8	39.6	51.6	96.0	56.7

**Table 2.** The employee per store information in natural unit is shown in Panel A; the minimum employee wages in dollars is shown in Panel B; and the most recent inventory turnover ratios (defined as the cost of goods sold divided by the average inventory value) are shown in Panel C. The data sources are from the 2024 annual reports of these companies.

<b>A</b>	Costco	Walmart	BJ’s	Target	Kroger	Amazon
Empolyee	333,000	2,100,000	25,000	440,000	414,000	1,560,000
Store	905	10750	250	2000	2800	NA
Empolyee/Store	<b>368</b>	<b>195</b>	<b>100</b>	<b>220</b>	<b>148</b>	NA
<b>B</b>	Costco	Walmart	BJ’s	Target	Kroger	Amazon
Minimum Wages (\$)	20	14	11	15	16	15
<b>C</b>	Costco	Walmart	BJ’s	Target	Kroger	Amazon
Inventory Turnover Ratio	12	9	11	6	12	10

A higher employee-to-store ratio offers several operational advantages, including enhanced customer service, more cashiers to streamline the checkout process, and increased staffing for inventory replenishment. These factors contribute to Costco’s fourth core business strategy: delivering a superior shopping experience that fosters customer satisfaction and loyalty.

To members – Generous return policy

Central to Costco’s customer-centric philosophy is its “100% Satisfaction Guarantee,” which is reflected in one of the most generous return policies in the retail

industry (49). Nearly all items can be returned for a full refund, regardless of condition or time elapsed—even partially consumed food products. Notable exceptions include electronics, which carry a 90-day return window, and items with limited life expectancy such as tires and batteries. Furthermore, Costco allows members to cancel and receive a full refund on their membership at any time if dissatisfied (49). This flexible approach reduces perceived risk for consumers, encouraging trial purchases and reinforcing Costco’s fifth core business strategy: promoting customer confidence through a lenient return policy.

To employees – High minimum wage

Despite its scale as a major corporation, Costco distinguishes itself by offering significantly higher wages to its minimum-wage employees compared to other leading retailers. As of the latest data in 2024 annual reports, Costco’s minimum wage stands at \$20 per hour—25% higher than Kroger’s \$16 per hour and 45% higher than BJ’s \$11 per hour (Panel B of Table 2). This wage policy reflects Costco’s commitment to employee well-being and contributes to its reputation for operational excellence and workforce stability.

Employee satisfaction plays a pivotal role in enhancing customer experience, increasing the likelihood of membership renewals and sustained purchasing behavior—both essential drivers of sales growth. A well-compensated workforce also contributes to lower turnover rates and reduced inventory shrinkage, as employees are more engaged and committed to their roles. While many large corporations seek to maximize profits by minimizing labor costs, Costco’s philosophy of “taking care of employees” stands in contrast, forming the foundation of its sixth core business strategy: investing in competitive wages to foster a loyal and high-performing workforce.

To Suppliers – Good early payment program

Costco collaborates with suppliers through its Early Payment Program, facilitated by C2FO—a platform that enables suppliers to offer invoice discounts in exchange for expedited payments (50). This arrangement benefits both parties: Costco secures lower procurement costs, while suppliers gain timely access to working capital (50). This approach exemplifies Costco’s seventh core business strategy—negotiating the lowest possible prices by sharing financial advantages with its supply partners.

To Suppliers – High inventory turnover ratio

Costco’s ability to offer early payments to suppliers is supported by its exceptionally high inventory turnover ratio—approximately 12—significantly surpassing that of most other major retailers (Panel C of Table 2). This metric, calculated as the ratio of cost of sales to inventory, reflects the rapid pace at which

products are sold and replenished. It serves as a strong indicator of Costco’s robust sales performance and operational agility. This practice underpins Costco’s eighth core business strategy: promoting operational efficiency through superior inventory management.

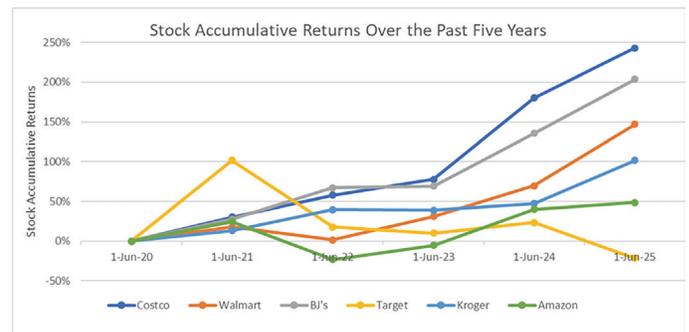
To Investors – High stock return

Costco’s stock value has experienced the most substantial growth among its competitors, more than tripled over the past five years since June 1, 2020—an outcome aligned with its mission to deliver long-term value to shareholders (Figure 3). To support continued growth in net income, Costco consistently opens approximately 20 to 30 new stores annually (1). This reflects its ninth core business strategy: pursuing steady and sustainable expansion.

To Investors – High stock price to earnings per share (P/E)

As of June 30, 2025, Costco holds the highest price-to-earnings (P/E) ratio among its primary competitors, standing at 57—a figure that surpasses not only other retail firms but also many fast-growing technology companies (Table 3). This elevated P/E ratio reflects strong investor confidence in Costco’s future performance and earnings potential.

Investors continue to express confidence in Costco’s business model, recognizing its capacity for sustained



**Figure 3.** Stock performance over the past five years of Costco and its major competitors. The data sources are from Yahoo! Finance website (45).

**Table 3.** Price to earnings per share ratio of Costco and its major competitors as of June 30, 2025. The data sources are from Yahoo Finance website (45).

	Costco	Walmart	BJ	Target	Kroger	Amazon
P/E Ratio	57	42	26	11	18	35

expansion supported by a strong cash position. The company’s membership-based revenue stream is both predictable and steadily growing, reinforcing the belief that its strategic framework will remain effective over time. This reflects Costco’s tenth core business strategy: leveraging its membership model to generate stable income fee while fostering long-term customer loyalty.

Costco’s track record certainly suggests resilience and strategic clarity. Its consistent execution across ten core business strategies—from maintaining low margins and bulk pricing to investing in employees and expanding sustainably—has built a strong foundation for future performance.

**Forecast Analysis**

Costco’s historical performance has demonstrated remarkable stability, making it a strong candidate for future forecasting. By applying a simple projection model to past financial and operational data, we can estimate its future trajectory and evaluate the feasibility of these outcomes. This approach allows for a structured discussion on whether Costco’s proven strategies can continue delivering consistent growth in an evolving retail landscape.

The analysis employs the following variable definitions:

S: total sales; C: cost of sales; M: gross margin rate (= 1 – C/S); F: membership fee revenue

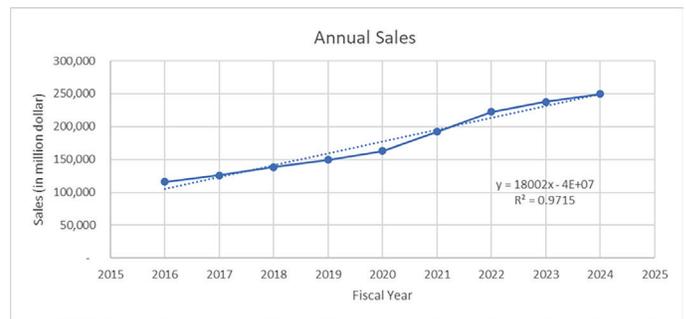
SGA: selling, general, and administrative; E: the ratio of SGA to total sales (= SGA/S)

M – E: profit margin; OI: operating income

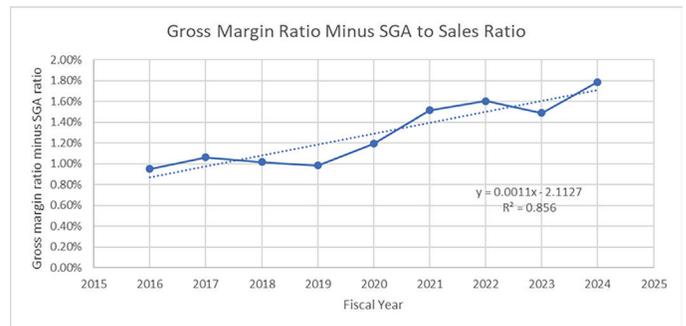
$$OI = S + F - C - SGA = S + F - (1 - M) * S - E * S = S * (M - E) + F$$

Over the past nine years, all three metrics, S, M-E, and F, have shown consistent upward trends. When fitted to linear models, their respective coefficients of determination (R<sup>2</sup>) are 97%, 86%, and 99%, as illustrated in Figures 4, 5, and 6. These high R<sup>2</sup> values indicate strong linear relationships and suggest that each metric has increased in a stable and predictable manner over time.

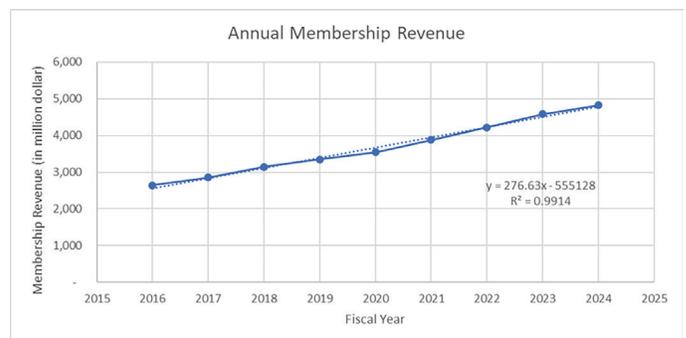
Using the established linear models, we can project Costco’s key financial metrics over the next ten years including sales, membership fee revenue, profit margin (gross margin ratio minus SG&A to sales ratio), and operating income. By assuming consistent interest expense and tax rates based on fiscal year 2024, we can also estimate earnings per share (E/S) for the same period. The projected outcomes are summarized in the table below (Table 4), offering a forward-looking view



**Figure 4.** Total annual sales from fiscal year 2016 to 2024 of Costco. The unit is in million dollars. The rapid increases in 2021, 2022 are due to strong consumer spending, government stimulus payments, and inflation in retail industry after pandemic (U.S. retail sales increased by 17% in 2021, 8% in 2022).



**Figure 5.** Gross margin ratio minus SGA to sales ratio from fiscal year 2016 to 2024 of Costco. They are represented as a percentage of total sales. It reflects the profit margin from sales of the company.



**Figure 6.** Membership fee revenues from fiscal year 2016 to 2024 of Costco. The unit is in millions of dollars.

**Table 4.** Projected sales, fee revenues, profit margin (M-R), operating incomes (OI), and earnings per shares (E/S) over the next 10 years. Sales, fee revenue, operating income are in million dollars. Earnings per share are in dollars. Profit margins are at a percentage of total sales.

Year	Sales	Fee Revenue	M-R	OI	E/S
2025	267,273	5,055	1.81%	7,836	17.6
2026	285,275	5,331	1.92%	8,519	19.2
2027	303,276	5,608	2.03%	9,231	20.8
2028	321,278	5,885	2.13%	9,972	22.4
2029	339,280	6,161	2.24%	10,741	24.1
2030	357,282	6,438	2.34%	11,539	25.9
2031	375,284	6,714	2.45%	12,366	27.8
2032	393,286	6,991	2.55%	13,221	29.7
2033	411,288	7,268	2.66%	14,105	31.7
2034	429,290	7,544	2.76%	15,017	33.8

of Costco's financial trajectory under stable operating conditions. Based on the projection, the sales will increase 72%, membership fee will increase 56%, and operating income and earnings per share will be increase 105% by 2034 compared to 2024.

Given Costco's consistently low sales margin, as illustrated in Figure 1, the company relies on alternative revenue streams to maintain profitability. The most significant of these is its membership program, which generates stable and recurring income. As shown in Figure 6, membership revenue has steadily increased since 2016, underscoring its critical role in Costco's financial model and long-term sustainability.

An  $R^2$  value approaching 1 indicates a minimal margin of error in the linear model, affirming its reliability for forecasting. With such precision, Costco can confidently use this equation to project future membership revenue. This predictive capability empowers the company to make informed financial decisions, strategically allocating resources and planning growth initiatives around a stable and dependable income stream.

Over the past nine years, membership fees have accounted for approximately 63% of Costco's operating income and 87% of net income proportion unmatched by other grocery retailers. Even modest increases in membership pricing can yield substantial financial impact. For example, with roughly 76.2 million paying cardholders in fiscal 2024, a \$1 increase per member

would generate an additional \$76.2 million in revenue. Notably, Costco implemented such a price adjustment at the start of fiscal year 2025, reinforcing the strategic importance of its membership model.

While Costco's membership fee revenue has historically followed a steady upward trend, its future growth may not continue linearly. In fiscal year 2024, the company opened 29 new locations—including 23 in the United States—and plans to open 27 more in fiscal year 2025. However, among the eight stores already launched, several are located within six miles of existing locations, such as those in Brentwood and Highland, California; Sharon, Massachusetts; and Prosper, Texas. These proximities raise concerns about potential cannibalization of sales and membership fees from nearby stores. Even new locations in less densely populated areas—like Genesee County, Michigan; Weatherford, Texas; and Stuart, Florida—are situated roughly 20 miles from existing stores and may still dilute revenue. These patterns suggest that while expansion continues, the incremental gains in membership revenue may taper over time due to overlapping market coverage.

Costco does not disclose the exact number of U.S.-based members, but an estimate can be derived from its latest 10-Q filing. Of its 905 global locations, 624 are in the United States. With 79.6 million paid members overall, this implies approximately 54.9 million American members ( $79.6 \times 624 \div 905$ ). Similarly, Sam's Club—with 69 million paid members and 600 of its 821 stores located in the U.S.—is estimated to have around 50.4 million American members. BJ's Wholesale reports 7.5 million paid members, bringing the total estimated number of wholesale club memberships in the U.S. to roughly 112.8 million. If we assume the club membership increases 5% per year, it could reach 144 million after 5 years and 184 million after 10 years. On the other hand, U.S. had approximately 129 million households in 2023 from US Census Bureau (46).

Recently, Costco announced to open about 30 clubs per year. Sam's Club planned to open 15 new stores per year. BJ's Wholesale Club said to add 25 to 30 new clubs within two years (51). They are competing for Gen Z and millennial consumers. Those members include new homeowners, households without kids, and city dwellers (51). Moreover, new household formation in the US is currently slowing, with projections indicating a slowdown to about 860,000 households per year between 2025 and 2035, down from 1.01 million in recent years (52). With such accelerating expansion,

fierce competition, and slowdown household formation, the warehouse membership could be saturated after a few years in US. Assuming that 20% of the 112.8 million warehouse club members hold multiple memberships, we estimate that approximately 99.2 million unique households currently belong to at least one club. Assuming that U.S. has about 141 million households by 2035 as the ceiling, a logistic growth model—calibrated using Costco’s membership trends over the past five years—projects that club membership will expand to 119 million households by 2030 and 131 million by 2035. These figures would represent 84% and 93% of all U.S. households, respectively. Annual growth after 2030 will decrease to less than 3%.

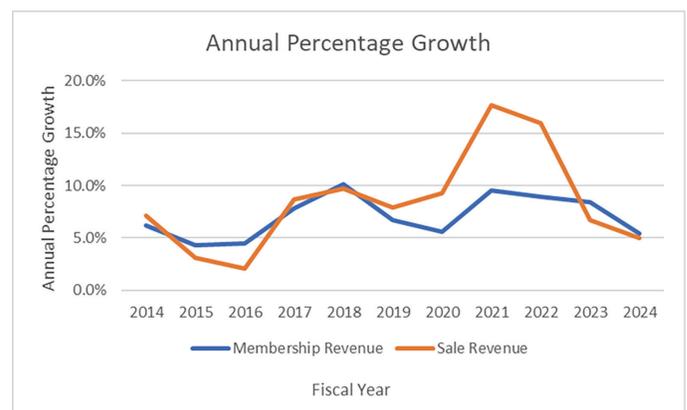
In overseas markets such as China, Costco currently trails Sam’s Club in several key areas—including expansion pace, localization efforts, and understanding of Chinese consumer behavior. Since 2020, Sam’s Club has opened 5–6 stores annually, reaching a total of 56 locations, with seven more in advanced planning stages (39). In contrast, Costco operates only seven warehouses across China since 2019 (1). This disparity highlights a broader challenge: the tension between applying global business standards and meeting local market expectations. Cultural, economic, political, and household structure differences mean that Costco cannot simply replicate its U.S. strategies abroad. Instead, it must significantly adapt its operating model to align with the unique dynamics of each international market—especially in China. For example, Chinese households typically have limited storage space, and consumers often favor frequent, smaller shopping trips over bulk purchases, making Costco’s large packaging formats less practical. To succeed, Costco must adapt by offering smaller package options tailored to local preferences. Additionally, brand awareness in China is heavily driven by social media and digital engagement, which contrasts sharply with Costco’s traditional “no advertising” policy (5, 8, 9).

On the other hand, Sam’s Club has done a very good job on deep localization, and advanced digital integration. Having operated in China since 1996, Sam’s Club has built a mature supply chain network and a strong understanding of local consumer preferences. Its product assortment reflects Chinese tastes, from fresh seafood and hot pot ingredients to premium festive gift boxes, which resonate more naturally with local shoppers than Costco’s largely imported offerings. In addition, Sam’s Club’s seamless integration with WeChat and JD.com enables online shopping, same-day

delivery, and digital membership management across dozens of cities, giving it a far stronger omnichannel presence. Together, these factors position Sam’s Club as a localized, tech-savvy, and convenience-oriented warehouse retailer — one that aligns closely with the expectations of China’s urban middle-class families, while Costco remains in a more early-stage expansion phase focused on its traditional, global-value model.

Costco’s gross margin ratio (M) reflects its commitment to offering low prices to members, while SG&A ratio (E) embodies its promise to compensate employees fairly. Although the company has the operational ability to adjust both metrics, doing so would risk undermining its core values that have been instrumental to its success. Preserving these ratios is therefore not just a financial decision, but a strategic one rooted in maintaining trust and reputation. Any significant deviation could erode customer loyalty and employee morale, ultimately impacting business performance.

Can Costco’s sales rise without a corresponding increase in membership? Historical data in Figure 7 suggests that the percentage growth in sales does not always align with the growth in membership fee revenue. Notably, the sales surges in 2021 and 2022 coincide with broader trends in the U.S. retail sector, which saw increases of 17% and 8% respectively during those years (46). These spikes likely reflect industry-wide momentum rather than Costco-specific improvements. When excluding these anomalous years, a clearer pattern emerges: Costco’s sales growth appears closely tied to membership expansion, indicating that



**Figure 7.** Annual percentage growth of sales and membership revenue of Costco from 2014 to 2024. The data sources are from Costco’s annual reports.

sustained revenue increases may depend on continued growth in its member base.

With the rapid advancement of digital technology, online shopping has become a dominant force in the retail industry. Most major retail chains now operate robust e-commerce platforms, including websites and mobile apps, offering flexible services such as in-store pickup, home delivery, and fulfillment for in-store purchases. If Costco were to expand more aggressively into this space, it could unlock new profit channels and enhance customer convenience. However, the company has been slow to adopt emerging technologies, largely due to its commitment to cost efficiency. This cautious approach has left Costco trailing behind competitors like Walmart and Target, who have already embraced digital transformation to meet evolving consumer expectations (4, 6).

Artificial Intelligence (AI) and e-commerce are no longer optional—they're foundational to modern retail. On the consumer side, AI can enhance personalization by analyzing members' purchasing behaviors and recommending products tailored to individual preferences (7). Operationally, AI can optimize inventory management through faster, more accurate data analysis, improving efficiency and reducing waste (7). Walmart and Amazon have already embedded AI across their operations, from personalized marketing and dynamic pricing to predictive inventory and logistics optimization. Costco's relatively slow adoption leaves untapped potential in both customer experience and operational efficiency. Table 5 illustrates the current status of AI and e-commerce integration across Costco and its key competitors, Walmart and Amazon, highlighting the relative pace and depth of digital transformation within each organization.

About 8% of Costco's business comes from e-commerce, excluding third-party deliveries from Instacart and travel bookings, CEO Ron Vachris said

on the company's earnings call in May 2025. Its digital business is still in the early stages (53). However, Costco's leadership has placed strong emphasis on advancing the company's digital and technology strategy. Key initiatives included enhancements to checkout systems, mobile application upgrades, infrastructure investments, and an expanded data platform to support targeted member engagement. The company is investing in systems that simplify fulfillment, improve personalization, and focus on scalable automation, real-time data infrastructure, and customer-centric innovation (54).

## CONCLUSION

Costco's business model has proven remarkably resilient, underpinned by stable membership revenue, disciplined expansion, and a reputation for delivering value to both customers and employees. Historical data supports the use of linear projections for key financial metrics, offering a reliable framework for estimating future performance. However, several factors suggest that growth may not continue at the same pace.

Domestically, Costco faces saturation risks as new store openings increasingly overlap with existing locations, potentially cannibalizing sales and limiting incremental membership gains. Internationally, especially in China, the company lags behind competitors like Sam's Club in localization and cultural adaptation—highlighting the need for strategic flexibility beyond U.S. borders.

Moreover, Costco's cautious approach to digital transformation and emerging technologies, while consistent with its cost-efficiency ethos, may hinder its competitiveness in a rapidly evolving retail landscape. Embracing e-commerce and artificial intelligence could unlock new revenue streams and operational efficiencies, aligning Costco with industry leaders like Walmart and Amazon.

**Table 5.** Artificial Intelligence and e-commerce integration comparison between Costco, Walmart, and Amazon

Feature	Costco	Walmart	Amazon
AI Personalization	Limited	Advanced (e.g., Walmart Luminat)	Sophisticated (e.g., Alexa, recommendation engine)
E-Commerce Platform	Basic	Full-service	Industry-leading
In-Store Pickup & Delivery	Partial	Extensive	Extensive
Mobile App Functionality	Moderate	Robust	Seamless
Inventory Optimization via AI	Emerging	Real-time	Predictive

To strengthen its long-term competitiveness, Costco should accelerate digital transformation efforts, particularly in e-commerce and artificial intelligence, to close the gap with omnichannel leaders. In the U.S. market, where saturation is evident, the company can drive incremental growth by expanding in-person services that cannot be replicated online—such as coffee store, oil change, barber/nail shop—and by broadening its Kirkland Signature merchandise portfolio to deepen brand loyalty and margin control. Internationally, Costco should pursue more aggressive expansion, supported by enhanced cross-border logistics and localized market strategies.

### CONFLICT OF INTERET

The author declares that there are no conflicts of interest regarding the publication of this article.

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