

Food Retailers' Adoption of Green Supply Chain Practices in the U.S.: A Case from the U.S. using the GSCM Model

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Abstract— In today's rapidly evolving global marketplace, supply chains face increasing pressure from various factors. Extensive research exists on green supply chain management (GSCM) practices, mainly focusing on manufacturing and production industries. However, there is a notable research gap regarding food retailers' role within these green practices. This study investigates the adoption of green supply chain management practices by food retailers in the U.S. and its impact on both environmental and economic performance. The research focuses on food retailers in key metropolitan regions across the U.S. A survey-based approach was utilized, gathering data from approximately 50 U.S. retailers. The data collection involved both physical surveys and online methods to ensure a broad range of participants. To test the hypotheses, statistical analyses were conducted using IBM SPSS. The results demonstrate a positive and significant relationship between GSCM practices and improved environmental and economic outcomes for food retailers. This study employs non-probability convenience sampling to select participants, with a focus on practical implementation of GSCM. Recommendations for future research include expanding the geographic scope and exploring longitudinal models to create more robust analyses. This research will offer valuable insights for scholars, practitioners, and managers in the U.S. food retail industry regarding the benefits of adopting green supply chain practices.

Keywords: Food Retailers, Green Supply Chain Practice, Green Logistics, Green Purchasing, U.S. Retail Industry

I. INTRODUCTION

Tseng et al. (2019) argue that in the current era of rapid technological evolution, the concept of the supply chain is advancing at an unprecedented rate, with businesses becoming integral and crucial components of these evolving networks. In the modern competitive landscape, it is no longer businesses that compete but rather entire supply chains. The value created within the supply chain must be distributed to every member (Cherrafi et al., 2018). Green et al. (2019) notes a clear trend in the literature: large-scale manufacturers dominate the research, while retailers, the downstream end of the supply chain, have been comparatively overlooked. Yet, this is precisely where more attention is needed.

Seman et al. (2019) emphasize that consumers in the U.S. are increasingly influenced by retailers' actions and can more readily perceive the environmental impact of their supply chain activities. Today's consumers are more environmentally conscious, seeking out retailers who demonstrate a commitment to sustainability. Despite the prevalence of operations research on retailers, which mainly focuses on their operational needs, retailers remain critical players in the supply chain due to their direct interaction with consumers (Seman et al., 2019). Focusing on green practices at the retail end will enhance the customer experience and improve the relationship between supply chain operations and consumers (Petljak et al., 2018).

Few studies, as noted by Jermisittiparsert, Namdej, and Somjai (2019), have examined the role of retailers in creating greener supply chains. Implementing green supply chain practices at the retail level will improve consumers' perceptions of the entire supply chain and their alignment with green practices (Zaid, Jaaron, and Bon, 2018). Cankaya and Sezen (2019) highlight that rising consumer awareness and advancements in technology have set new standards for competitive advantage. Traditional

factors like price, product quality, and availability are being supplemented, if not replaced, by the environmental impact of supply chain operations. Consumers increasingly prioritize retailers with minimal environmental footprints. This shift underscores the importance of research into the role of U.S. retailers in adopting green supply chain practices. Shorter routes have greater impact on reducing time and resources (Shah et al., 2024).

Given the scarcity of empirical research on green supply chain management in the retail sector, particularly within the U.S. context, this study aims to fill the gap by investigating the impact of green practices at the retail end. Key research questions for this study include: How does water and energy management at food retailers impact their economic performance in U.S. markets? How does waste management at the retail level affect both economic and environmental performance? Furthermore, how do green logistics and green purchasing influence the economic and environmental performance of U.S. food retailers?

II. LITERATURE REVIEW

A significant amount of research has been conducted in the field of supply chain management. However, to further contribute to this body of knowledge, it is essential to delve into the existing literature. This exploration will provide a foundation for conducting a more relevant and comprehensive study. Therefore, an extensive literature review has been undertaken to serve this purpose.

II.I. GREEN SUPPLY CHAIN MANAGEMENT (GSCM)

In the contemporary era, the global community faces a multitude of challenges, with climate change being recognized as one of the most pressing. The continuous rise in global temperatures presents a complex, ongoing problem. Governments, international organizations, businesses, and other key stakeholders are increasingly concerned about the worsening climate crisis and are seeking ways to mitigate its effects (Tseng et al., 2019). Within this context, Green Supply Chain Management (GSCM) has emerged as a vital approach. The integration of sustainability into business operations is becoming mainstream to address these global issues (Cankaya and Sezen, 2018). Consumer behavior in the U.S. has also shifted significantly, with customers becoming more sensitive to the environmental impact of retailers' activities.

Traditional competitive advantages, such as pricing and product availability, are now being replaced by factors that include the environmental footprint of businesses. As Cousins et al. (2019) argue, U.S. consumers are increasingly concerned about the environmental impact of supply chains, with this concern poised to become a dominant factor in the future. This shift suggests that the leading competitive edge will increasingly depend on a retailer's ability to minimize its environmental impact. Badi and Murtagh (2019) define GSCM as a comprehensive process in which environmentally friendly thinking is incorporated into supply chain management to ensure sustainable and environmentally conscious outcomes. Moreover, GSCM considers the environmental impact of a product throughout its entire lifecycle, ensuring that sustainability is maintained from production to disposal.

II.II. WATER AND ENERGY MANAGEMENT

According to Thamagasorn and Pharino (2019), water and energy management remains one of the most overlooked areas in the retail sector, as many retailers do not view it as a core environmental initiative. Moreover, efficient water management is often mistakenly equated with reduced water consumption, which oversimplifies the issue. Certain retail operations, particularly those in the food and meat sectors, require large volumes of water for daily operations (Naidoo and Gasparatos, 2018). Meat retailers have higher water demands, highlighting the need for more effective water management strategies. On the energy side, retailers tend to prioritize energy management due to its direct financial impact on operations. Approximately 50% of a retailer's energy consumption is tied to cold storage, while lighting accounts for only 30% of total energy use. Additionally, Huang et al. (2021) point out that HVAC systems are responsible for around 20% of a retailer's energy consumption. This study focuses on the efficient management of both water and energy to minimize their environmental impact while enhancing the financial performance of businesses. By addressing these areas, retailers can sustainably maximize their operational benefits.

II.III. WASTE MANAGEMENT

Globally, food retail businesses have a significant impact on the economy, with profitability being the key factor that enables these businesses to thrive. According to Martin-Rios et al. (2018), recent shifts in consumer behavior have placed additional pressure on businesses due to their environmental impact. Consumers' growing awareness and demand for sustainable practices

have pushed businesses to adopt measures that reduce their overall carbon footprint. However, this shift also affects the financial performance of retailers. While the primary goal for retailers is to remain profitable, the need to comply with strict environmental initiatives, such as implementing green supply chains, often strains profitability. As a result, there is a growing need for a balanced, sustainable strategy that allows businesses to manage both environmental responsibilities and financial health.

Narvanen et al. (2020) noted that food retailers generate large quantities of waste, and effective waste recycling can help reduce environmental impact while also providing some financial relief. Filimonau, Krivcova, and Pettit (2019) define waste management as the process of collecting, treating, and disposing of waste generated during store operations and across associated business activities. Efficient waste management not only helps retailers comply with environmental standards but also contributes to financial stability by reducing waste disposal costs and recovering resources.

II.IV. GREEN LOGISTICS

One of the major contributors to the carbon footprint in food retail operations is the involvement of logistics. Channa and Asim (2019) note that logistics are essential for food retailers, as inventory must be regularly replenished to meet consumer demand. While logistics cannot be removed from the process, integrating environmentally friendly, or "green," initiatives into logistics can significantly reduce the carbon footprint. Prioritizing the environment while maintaining operational requirements allows food retailers to continue functioning efficiently without excessive environmental harm. However, for green supply chain operations to be widely adopted, they must perform at the same level or better than conventional supply chains. If green logistics negatively impact financial performance, businesses may be reluctant to adopt them (Huang et al., 2022).

II.V. GREEN PURCHASING

Zhao et al. (2021) define green purchasing as the process of procuring products that minimize environmental impact and remain non-hazardous throughout their lifecycle, while still meeting the same performance standards as conventional products. According to Aguirre Plasencia (2019), the supply chain has two primary ends: the supply side and the consumer side. Retailers, being at the consumer end of the supply chain, are in direct contact with customers and are, therefore, both influenced by and able to influence consumer needs and demands. This position also facilitates the exchange of information across the supply chain, from consumers to suppliers (Bashar and Rabbani, 2021). Kumar and Polonsky (2019) highlight that U.S. consumers are increasingly concerned about the environmental impact of the products they purchase, which pushes retailers to adopt green purchasing practices. In response to consumer demand for sustainable products, suppliers also adjust their offerings, making green purchasing a critical component in the successful implementation of green supply chain practices within the food retail industry.

III. PERFORMANCE OF FOOD RETAILERS

As far as the performance of food retailers is concerned, it is regarded as multifaceted. However, in the area of green supply chain management (GSCM), two factors are considered cardinal: economic performance and environmental performance. Retailers must strike a balance between these two aspects, as achieving economic success alongside green implementation is the core objective of GSCM.

III.I. ECONOMIC PERFORMANCE OF FOOD RETAILERS

The relationship between green supply chain implementation and economic performance has been an area of growing interest. Over time, studies have suggested a link between GSCM and the financial health of businesses. However, the financial impact of GSCM remains an emerging construct, drawing the attention of both researchers and industry practitioners. According to Dudin et al. (2018), some studies show a positive relationship between GSCM and economic performance, but the overall scenario remains inconclusive. There is still a need for further empirical investigation. This study aims to provide additional evidence to clarify how green supply chain practices influence the financial outcomes of U.S. food retailers.

III.II. ENVIRONMENTAL PERFORMANCE OF FOOD RETAILERS

Environmental concerns have become increasingly complex, and the situation continues to worsen globally. To mitigate these challenges, stakeholders across the supply chain, including food retailers, must contribute. Food retailers have a significant

impact on the environment, and researchers are increasingly focused on finding strategies to help them achieve better environmental performance (Asgari et al., 2021). Environmental performance refers to a company's impact on the environment (Cui, Guo, and Zhang, 2020). This study is designed to explore how the implementation of green supply chain practices can improve the environmental performance of U.S. food retailers, contributing to the mitigation of the ongoing environmental crisis.

Additionally, the environmental performance of food retailers is becoming a key decision criterion for a growing segment of eco-conscious consumers. This consumer base is highly concerned with the environmental footprint of the businesses they support (Asgari et al., 2021). Therefore, this study provides empirical evidence to demonstrate how GSCM practices can influence food retailers' environmental performance, aligning with market demands and regulatory pressures.

III.III. RESEARCH HYPOTHESES

To pursue this study based on empirical data, the following hypotheses are proposed to test the efficacy of GSCM practices in addressing two critical needs: economic performance and environmental performance in the U.S. food retail industry. Based on the research questions and literature review, the study sets out the following objectives:

- To analyze whether green supply chain processes have a significant impact on the economic performance of U.S. food retailers.
- To investigate the impact of green supply chain processes implemented by U.S. food retailers on their environmental performance.
- To examine the overall influence of GSCM practices on the sustainability and profitability of U.S. food retailers.

Additionally, the following hypotheses have been put forward to be tested.

Table 1: Research Hypothesis

Sr. No	Hypothesis
H1	Water and Energy Management poses a significant as well as positive impact on the economical performance of food retailers across US.
H2	The environmental performance of U.S. food retailers is significantly and positively influenced by Water and Energy Management.
H3	Waste Management has a significant and positive impact on the economic performance of food retailers across the U.S.
H4	Waste Management has a significant and positive impact on the environmental performance of food retailers across the U.S.
H5	Green Logistics has a significant and positive impact on the economic performance of food retailers across the U.S.
H6	Green Logistics has a significant and positive impact on the environmental performance of food retailers across the U.S.
H7	Green Purchasing has a significant and positive impact on the economic performance of food retailers across the U.S.
H8	Green Purchasing has a significant and positive impact on the environmental performance of food retailers across the U.S.

IV. Research Methodology

IV.I. Research Philosophy

Research is a thorough process in which there is a need for the extensive investigation at several stages; in this frame of reference Saunders et. al. (2007) refer to this as the onion, which means that there is a layer after the layer of the research philosophy. According to Tamminen and Poucher (2020), Management sciences is a diverse field, and researchers have used a variety of philosophies, including ontology, axiology, and epistemology, among others. However, throughout this study, the underlying philosophy for examining the impact of adopting GSCM practices on food retailers has been positivism. The philosophy believes that the researcher must approach the research inquiry while being objective. Stern (2004) elaborates that researchers must minimize their bias throughout the research process, and report it where necessary.

IV.II. STUDY VARIABLES

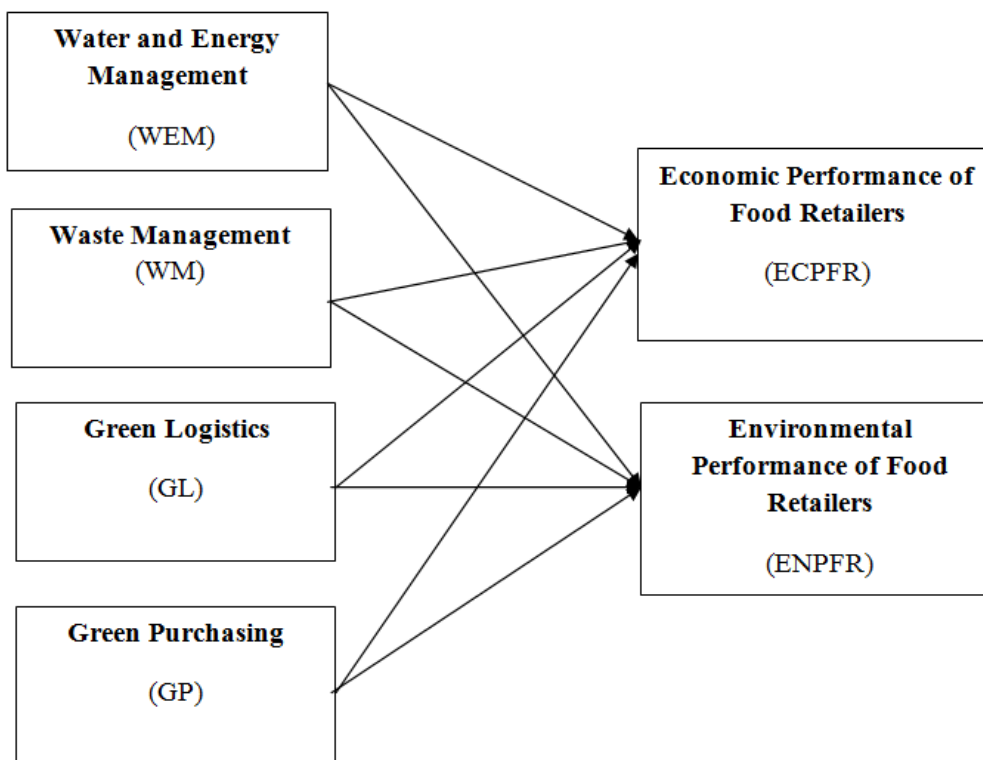
Following table represents the variables that are encapsulated by the study this includes both the independent and the dependent variables.

Table 2: Study Variables

Study Variables	
Independent Variables (IVs)	Dependent Variables (DVs)
Water and Energy Management (WEM)	Economic Performance of Food Retailers (ECPFR)
Waste Management (WM)	Environmental Performance of Food Retailers (ENPFR)
Green Logistics (GL)	-
Green Purchasing (GP)	-

IV.III. RESEARCH FRAMEWORK

As per the research objectives and questions the following research framework has been proposed as shown in figure 1:



IV.III.I. POPULATION AND ITS RELEVANCE TO THE STUDY

The implementation of Green Supply Chain Management (GSCM) can extend across the entire supply chain. However, this study focuses on analyzing U.S. food retailers and the retail side of the supply chain, making them the appropriate population to investigate. To further explore the scientific inquiry regarding the impact of GSCM practices on both environmental and economic performance, U.S. food retailers were chosen as the relevant research population.

IV.III.II. SAMPLING THE POPULATION

According to Taherdoost (2016), various sampling techniques have been adopted by researchers in the literature, each with its own benefits and relevance to the desired research work. Moreover, studying the entire population of the research is not feasible due to limited resources and time. Therefore, this study has opted for one of the most pragmatic sampling techniques, known as convenience sampling, which provides the researcher with enough flexibility to gather data within the limited time and resources available.

IV.III.III. DATA COLLECTION

Two dominant categories of data collection methods in the literature are cross-sectional and longitudinal methods (Bougie and Sekaran, 2019). Cross-sectional data collection is quicker but may introduce common method bias, whereas longitudinal data collection is more time-consuming but tends to minimize such biases. Due to the time constraints of this study, a cross-sectional approach was chosen.

Since it is not feasible to study the entire population, sampling was necessary to gather data for analysis and generalization. In this study, questionnaires were distributed among U.S. food retailers. A total of 120 questionnaires were distributed via convenience sampling, with respondents given the option to complete them either online or on paper. Fifty-three questionnaires were returned and deemed valid for analysis. The questionnaire employed a five-point Likert scale, a widely used interval scale in research (Bougie and Sekaran, 2019).

IV.III.IV. RESEARCH ETHICS

To adhere to ethical research standards, this study followed the guidelines outlined by Bougie and Sekaran (2019). Anonymity and confidentiality of respondents were strictly maintained throughout the data collection process. Informed consent was obtained from all participants, and a cover letter included with the questionnaire explained the purpose of the research and how the data would be used. Respondents had full autonomy and could discontinue participation at any point during the study.

IV.III.V. RESPONSE RATE

For the purpose of data collection from the pertinent population the research questionnaires were shared among one hundred and twenty potential people out of which the fifty-three of the responses were duly filled and were used for the data analysis purposes. So, on the basis of these the calculation for the response rate is given in eq. (1).

$$\text{Response Rate (RR)} = (\text{Responses Received} / \text{Questionnaires Distributed}) * 100 \quad (1)$$

$$\text{RR} = (53/120) * 100$$

$$\text{Response Rate (RR)} = 44.16\%$$

IV.III.VI. MEASURES AND SCALES USED

The research is based upon the green supply chain management practices and the performance outcomes of the food retailers and in order to measure them from the sampled population the five-point Likert scales were used. The following table will further present the instrument summary in detail and the whole document could be reached in the appendices section.

$$\alpha = \frac{t}{t-1} \left[1 - \frac{\sum x_i^2}{x_j^2} \right] \quad (2)$$

α is cronbach alpha which can be calculated by using equation 2. Where t is the number of test items, $\sum x_i^2$ is sum of item variance and the variance of total score is represented by x_j^2 .

Table 1: Research Questionnaire Table

Instrument Used	References
Water and Energy Management (WEM)	Jones et al. (2005); Erol et al. (2009); McKinnon (2010)
Waste Management (WM)	Jones et al. (2005); Erol et al. (2009); McKinnon (2010)
Green Logistics (GL)	Murphy and Poist (2000); McKinnon (2010)
Green Purchasing (GP)	Min and Galle (2001); Zsidisin and Siferd (2001); Beske et al.(2008)
Economic Performance of Food Retailers (ECPFR)	Zhu and Sarkis (2004); Hervani et al. (2005); Zhu et al. (2007)
Environmental Performance of Food Retailers (ENPFR)	Zhu and Sarkis (2004); Hervani et al. (2005); Zhu et al. (2007)

V. RESULTS AND DISCUSSION

V.I. DEMOGRAPHICS OF THE STUDY

The following section will elaborate on the demographics of the study in detail.

V.I.I. GENDER FREQUENCY DISTRIBUTION OF THE RESPONDENTS

Demographics play a pivotal role in order to understand the population. It reveals about the different dynamics of the population and the related industry. According to Patten and Newhart (2017) gender is among the demographics that are recorded across the diverse sources of research. The details regarding the gender of the sampled population are given in the table 4.

Table 2: Gender Frequency Distribution Table

Gender	Frequency (N)	Percentage (%)
Male	45	85
Female	08	15
Total	53	100

V.I.II. GEOGRAPHICAL FREQUENCY DISTRIBUTION OF THE STUDY

In order to conduct this study, the researcher collected data from eleven different geographic regions of the United States, primarily from the state of California. Different cities were selected to ensure broader generalizability of the research findings. The study gathered data from three main cities, including Los Angeles, San Francisco, and San Diego, based on the researcher's

convenience and accessibility. Most of the respondents were from Los Angeles, while the minority of the respondents came from San Diego. The geographical frequency distribution of the study is provided in Table 5.

Table 3: Geographic Frequency Distribution Table

Geographic Region	Frequency (N)	County	Percentage (%)	Cumulative Percentage (%)
Los Angeles	21	Los Angeles	39.6	39.60
Beverly Hills	02	Los Angeles	03.80	43.40
San Francisco	08	San Francisco	15.10	58.50
San Jose	03	Santa Clara	05.70	64.20
Oakland	06	Alameda	11.30	75.50
Palo Alto	01	Santa Clara	01.90	77.40
San Diego	04	San Diego	07.50	84.90
Santa Barbara	03	Santa Barbara	05.70	90.60
Riverside	01	Riverside	01.90	92.50
Long Beach	01	Los Angeles	01.90	94.30
Santa Ana	03	Orange	05.7	100.00
Total	53	-	100	100

V.I.III. AGE FREQUENCY DISTRIBUTION OF THE RESPONDENTS

Bougie and Sekaran (2019) stated that analyzing age in terms of demographic composition has been recorded across the literature. This provides the study with insight into the age groups that are part of the study. The majority of participants in this study fall between the age brackets of twenty-one to twenty-nine years old. This dominant bracket comprises thirty-two people, making up approximately sixty percent of the population. Only one participant in the study was over fifty years old, making up only two percent of the population. The details about the age description are elaborated in the table 6.

Table 4: Age Frequency Distribution Table

Age (years)	Frequency (N)	Percentage (%)	Cumulative Percentage (%)
21-29	32	60.40	60.40
30-39	18	34.00	94.30
40-49	02	03.80	98.10
50+	01	01.90	100.00

V.I.IV. EDUCATION FREQUENCY DISTRIBUTION OF THE RESPONDENTS

Long with the other important demographics like age etc. education level also assist the researcher to understand and develop insights about the respondents. The frequency distribution of the respondents as per the education level is given in the following table 7.

Table 5: Respondent's Education Statistics Table

Level of Education	Respondents	Percentage (%)
Primary Education	02	03.80
Some College Degree	09	17.00
Bachelors	33	62.30
Masters	09	17.00

V.II. RELIABILITY ANALYSIS OF STUDY VARIABLES

Patten and Newhart (2017) argue that in order to demonstrate the reliability of a certain variable, equation 1 is used and the Cronbach's alpha (α) is calculated. The value of Cronbach's alpha fluctuates between 0 and 1, with 0 being the lowest and 1 being the highest reliability. Bougie and Sekaran (2019) mention that a value above 0.6 is reliable, and values above 0.7 are considered to be very highly reliable, as shown in Table 8.

Table 6: Research Instrument Summary

Variable	Number of Items	Chronbach Alpha
Water and Energy Management (<i>WEM</i>)	03	0.766
Waste Management (<i>WM</i>)	03	0.685
Green Logistics (<i>GL</i>)	02	0.659
Green Purchasing (<i>GP</i>)	02	0.615
Economic Performance of Food Retailers (<i>ECPFR</i>)	05	0.927
Environmental Performance of Food Retailers (<i>ENPFR</i>)	03	0.868

V.II.I. CORRELATION ANALYSIS

Correlation measures the degree of similarity between two things and can range from positive one to negative one. A correlation of zero indicates no degree of similarity and no corresponding impact. A negative correlation shows a negative impact on the variables, while a positive correlation indicates a significant impact (Patten and Newhart, 2017). Bougie and Sekeran (2019) note that the correlation between the same variables is always one, indicating that the variables are exactly the same.

In this study, correlation analysis was conducted to determine whether significant positive or negative relationships exist between the variables. The results of the correlation analysis are presented below.

Table 7: Correlation Table

Variables	Mean	Standard Deviation	Skewness	Kurtosis	1	2	3	4	5	6
WEM	2.66	1.12	.067	-.699	(.766)					
WM	2.57	1.02	.118	-.635	.611**	(.685)				
GL	2.14	1.23	.570	.599	.575**	.765**	(.659)			
GP	1.61	1.19	.199	-.731	.670**	.698**	.610**	(.615)		
ENPFR	1.67	1.21	.294	-.972	.772**	.703**	.708**	.694**	(.927)	
ECPFR	1.77	1.42	.746	.115	.696**	.671**	.703**	.755**	.796**	(.868)

**Correlation (2-tailed) significance at the 0.01 level

The values of the correlation present between water and energy management and the economic performance of the retailer is 0.696. This value indicates that WEM has an impact on the food retailer’s economic performance. Similarly, WEM has a significant impact on the environmental performance, as the correlation is 0.772. This suggests that implementing water and energy management among food retailers can enhance their economic and environmental performance across the supply chain. These values are significant, as the p-value is less than 0.01.

The value of correlation between waste management and the economic performance of the retailer is 0.671. This value shows that WM has an impact on the food retailer’s economic performance. Similarly, WM has a significant impact on environmental performance, as the correlation is 0.703. This demonstrates that implementing waste management among food retailers can enhance their economic and environmental performance across the supply chain. These values are significant, as the p-value is less than 0.01.

The value of correlation between green logistics and the economic performance of the retailer is 0.703. This value indicates that GL has an impact on the food retailer’s economic performance. Similarly, GL has a significant impact on the environmental performance, as the correlation is 0.708. These values are significant, as the p-value is less than 0.01. This suggests that implementing green logistics among food retailers can enhance their economic and environmental performance across the supply chain.

The value of correlation between green purchasing and the economic performance of the retailer is 0.755. This value shows that GP has an impact on the food retailer’s economic performance. Similarly, GP has a significant impact on environmental performance, as the correlation is 0.694. These values are significant, as the p-value is less than 0.01. This indicates that the inclination towards green purchasing among food retailers can enhance their economic and environmental performance across the supply chain.

V.II.II. HYPOTHESIS SUMMARY

Under the light of the data analysis and the correlation analysis specifically the hypothesis initially proposed were tested and the current status of the proposed hypothesis is presented in the table 10.

Table 10: Research Hypothesis with results

Sr. No	Hypothesis	Result
H1	Water and Energy Management poses a significant as well as positive impact on the economic performance of food retailers across US.	Accepted
H2	The environmental performance of U.S. food retailers is significantly and positively influenced by Water and Energy Management.	Accepted
H3	Waste Management has a significant and positive impact on the economic performance of food retailers across the U.S.	Accepted
H4	Waste Management has a significant and positive impact on the environmental performance of food retailers across the U.S.	Accepted
H5	Green Logistics has a significant and positive impact on the economic performance of food retailers across the U.S.	Accepted
H6	Green Logistics has a significant and positive impact on the environmental performance of food retailers across the U.S.	Accepted
H7	Green Purchasing has a significant and positive impact on the economic performance of food retailers across the U.S.	Accepted
H8	Green Purchasing has a significant and positive impact on the environmental performance of food retailers across the U.S.	Accepted

V.II.III. OPERATIONAL RESEARCH FRAMEWORK

On the basis of the hypothesis testing the following operational research framework has been drawn after initially proposing the theoretical research framework and its respective testing.

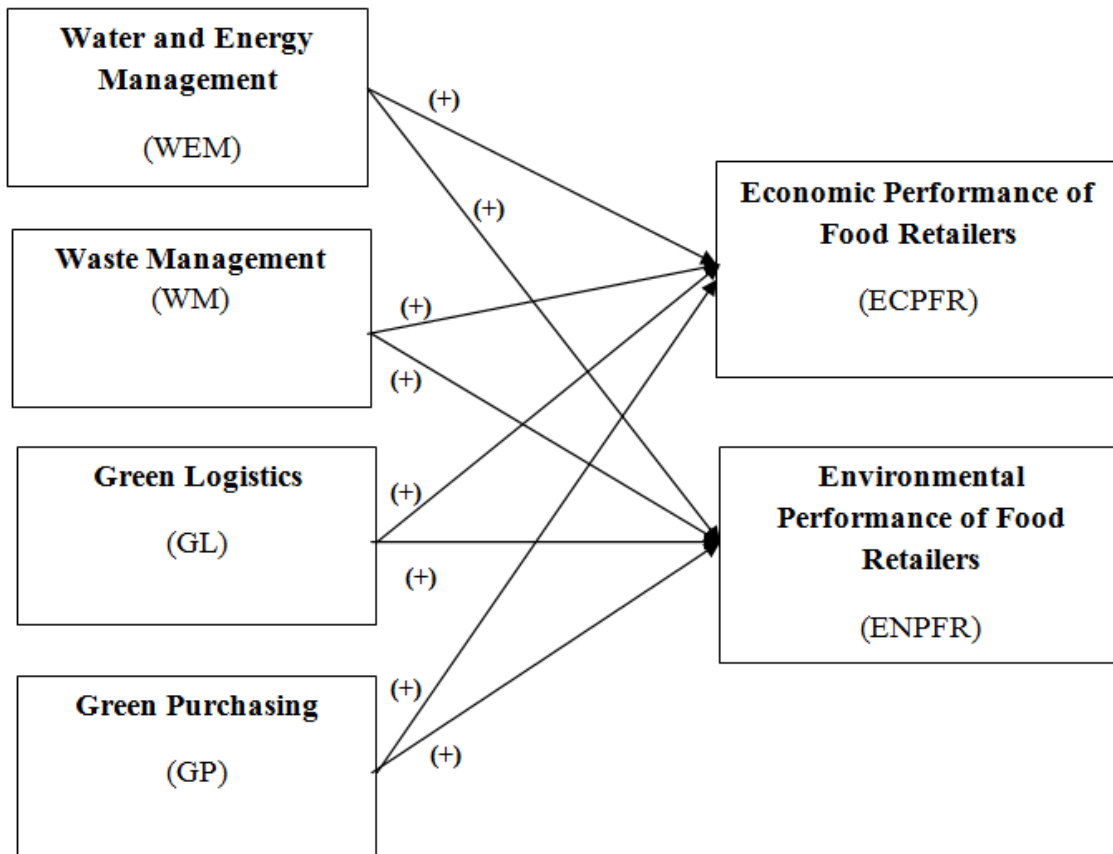


Figure 2: Operational Research Framework

VI. CONCLUSION AND RECOMMENDATIONS

VII. CONCLUSION

In the modern era, businesses across the globe have to face several challenges. In this context, climate change has been a major problem. Additionally, economic performance has also been an important variable to be studied.

1. The implementation of counter climate change policies and actions for economic performance become even more important because, in order to avoid the hazards of climate change and adopt sustainable practices, the economy must also support businesses. If businesses are not making any progress in terms of their economy, they will not adopt green practices. Given what has been said, the purpose of this study was to evaluate the impact of green supply chain practices on food retailer's performance. The chosen practices across the food retail industry were water and energy management, waste management, green purchasing, and green logistics.
2. The dependent variables were set to be the economic output and the environmental output of the food retailers. According to the results compiled as per the data analysis provided, it has been quite evident that green supply chain practices can help food retailers gain certain profits and improve their economic output when they implement these practices.
3. Water and energy management is directly linked to the economy; however, it is also positively significant for environmental performance. Similarly, waste management can have a positive significant impact on both environmental and economic performance. As far as green purchasing and green logistics are concerned, this study has shown that

both green practices have a significant positive impact on the performance of food retailers, which means that it is not only positive for economic performance but also very helpful in terms of environmental performance.

VI.II. PRACTICAL IMPLICATIONS

The application of green supply chain management has become the need of the hour, and making our supply chains more sustainable and green means that we can contribute to healthier businesses and a safer globe. This study provides deep insights for practitioners across the supply chain industry and for managers as well. The study is designed to address issues related to supply chain and analyze certain practices that can contribute to better environmental and economic performance within the food industry. This piece of research is beneficial for future researchers to further explore in terms of performance and practices. Furthermore, this research is helpful for practitioners across the supply chain, business managers, and business owners.

In the current era, our globe is facing a crisis in terms of environmental changes, and in this perspective, the role of supply chains has become more pertinent than ever before. The argument lies in the contribution of supply chains across the globe towards climate change. Environmental changes pose a huge threat to millions of businesses worldwide, and for this reason, there is a need to create a comprehensive framework that can clearly identify practices that make businesses more environmentally friendly by reducing their negative environmental impact. In addition, there is a need to develop a sound economic model to ensure businesses remain profitable. Given what has been said, future studies should further explore other supply chain practices. On the other hand, there is a need to investigate additional segments in supply chain performance areas to deeply analyze the impact of implemented supply chain practices. Moreover, this study focuses on food retailers, and future studies should also integrate this across all supply chain stages. Additionally, this study is cross-sectional in nature, and future researchers should attempt longitudinal data collection to analyze differences in results.

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APPENDICES

Appendix A: Research Instrument

All Questions were Measured on 05 Point Likert Scale				
0	1	2	3	4
<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>

Appendix B: Research Questioners

Water and Energy Management (WEM)

We have reduced the energy consumption
We are using energy saving lighting
We regularly check water consumption using water meters

Waste Management (WM)

We are separately collecting packaging waste by type of material
We monitor composition of packaging waste
We offer re-usable bags to customers

Variable: Green Purchasing (GP)

We evaluate the environmental practices of suppliers
We collaborate with suppliers to reduce the packaging waste

Variable: Green Logistics (GL)

We carefully select the location of a warehouses or distribution centers
We use renewable energy is warehouse or distribution centers

Variable: Economic Performance of Food Retailers (ECPFP)

We are reducing transportation costs
We are reducing warehousing costs
We are decreasing reverse logistics costs

Variable: Environmental Performance of Food Retailers (ENPFR)

We are reducing greenhouse gas emissions
We are reducing wastewater
We are reducing solid waste
We are reducing use of hazardous/harmful/toxic materials
We are cooperating with suppliers in terms of environmental protection