The Scientific Journal of Business and Finance

https://caf.journals.ekb.eg

Investigation of the Effect of Green Logistics Practices on Customers' Purchasing Intentions:Applied Study on the Egyptian Context

Mai Hisham Haroun, Sara Hassan Elgazzar& May Salah Eldin Mohamed

Teaching Assistant, Energy and Petroleum Logistics Management Department, College of International Transport, Alexandria, Egypt.

Professor and Dean, College of International Transport and Logistics, Department of Logistics of International Trade Management, Alexandria, Egypt.

Associate Professor and Vice Dean for Training and Community Affairs, Department of Logistics of Transport Management, College of International Transport and Logistics, Alexandria, Egypt.

Published online: **September 2025.**

To cite this article: Haroun, Mai Hisham. Elgazzar,Sara Hassan.&Mohamed , May Salah Eldin .(2025) Investigation of the Effect of Green Logistics Practices on Customers' Purchasing Intentions:Applied Study on the Egyptian Context, *The Scientific Journal of Business and Finance*, 45, (3), pp.221-249

DOI 10.21608/caf.2025.455780

***Corresponding author: mai.haroun@aast.edu**

Investigation of the Effect of Green Logistics Practices on Customers' Purchasing Intentions:Applied Study on the Egyptian Context

Mai Hisham Haroun

Energy and Petroleum Logistics Management Department, College of International Transport, Alexandria, Egypt.

Sara Hassan Elgazzar

College of International Transport and Logistics, Department of Logistics of International Trade Management, Alexandria, Egypt.

May Salah Eldin Mohamed

Department of Logistics of Transport Management, College of International Transport and Logistics, Alexandria, Egypt.

Published online: **September 2025.**

Article History

Received 7, July2025, Accepted 9 September 2025, Available online September 2025.

Abstract

Purpose – The growing emphasis on environmental sustainability has encouraged businesses to adopt green logistics practices to reduce dependence on non-renewable energy sources and foster sustainable consumer behavior. This study examines the impact of green logistics practices on customers' purchasing intentions and purchasing levels in the Egyptian context, with a focus on the mediating role of purchasing intentions.

Design/methodology/approach – Building on insights from a prior paper that employed a semi-structured literature review and semi-structured interviews to identify key drivers, barriers, and contextual factors influencing green logistics in Egypt, this study adopts a positivist philosophy, a deductive approach, and a quantitative design. A total of 400 questionnaires were collected from supply chain and logistics employees, of which 342 were valid for analysis. Structural Equation Modeling (SEM) was employed to test four hypotheses concerning the relationships among green logistics practices, purchasing intentions, and purchasing levels of non-renewable energy sources. The integration of findings from the earlier qualitative study with the present quantitative analysis strengthens the robustness of the research by ensuring theoretical grounding, contextual relevance, and methodological triangulation.

Findings – The analysis revealed that the relationship between green logistics practices and purchasing level (H1) was partially supported, indicating that green practices contribute to reducing reliance on non- renewable energy, though their impact remains limited. Similarly, the link between green logistics practices and purchasing intentions (H2) was partially supported, suggesting that while sustainable logistics initiatives encourage customers toward greener choices, external factors still play a role in shaping intentions. In contrast, purchasing intentions showed a strong and statistically significant influence on the purchasing level of non-renewable energy sources (H3), confirming that intentions are a decisive driver of actual behavior. Furthermore, purchasing intentions were found to partially mediate the relationship between green logistics practices and purchasing level (H4), emphasizing the indirect pathways through which green practices affect consumer decision-making.

Contribution – The study provides empirical evidence on the direct and indirect effects of green logistics practices in Egypt. By combining qualitative insights from the first paper with quantitative validation in the current study, it offers a more comprehensive understanding of green logistics adoption. The findings deliver valuable implications for logistics companies and policymakers seeking to strengthen green initiatives and promote sustainable consumption patterns.

Keywords: Green logistics practices; purchasing intentions; non-renewable energy sources; Egypt ; mxed methods.

1. Introduction

The rapid acceleration of global warming has driven the need for sustainable solutions across industries, particularly in logistics, where environmental impacts such as carbon emissions, noise, and pollution are significant concerns. Green logistics practices (GLPs) integrate sustainable strategies into both forward and reverse logistics, enhancing environmental and economic performance. The increasing demand for green logistics solutions stems from consumer awareness and regulatory pressures, making it crucial for companies to assess their impact on purchasing behavior. Purchasing intentions affect the promotion of sustainable development because they include green consumerism and attitudes that ignore the sustainability of food products (Nur *et al.,* 2021). These values and attitudes directly or indirectly affect the green purchasing end and environmental behaviors. The likelihood of purchasing environmentally friendly food products increases when consumers are aware of and recognize sustainable efforts in logistics, evening, and environmental packaging, which is in line with environmental concerns. Green purchasing focuses on environmentally friendly sourcing to reduce harm to health and the environment (Khan *et al.,* 2022).

Despite the growing emphasis on environmental sustainability globally, many logistics and petroleum companies in Egypt continue to rely heavily on non-renewable energy sources, resulting in high environmental impact and inefficient resource use. While Green Logistics Practices (GLPs) have been widely studied in developed economies, there is limited empirical evidence on their adoption, effectiveness, and influence on organizational purchasing behavior in the Egyptian context. This gap creates uncertainty for managers and policymakers seeking to implement sustainable logistics strategies. Therefore, this study aims to investigate the relationships between GLPs, Purchasing Intentions, and the Purchasing Level of non-renewable energy sources, providing both theoretical insights and practical guidance for improving sustainability in Egypt's logistics sector

This research paper aims to explore the relationship between Green Logistics Practices, Purchasing Intentions, and the Purchasing Level of Non-Renewable Energy Sources, emphasizing how green logistics can contribute to reducing non-renewable energy consumption. The study will provide a comprehensive empirical analysis within the Egyptian context, addressing a significant research gap. The paper is structured as follows: the introduction presents the research aim and structure, the literature review examines previous studies on the key research variables, the methodology section details the empirical study approach, and the conclusion summarizes the findings and implications.

2. Literature Review

In this section, definitions and research hypotheses are presented by reviewing previous literature studies that discusses the different relationships between current study variables. The aim is to examine the role of the relationship between green logistics practices and purchasing intention.

Several studies have explored the variables of Green Logistics Practices, Purchasing Intentions, and Non- Renewable Energy Consumption, either independently or in partial combinations. For instance, Kavas (2020) investigated the role of green logistics in e-commerce and its influence on consumer purchasing behavior, emphasizing the impact of environmental awareness on product choices. Similarly,(Elbarky *et al*., 2023) examined how environmental knowledge affects green purchasing intentions in the Egyptian market, considering green trust, perceived quality, and customer satisfaction. Additionally, (Zhuang *et al.,* 2021) conducted a meta-analysis to identify factors shaping green purchase intentions, including cognitive factors, individual characteristics, and social influences.

Other studies have focused on the determinants of green energy technology purchases. Ali and Naushad (2023) analyzed the factors influencing consumers' willingness to adopt green energy technologies, highlighting perceived risk and functionality. (He *et al.,* 2021) explored how motivation and contextual factors shape purchasing behavior for new energy vehicles.

(Labafi *et al.,* 2019) examined the impact of green supply chain management on customers' green purchase intentions, with a particular focus on the role of green brand equity in shaping consumer decisions.

The relationship between consumer attitudes and green purchasing behavior has also been a key area of research. Hartmann and Apaolaza-Ibáñez (2012) studied psychological benefits and environmental concerns as drivers of consumer attitudes toward green energy brands. Similarly, Sangroya and Nayak (2017) identified environmental concerns and perceived consumer effectiveness as major factors influencing green energy purchasing behavior. Chen and Chang (2012) explored the role of green perceived value, perceived risk, and green trust in enhancing green purchase intentions. Additionally, (Tsakiridou *et al*., 2008) conducted an exploratory study on consumer attitudes and behaviors toward organic products, shedding light on the factors that influence green purchasing decisions.

While these studies provide valuable insights into the relationships between green logistics practices, purchasing intentions, and environmental sustainability, they do not integrate all three variables into a unified model. Most research examines these relationships in isolation or with limited interconnections.

However, a key framework developed by (Haroun *et al*., 2025), which is presented in Figure 1, stands out as the only framework that integrates Green Logistics Practices, Purchasing Intentions, and Non- Renewable Energy Consumption into a single conceptual model. In this framework, the Purchasing Level of Non-Renewable Energy Sources and its dimensions (Cost Consideration and Environmental Awareness) serve as the dependent variable, Green Logistics Practices and its dimensions (Green Purchase, End-of-Life Practices, Green Transportation, Green Packaging, Green Stocking, Sectional Reverse Logistics, and Reverse Logistics) act as independent variables, while Purchasing Intention serves as the mediator variable. Unlike prior research that tends to examine these variables individually or in partial relationships, this framework presents a more holistic perspective.

(Haroun *et al.,* 2025) conducted a systematic literature review to develop the framework connecting Green Logistics Practices, Non-renewable Energy Usage, and Purchase Intentions by synthesizing findings from previous studies. Then, the study conducted semi-structured interviews with ten Egyptian petroleum logistics experts to validate and refine a research framework derived from the SLR. However, this model remains purely theoretical, lacking empirical validation. Thus, this study will have a further step to address this gap by conducting an empirical investigation in the Egyptian context, providing a more comprehensive understanding of the interplay between these variables in real-world applications.

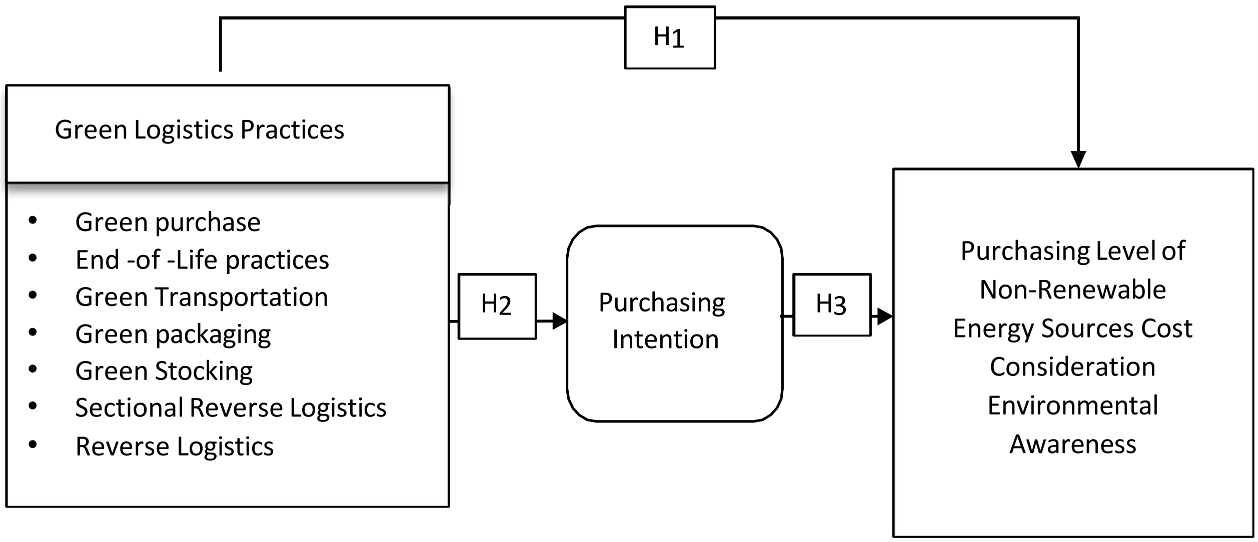

Figure 1. The Conceptual Framework (Haroun *et al.,* 2025)

3. Methodology

This study employs a survey-based empirical methodology to validate the conceptual relationships established in previous research. The research follows a structured approach, beginning with data collection through a survey targeting logistics companies in Egypt that actively consume renewable energy sources. These companies were selected to provide relevant insights into the relationship between Green Logistics Practices, Purchasing Intentions, and the Purchasing Level of Non-Renewable Energy Sources. By focusing on professionals engaged in logistics operations, the study ensures that the data collected reflects real-world industry practices and decision-making processes.

The research primarily targets employees working within supply chain and logistics companies in Egypt, particularly those involved in procurement, transportation, warehousing, and sustainability-related roles. These professionals were chosen because of their direct influence on decision-making regarding green logistics initiatives and energy consumption patterns. The structured questionnaire was designed to capture a comprehensive understanding of how green logistics practices influence purchasing behaviors and the extent to which they contribute to reducing the reliance on non-renewable energy sources.

To ensure a robust and representative sample, 400 questionnaires were distributed across various logistics firms, covering small, medium, and large-scale enterprises. Of the distributed questionnaires, 372 were returned, yielding a high response rate indicative of strong engagement from industry professionals. Following a rigorous validation and data-cleaning process to remove incomplete or inconsistent responses, 342 questionnaires were confirmed as valid for analysis. This final dataset provides a substantial and reliable foundation for hypothesis testing, allowing for a thorough examination of the proposed relationships within the theoretical framework.

By utilizing a well-defined survey methodology, this study aims to contribute empirical evidence that can support, refine, or challenge existing theoretical models in the field of green logistics and energy sustainability. The findings will offer valuable insights into the adoption of green logistics practices in Egypt and their potential role in minimizing the consumption of non-renewable energy sources.

4. Empirical Study

This section presents the empirical analysis conducted to examine the impact of Green Logistics Practices on the Purchasing Level of Non-Renewable Energy Sources, with Purchasing Intention as a mediating factor. The study utilizes a structured survey distributed to logistics companies in Egypt, aiming to assess their adoption of green logistics practices and their influence on energy purchasing behaviors. The collected data conducted through statistical analysis, including descriptive and inferential analysis, to test the proposed hypotheses and identify significant relationships. Based on the findings, an applied framework is developed to provide strategic insights for enhancing sustainable logistics operations. Finally, the study outlines a practical roadmap for stakeholders, guiding the transition toward reduced reliance on non-renewable energy sources through optimized green logistics practices.

The analysis of the survey data provides valuable insights into the relationships among green logistics practices, purchasing intentions, and non-renewable energy consumption. Based on these findings, an applied framework is developed through various tests conducted, including Kaiser-Meyer-Olkin (KMO) test, Cronbach's alpha, confirmatory factor analysis (CFA), average variance extracted (AVE), normality tests, skewness and kurtosis assessments, and variance inflation factor (VIF) index. The relationships among variables were analyzed using correlation analysis and structural equation modeling (SEM) to assess causal links using SPSS and AMOS. The research variables are explained as follows:

- Independent Variable (IV): Green Logistics Practices, and its dimensions (Green purchase, End-of-Life practices, Green Transportation, Green Packaging, Green Stocking).
- Mediating Variable (MV): Purchasing Intention
- Dependent Variable (DV): Purchasing Level.

Accordingly, the research hypotheses could be stated as follows:

H1: There is a significant relationship between Green Logistics Practices and Purchasing Intentions.

- *H1-1:* There is a significant relationship between Green Purchase and Purchasing Intentions.
- *H1-2:* There is a significant relationship between End-of-Life practices and Purchasing Intentions.

- *H1-3*: There is a significant relationship between Green Transportation and Purchasing *Intentions.*
- *H1-4:* There is a significant relationship between Green Packaging and Purchasing Intentions.
- *H1-5:* There is a significant relationship between Green Stocking and Purchasing Intentions.

To ensure clarity and consistency in operationalizing the study variables, each construct was measured using multiple items adapted from prior research. The questionnaire items were distributed to employees working in logistics and petroleum companies in Egypt. Each dimension was assessed through several statements, measured on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." Table 1 below summarizes the variables, their dimensions, the specific measurement items, and the relevant supporting references.

Table 1. Research Variables Measurements

Variables	Dimensions	Measurements	References
Independent Variable	Green Logistics Practices		
	Green Purchasing	Companies assess suppliers through environmental audits and apply sustainability criteria in their selection process	(Younis *et al.,* 2016)
	End-of-Life Practices	Companies extend product life by reselling, repairing, and reconditioning old components or parts.	(Kusi-Sarpong *et al*., 2016)
	Smart Green Transportation	Companies adopt technologies and practices such as route optimization and fuel-efficient vehicles to reduce transportation emissions	(Younis *et al*., 2016)
	Green Packaging	Companies utilize recyclable or biodegradable packaging and minimize packaging to reduce waste.	(Younis *et al*., 2016)
	Green Stocking	Companies optimize warehouses to save energy and use eco-friendly storage materials.	(Younis *et al.,* 2016)
Mediator Variable	Purchasing Intentions	Companies demonstrate an intention to adopt and strengthen green logistics practices by prioritizing environmentally responsible suppliers and committing resources to sustainable logistics solutions.	(Ajzen, 1991)
Dependent Variable	Purchasing Level	Companies are increasingly integrating environmental sustainability into procurement decisions by favoring certified green suppliers and evaluating them based on their green logistics performance	(Adapted from Younis *et al*., 2016; Kusi-Sarpong *et al*., 2016)

5. Research Findings and Discussion

The data were gathered through a questionnaire administered to 342 participants, providing a robust foundation for analyzing variable relationships and testing research hypotheses. To ensure data quality and validity, several statistical tests were conducted, including the Kaiser-Meyer-Olkin (KMO) test, Cronbach's Alpha reliability analysis, Confirmatory Factor Analysis (CFA), average variance extracted (AVE), normality tests, skewness and kurtosis assessment, and the Variance Inflation Factor (VIF) index. Correlation analysis was employed to examine the nature, strength, and direction of relationships between variables. Additionally, advanced statistical techniques, such as Structural Equation Modeling (SEM), were utilized to explore causal relationships between independent and dependent variables.

5.1 Testing Validity and Reliability

Validity measures how well an instrument measures the idea under study in quantitative research. In general, ensuring the validity of a study is essential to drawing accurate conclusions and providing meaningful interpretations of the data. Validity measures how well a measurement instrument measures the intended behavior or quality, which helps in determining an appropriate interpretation of the extracted data. There are three main factors measuring validity: Average Variance Extracted (AVE) and Kaiser-Meyer-Olkin (KMO) that should be greater than 0.5 and Factor Loading (FL) for each item that should be greater than 0.4 for high validity.

Table 4-1 shows the results of pilot study for the validity of conducted 44 responses, where AVE, KMO and FL are computed. According to green purchase (GP), it is observed that the two statements that measured green purchase are valid as FL > 0.4 (FL for GP1=0.783 and GP2=0.783). In addition, the value of KMO equal 0.500 which confirms that the variable is valid. Moreover, the AVE value of green purchase is greater than 50% (AVE=78.349%), and thus the validity condition is met.

According to end-of-life practices (ELP), it is observed that the two statements that measured end-of- life practices are valid as FL > 0.4 (FL for ELP1=0.801and ELP2=0.801). In addition, the value of KMO equal 0.500 which confirms that the variable is valid. Furthermore, the AVE value of end-of-life practices is greater than 50% (AVE=80.089%) which indicates that the variable is valid.

According to smart green transportation (SGT), it is observed that the two statements that measured smart green transportation are valid as FL > 0.4 (FL for SGT1=0.826 and SGT2=0.826). In addition, the value of KMO equals 0.500 which confirms that the variable is valid. Furthermore, the AVE value of smart green transportation is greater than 50% (AVE=82.585%) which indicates that the variable is valid.

According to green packing (GPG), it is observed that the two statements that measured green purchase are valid as FL > 0.4 (FL for GPG1=0.820 and GPG2=0.820). In addition, the value of

KMO equals 0.500 which confirms that the variable is valid. Moreover, the AVE value of green packing is greater than 50% (AVE=82.024%), and thus the validity condition is met.

According to green stocking (GS), it is observed that the two statements that measured smart green transportation are valid as FL > 0.4 (FL for GS1=0.820 and GS2=0.820). In addition, the value of KMO equals 0.500 which confirms that the variable is valid. Furthermore, the AVE value of green stocking is greater than 50% (AVE=88.740%) which indicates that the variable is valid.

According to purchase intention (PI), it is observed that the four statements that measured green purchase are valid as FL > 0.4 (FL for PI1=0.542, PI2=0.759, PI3= 0.592 and PI4=0.715). In addition, the value of KMO equals 0.746 which confirms that the variable is valid. Moreover, the AVE value of green packing is greater than 50% (AVE=65.175%), and thus the validity condition is met.

According to purchasing level of non-renewable energy sources (PNRE), it is observed that the four statements that measured green purchase are valid as FL > 0.4 (FL for PNRE1=0.749, PNRE2=0.523, PNRE3= 0.640, PNRE4=0.643 and PNRE5=0.702). In addition, the value of KMO

equals 0.775 which confirms that the variable is valid. Moreover, the AVE value of purchasing level of non-renewable energy sources is greater than 50% (AVE=65.124%), which indicates that the variable is valid.

Table 4.1. Validity Testing for the Pilot Study

Variables	KMO	AVE (%)	Items	Factor Loading
GP	0.500	78.349	GP1	0.783
			GP2	0.783
ELP	0.500	80.089	ELP1	0.801
			ELP2	0.801
SGT	0.500	82.585	SGT1	0.826
			SGT2	0.826
GPG	0.500	82.024	GPG1	0.820
			GPG2	0.820
GS	0.500	88.740	GS1	0.887
			GS2	0.887
PI	0.746	65.175	PI1	0.542
			PI2	0.759
			PI3	0.592
			PI4	0.715
PNRE	0.775	65.124	PNRE1	0.749
			PNRE2	0.523
			PNRE3	0.640
			PNRE4	0.643

			PNRE5	0.702

Reliability Testing

Reliability is a crucial element in the quality of a test for different variables, as it indicates the stability of the scale. The value of reliability increases with the quality of the test. The most widely used is Cronbach’s alpha reliability test. It is concerned with the consistency of the instrument with itself across different tests, and the three characteristics of the reliability coefficient include: homogeneity, stability, and equivalence. The Cronbach's alpha test can be used to assess internal consistency, with a result preferably greater than 0.7. Table 4-2 shows that the Cronbach's alpha values which equal (GP=0.722, ELP= 0.739, SGT= 0.789, GS= 0.872, PI= 0.186 and PNRE= 0.865), are above 0.7, meeting the necessary criteria. As a result, the reliability test has been passed and the scale's consistency and stability are high.

Table 4.2. Reliability Testing for the Pilot Study

Variables	Cronbach's Alpha
GP	0.722
ELP	0.739
SGT	0.789
GPG	0.780
GS	0.872
PI	0.816
PNRE 1	0.865

5.2 Survey Analysis

After the qualitative analysis that helped explore the initial patterns and trends of data and clarify the different dimensions related to the research topic, it is now the role of quantitative analysis to enhance the understanding by making use of statistical tools, which help in measuring relationships among variables and test the proposed hypotheses.

This analysis aims to provide concrete proof of the kind of relationships existing between variables, how strong independent variables are influencing dependent variables, and assess the existence of mediating or moderating variables in this relationship. The statistical approach for implementing this analysis would depend on the nature of the data and the variables being studied using the SPSS and AMOS programs to make results as precise and reliable as possible.

This analysis marks an important step toward the attainment of the research objectives and the delivery of recommendations founded on realistic data that can be depended upon in both practical and academic applications.

The data were collected by using a questionnaire of 342 participants, thus providing a substantial database for the analysis of relationships among variables and the testing of research hypotheses. To ensure the quality and validity of the data, the following steps were performed: Kaiser- Meyer-

Olkin (KMO) test, Cronbach's Alpha reliability analysis, Confirmatory Factor analysis (CFA), average variance extracted (AVE), normality tests, skewness and kurtosis review, and Variance Inflation Factor (VIF) index. The nature of relationships between variables was analyzed, along with their strength and direction using correlation analysis. Advanced statistical tools such as SEM were used to understand causal relationships in independent and dependent variables and explore roles of mediating and moderating factors.

5.3 Testing Validity and Reliability

Every measuring scale possesses both reliability and validity as its necessary ingredients. By the term reliability is meant the tendency of a particular scale to show consistency in its measurements under identical conditions. In the realm of social sciences, questionnaires are widely used to explain as well as quantify certain concepts. A reliable questionnaire assures consistency in results if measured for the same sample on two different occasions. Conversely, validity is related to whether the scale actually measures what it purports to measure. A questionnaire that assesses some concept other than the one intended has been described as invalid (Ajayi and Adebayo, 2021).

Green Purchase (GPR) includes statements from GPR1 to GPR2, and loading values range from 0.924 to 0.924. End-of-Life Practices (ELP) includes statements from ELP1 to ELP2, and loading values range from 0.886 to 0.886. Smart Green Transportation (SGT) includes statements from SGT1 to SGT2, and loading values range from 0.886 to 0.886. Green Packaging (GPK) includes statements from GPK1 to GPK2, and loading values range from 0.886 to 0.886. Green Stocking (GST) consists of statements from GST1 to GST2, with loading values ranging from 0.905 to 0.905. Purchasing Intention (PI) consists of statements from PI1 to PI4, with loading values ranging from 0.873 to 0.885. Purchasing Level (PLNRES) consists of statements from PLNRES1 to PLNRES5, with loading values ranging from 0.859 to 0.873. All factor loading values range between 0.859 and 0.924, which is higher than 0.5, indicating that the indicators represent the variables strongly and accurately.

There are several types of validity, but the one that will be used in this study is convergent validity, which measures the degree to which the elements of a construct truly represent the intended latent variable. It is assessed by AVE, which compares the variance explained by the latent construct to the variance due to measurement error. High values of AVE mean that the construct explains a large part of the variance of its indicators, meaning high convergent validity. The generally accepted threshold for AVE is 50%, and if it falls below this threshold, then it is considered that the construct may not be adequately represented by its indicators (Triwidyatia and Tentamab, 2020). The values in Table 4-3 oscillate within the range from 88.136% to 92.395%. Because all values exceed 50%, this attests to the fact that the variables being measured maintain good explanatory power-that is, the variables properly represent the indicated measures they were used for.

Reliability testing is an essential method in research to verify the consistency, accuracy, and stability of results over time. It evaluates the reliability of a questionnaire using Cronbach's alpha, where a value greater than 0.7 is generally considered satisfactory (Shrestha, 2021). The Cronbach's alpha coefficient values range from 0.871 to 0.961 in the results. This indicates that all variables of the study are good to excellent in terms of reliability, since all values exceed 0.7, meaning good internal consistency of the tools used to measure the variables.

The KMO test, on the other hand, examines the adequacy of data for factor analysis. KMO values range from 0 to 1, with scores between 0.8 and 1.0 reflecting excellent sampling adequacy, 0.7 to 0.79 indicating moderate adequacy, and 0.6 to 0.69 representing marginal adequacy. Values below 0.6 suggest the need for corrective measures, while scores under 0.5 indicate that the data is unsuitable for factor analysis (Shrestha, 2021). KMO values range from 0.500 to 0.955, so it can be said that the data in general may be suitable for factor analysis.

Based on these results, it can be said that the instrument used to measure the variables has high quality and can be used in subsequent analysis.

Table 4.3. Reliability and Validity Table

Variables	KMO	AVE %	Cronbach's α	Items	Factor Loading
Green Purchase	.500	92.395	.918	GPR1	.924
				GPR2	.924
End-of-Life Practices	.500	88.553	.871	ELP1	.886
				ELP2	.886
Smart Green Transportation	.500	88.597	.871	SGT1	.886
				SGT2	.886
Green Packaging	.500	88.616	.872	GPK1	.886
				GPK2	.886
Green Stocking	.500	90.536	.895	GST1	.905
				GST2	.905
Purchasing Intention	.955	88.136	.924	PI1	.873
				PI2	.882
				PI3	.885
				PI4	.885
Purchasing Level	.921	86.389	.961	PLNRES1	.873
				PLNRES2	.864
				PLNRES3	.863
				PLNRES4	.861
				PLNRES5	.859

6. Descriptive Analysis of Research Variables

Table 4-4 presents the descriptive analysis of the study variables in terms of the mean, standard deviation, and frequency distribution of each variable. This gives a full view of the level of response and differences among participants. The results of the study showed that the mean values of the variables were ranging between 2.7 and 3.4, showing a moderate interest in green behaviors from the participants' side. Green Purchase showed mean with 3.21, leaning toward category 4, while End- of-Life Practices and Smart Green Transportation recorded the lowest means, which were 2.87 and 2.73, respectively. Green Packaging and Green Stocking were close in terms of means, at 3.03 and 3.02, with a leaning toward category 4. Purchasing Intention was 2.92, meaning that the score is on the middle side, while Purchasing Level has the highest mean, which is 3.45, and this one tends to focus on higher categories, indicating a relatively positive attitude toward actual purchasing behavior.

Table 4.4 . Descriptive Analysis for the Research Variables

Research Variable	Mean	Std. Deviation	Frequency				
			1	2	3	4	5
Green Purchase	3.2105	1.38365	66	38	58	118	62
End-of-Life Practices	2.8743	1.06338	42	68	146	63	23
Smart Green Transportation	2.7368	1.02221	55	66	139	78	4
Green Packaging	3.0322	1.12378	34	78	103	97	30
Green Stocking	3.0234	1.20825	45	70	99	88	40
Purchasing Intention	2.9240	1.26772	56	79	83	83	41
Purchasing Level	3.4503	1.21169	10	92	60	94	86

6.1 Confirmatory Factor Analysis

Confirmatory factor analysis is a special approach within SEM that focuses only on measurement models, which analyze the relationship between observed indicators and latent constructs. It is considered one of the strong approaches to test the validity of hypothesized models (Kılıç *et al.*, 2020). CFA will be used to establish strong evidence for the validity of measurement scales applied in research. Figuer. 4.1 shows the confirmatory factor analysis for the study model.

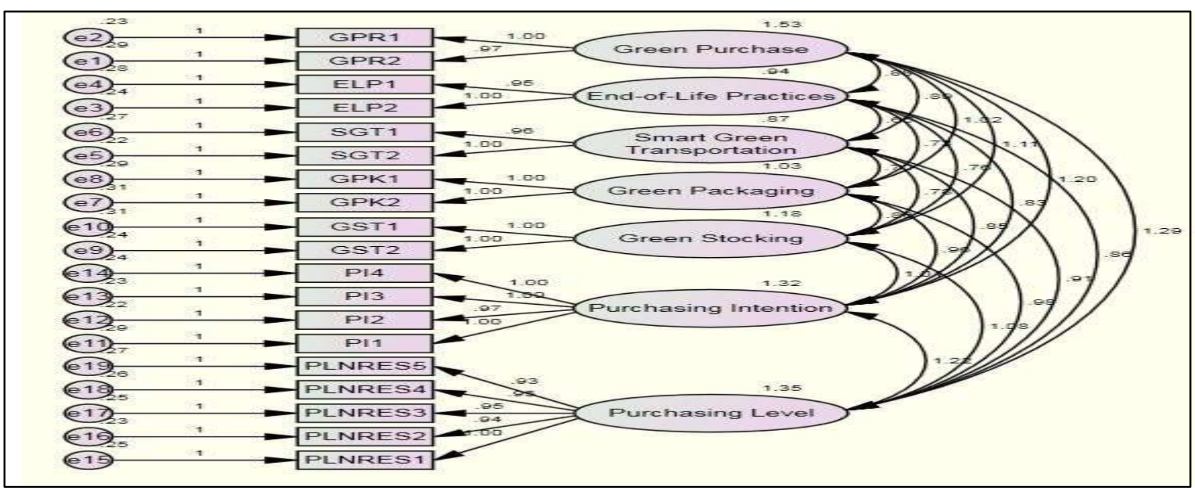

Figure 4. 5. CFA for the Measurement Model

Chi-square/df is an indicator of the fitness of the hypothesized model to the data. Lower values are indicative of a better fit. Its threshold is less than 2 (excellent), less than 3 (good), and sometimes less than 5 (acceptable). P-value is an indicator used to test a hypothesis. Large values indicate no significant difference between the model and the data. The threshold is greater than 0.05. GFI refers to the goodness of fit index and gives the overall measure of fitness of the model to the data. High values indicate a good fit. The acceptable threshold is greater than 0.90. AGFI stands for Adjusted Goodness of Fit Index, which is the modification of GFI by considering the number of variables and degree of freedom.

High values mean a good fit. The acceptable threshold is greater than 0.90. NFI: Normed Fit Index, which compares the hypothesized model with the baseline model (null model); the higher it is, the better the fit. The acceptable threshold is > 0.90. TLI-Tucker-Lewis Index: It measures the fitness of the model to the data concerning its complexity. High values mean good fitness. Acceptable threshold: > 0.95. CFI, Comparative Fit Index: The CFI compares the studied model against the baseline model. High values indicate that the model is good. Acceptable threshold: greater than 0.90. RMR, Root Mean Square Residual: The RMR calculates the average of the differences between the actual values and the predicted values. Low values demonstrate the accuracy of the model. Acceptable threshold is less than 0.08. The RMSEA estimates a degree of approximation error per degree of freedom. The low values indicate that the model fits well. Acceptable threshold is less than 0.05.

The fit indices shown in Table 4-5 reveal a very good fit of the overall model. The chi- square/df ratio is 0.976, which is well below the threshold of 2, while although the p-value is 0.000 below 0.05, this is not a problem because the other indices performed very well. The GFI was 0.963 and the AGFI was 0.947, both above 0.90; the NFI was 0.983; the TLI was 0.990; and the CFI was 0.991, all above their respective cutoff points, confirming a good fit of the model. The RMR of the remaining measures is 0.016 and the overall mean differential error is 0.001, which are well below the acceptable limits, implying minimal error. All values in the table show excellent fit between the hypothesized model and the data, indicating the validity of the model for analysis.

Table 4.5 . Thresholds and Fit Indices for the Measurement Model

Measure	Results	Threshold
Chi-square/df	0.976	< 2 excellent; < 3 good; < 5 sometimes permissible
P-value	0.000	> 0.05
GFI	0.963	> 0.90
AGFI	0.947	> 0.90
NFI	0.983	> 0.90
TLI	0.990	> 0.95
CFI	0.991	> 0.90
RMR	0.016	< 0.08
RMSEA	0.001	< 0.05

The results in Table 4-6 show that the item loadings after confirmatory factor analysis were strong, with most item estimates being above or near 0.9, indicating strong convergent validity. This means that there is a strong relationship between the observed indicators and their latent constructs.

Table 4.6. Item Loading after Confirmatory Factor Analysis

			Estimate	S.E.	C.R.	P
GPR1	<---	Green Purchase	1.000			
GPR2	<---	Green Purchase	.966	.035	27.834	***
ELP2	<---	End-of-Life Practices	1.000			
ELP1	<---	End-of-Life Practices	.946	.050	18.983	***
SGT2	<---	Smart Green Transportation	1.000			
SGT1	<---	Smart Green Transportation	.960	.048	20.186	***
GPK2	<---	Green Packaging	1.000			
GPK1	<---	Green Packaging	.997	.048	20.660	***
GST2	<---	Green Stocking	1.000			
GST1	<---	Green Stocking	.997	.043	23.395	***
PI1	<---	Purchasing Intention	.998	.035	28.290	***
PI2	<---	Purchasing Intention	.967	.032	29.776	***
PI3	<---	Purchasing Intention	.999	.033	29.881	***
PI4	<---	Purchasing Intention	1.000			
PLNRES1	<---	Purchasing Level	1.000			
PLNRES2	<---	Purchasing Level	.938	.032	29.363	***
PLNRES3	<---	Purchasing Level	.946	.033	28.886	***
PLNRES4	<---	Purchasing Level	.946	.033	28.716	***
PLNRES5	<---	Purchasing Level	.934	.033	28.280	***

6.2 Normality Testing for the Research Variables

The normality test was performed to determine if the data follows a normal distribution. There are two ways of testing normality: formal and informal methods. In the formal approach, the Kolmogorov- Smirnov test is applied in this study, and for the data to be normally distributed, the significance value should be above the chosen significance level of 5%. In the informal approach, the values of skewness and kurtosis were measured. These values are considered to be within the normal distribution when they lie between +1 and -1.

The result of the formal normality test using the Kolmogorov-Smirnov test for the research variables, where the test statistic and significance values for each variable are shown in Table 4-7, where all significance values are less than the 5% level ($p < 0.05$), indicating that the data for all variables are not normally distributed.

Table 4.7. Formal Testing of Normality

Research Variables	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
Green Purchase	.242	342	.000
End-of-Life Practices	.225	342	.000
Smart Green Transportation	.248	342	.000
Green Packaging	.177	342	.000
Green Stocking	.165	342	.000
Purchasing Intention	.165	342	.000
Purchasing Level	.201	342	.000

Table 4.8 shows the results of the informal normality test using the skewness and skewness values of the research variables. All skewness values fall within the acceptable range of -1 to +1, and most skewness values also fall within the acceptable range of -1 to +1, except for the purchase level, which has a skewness value of -1.262. Thus, some variables are non-normal.

Table 4.8. Informal Testing of Normality

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Green Purchase	-.409	.132	-1.122	.263
End-of-Life Practices	-.027	.132	-.392	.263
Smart Green Transportation	-.300	.132	-.774	.263
Green Packaging	-.113	.132	-.775	.263
Green Stocking	-.095	.132	-.896	.263
Purchasing Intention	.013	.132	-1.065	.263
Purchasing Level	-.162	.132	-1.262	.263

6.3 Testing Multicollinearity Assumption

Exact collinearity arises when a relationship between two explanatory variables is perfect, that is, one variable is completely explained by the other. When that occurs among more than two explanatory variables it is called Multicollinearity, and several variables are influencing each other. According to Kim (2019), Multicollinearity can result in findings that mislead the researcher, so testing its presence is important. The Variance Inflation Factor (VIF) is used to detect Multicollinearity, as it measures the extent of variance inflation caused by the interdependence among variables. A VIF value of 1 indicates no Multicollinearity, values between 1 and 5 suggest moderate Multicollinearity, and values exceeding 5 indicate a high degree of Multicollinearity (Daoud, 2017). The values of VIF in Table 4-9 are 3.152, 2.281, 2.610, 2.811, and 3.076. They all fall between 1 and 5, meaning that there is a very small percentage of Multicollinearity, but it has no effect and is considered acceptable.

Table 4.9 .VIF values for Research Variables

Independent Variables	VIF
Green Purchase	3.152
End-of-Life Practices	2.281
Smart Green Transportation	2.610
Green Packaging	2.811
Green Stocking	3.076

7. Research Hypotheses

This section uses the structure equation modeling, a statistical methodology applied to model and analyze the relationship between dependent variable and one or more independent variables. The method further uses correlation analysis, which describes and analyzes the degree and direction of the linear relationship between two continuous variables. These methods will be applied in the following manner in testing the study hypotheses:

7.1Correlation Analysis

Correlation analysis measures the association between variables, describing how a change in one variable is associated with a change in another variable. The association can be positive, as both variables change in the same direction, or negative, as both variables change in opposite directions. Usually used for continuous variables, correlation is expressed using two primary coefficients: Pearson's correlation coefficient and Spearman's correlation coefficient. Pearson's correlation is used for normally distributed data, whereas Spearman's can be used for non-normally distributed data, ordinal data, or data containing outliers. The correlation coefficient varies between +1 and - 1, where +1 shows perfect positive correlation, -1 shows perfect negative correlation, and close to 0 shows no correlation (Schober,*et al*., 2018).

In Table 4-10, Spearman's correlation coefficients are shown. Since there are variables that do not follow a normal distribution, the results indicate that there are strong and statistically significant positive correlations between all variables in the study at the 0.01 significance level. The purchase level shows a very strong correlation with all other variables, as follows:

- The results showed the highest correlation between purchase level and green purchasing (r = .908), which indicates the significant impact of green purchasing behavior on the purchase level.

- The correlation between purchase level and end-of-life practices was high (r = .775), which indicates the strong link between these practices and the purchase level.
- The correlation between smart green transportation and purchase level was very high (r =.821), which indicates how important the contribution of sustainable transportation is towards the purchase level.
- The correlation between purchase level and green packaging was very high (r = .841), which indicates the impact of sustainable packaging on the purchase level.
- There was a very strong relationship between purchase level and green stocking (r = .851), indicating the effect of green stocking on the purchase level.
- The relationship between purchase level and purchase intention was very strong (r = .923), indicating the strong impact of purchase intentions on the purchase level.

Table 4.10. Correlation Matrix for the Research Variables

		1.	2.	3.	4.	5.	6.	7.
1. Green Purchase	R	1.000						
	Sig.	.						
	N	342						
2. End-of-Life Practices	R	.728**	1.000					
	Sig.	.000	.					
	N	342	342					
3. Smart Green Transportation	R	.756**	.671**	1.000				
	Sig.	.000	.000	.				
	N	342	342	342				
4. Green Packaging	R	.795**	.693**	.711**	1.000			
	Sig.	.000	.000	.000	.			
	N	342	342	342	342			
5. Green Stocking	R	.800**	.691**	.727**	.748**	1.000		
	Sig.	.000	.000	.000	.000	.		
	N	342	342	342	342	342		
6. Purchasing Intention	R	.835**	.704**	.764**	.788**	.779**	1.000	
	Sig.	.000	.000	.000	.000	.000	.	
	N	342	342	342	342	342	342	
7.Purchasing Level	R	.908**	.775**	.821**	.841**	.851**	.923**	1.000
	Sig.	.000	.000	.000	.000	.000	.000	.
	N	342	342	342	342	342	342	342
**. Correlation is significant at the 0.01 level (2-tailed).								

7.2 Structure Equation Modeling

Structural equation modeling (SEM) is a statistical technique applied for the aim of specifying the relationship between observed (measured) and latent (unobserved) variables. SEM also estimates how well the data collected fit into the predicted relations of a theory model. This makes SEM a stronger and more effective tool for hypothesis testing compared to other analysis methods (Ajayi and Adebayo, 2021). Figure 4-6 shows the structural equation modeling of the study with the direct and indirect effects of the variables shown.

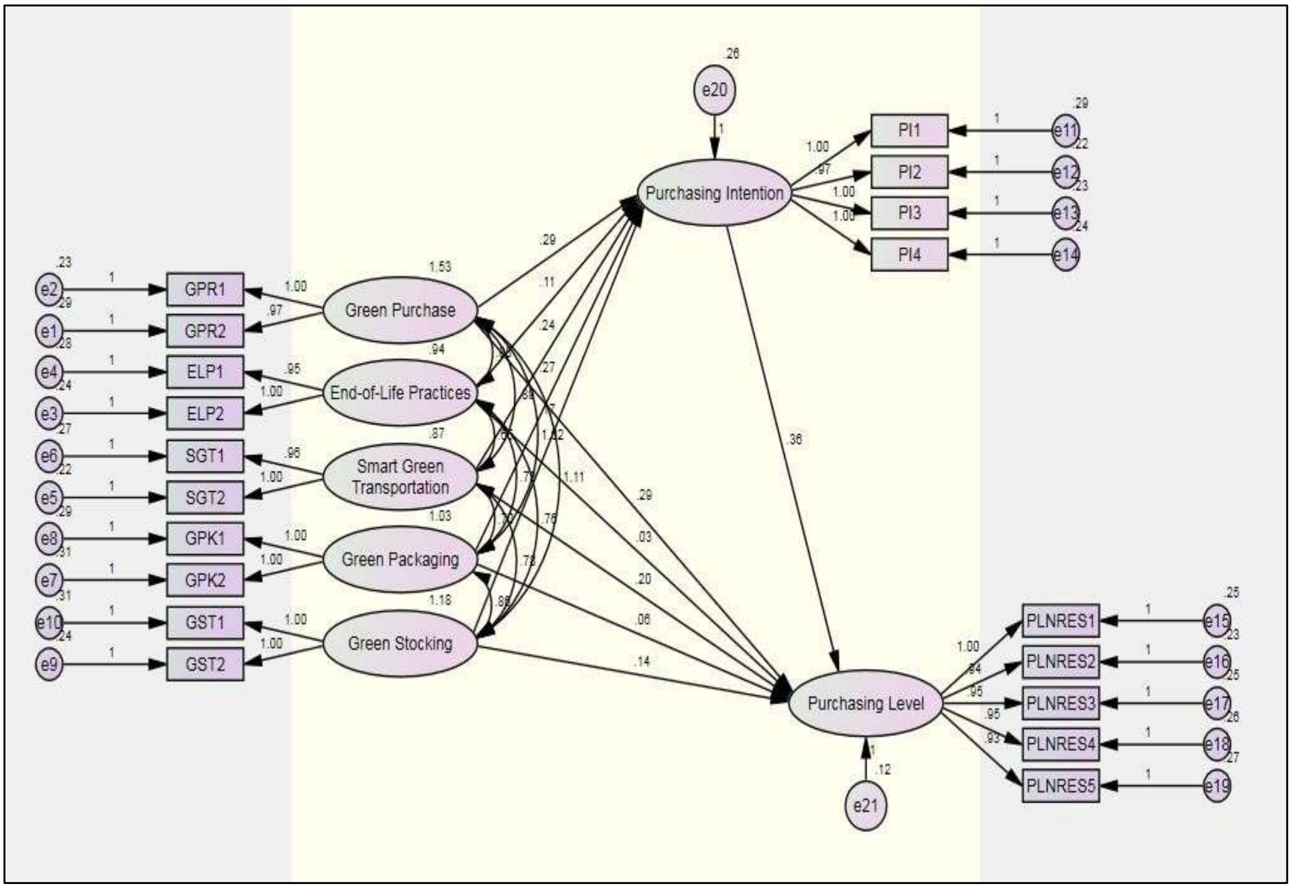

Figure 4.6. SEM for the Research Variables

Table 4.9 shows the results of hypothesis testing through structural equation modeling, which shows that:

For the first main hypothesis "H1: There is a significant relationship between green logistics practices and purchasing level of non-renewable energy sources". Which includes five sub-hypotheses as follows:

- A highly significant positive effect of green purchase on purchasing level (Estimate = 0.300, P < 0.001), demonstrating its critical role in determining purchasing levels. Supporting H1.1.

- No significant impact of end-of-life practices on purchasing level (Estimate = 0.028, P = 0.584), suggesting it has little effect on purchasing level. Not supporting H1.2.
- A significant positive influence of smart green transportation on purchasing levels (Estimate = 0.197, P < 0.001), emphasizing its importance in enhancing purchasing levels. Supporting H1.3.
- No significant effect of green packaging on purchasing levels (Estimate = 0.057, P = 0.364), indicating limited influence on purchasing levels. Not supporting H1.4.
- A small but significant positive effect of green stocking on purchasing level (Estimate = 0.141, P = 0.013). supporting H1.5.

Therefore, H1: There is a significant relationship between green logistics practices and purchasing level of non-renewable energy sources is partially supported statistically.

As for the second hypothesis, "H2: There is a significant relationship between Green Logistics Practices and Purchasing Intentions", which also includes five sub-hypotheses, which are as follows:

- A significant positive impact of Green Purchase on purchasing intentions (Estimate = 0.295, P < 0.001), indicating that green purchasing behavior strongly influences purchasing intention. Supporting H2.1.
- No significant effect of end-of-life practices on purchasing intention (Estimate = 0.105, P
- = 0.117), implying minimal influence on purchasing intention. Not supporting H2.2.
- A significant positive effect of smart green transportation on purchasing intention (Estimate = 0.242, P = 0.002), showing its relevance in shaping purchasing intention. Supporting H2.3.
- A strong and significant impact of green packaging on purchasing intention (Estimate = 0.266, P < 0.001), highlighting its importance in influencing purchasing intention. Supporting H2.4.
- A modest but significant positive effect of green stocking on purchasing intention (Estimate = 0.165, P = 0.026), indicating its contribution to purchasing intention. Supporting H2.5.

Therefore, the second main hypothesis "H2: There is a significant relationship between Green Logistics Practices and Purchasing Intentions", is partially supported statistically.

As for the third hypothesis, "H3: There is a significant relationship between Purchasing Intentions and Purchasing Level of Non-Renewable Energy Sources", there is a strong and significant impact of purchasing intentions and purchasing level (Estimate = 0.365, P < 0.001), highlighting that purchasing intention is a major determinant of purchasing level, and thus the hypothesis is fully supported.

As for the fourth hypothesis, which is that "H4: purchase intention plays moderating role in the relationship between green logistics practices and purchasing level of non-renewable energy sources", The results show that green purchasing, green smart transportation, and green stocking have a significant direct effect on the purchase level. Also, green purchasing, green packaging, and green stocking show an indirect effect on the purchase level by enhancing purchase intention. In addition, green smart transportation also affects the purchase level directly and indirectly through purchase intention. However, end-of-life practices, although they have a limited effect on purchase intention, do not show a clear effect on the purchase level directly. Therefore, purchase intention partially mediates the relationship between green logistics practices and purchasing level of non-renewable energy sources, so the hypothesis is partially supported.

Table 4.11. SEM Analysis for the Research Variables

			Estimate	P	R^2
Purchasing Intention	<---	Green Purchase	.295	***	.803
Purchasing Intention	<---	End-of-Life Practices	.105	.117	
Purchasing Intention	<---	Smart Green Transportation	.242	.002	
Purchasing Intention	<---	Green Packaging	.266	***	
Purchasing Intention	<---	Green Stocking	.165	.026	
Purchasing Level	<---	Green Purchase	.300	***	.910
Purchasing Level	<---	End-of-Life Practices	.028	.584	
Purchasing Level	<---	Smart Green Transportation	.197	***	
Purchasing Level	<---	Green Packaging	.057	.364	
Purchasing Level	<---	Green Stocking	.141	.013	
Purchasing Level	<---	Purchasing Intention	.365	***	

8.Summary of Testing Research Hypotheses

Table 4.12 briefly shows the results of the study hypotheses.

Table 4.12 . Summary of Research Hypotheses

Hypothesis	Description	Results
H1	There is a significant relationship between Green Logistics Practices and Purchasing Level	Partially Supported
H2	There is a significant relationship between Green Logistics Practices and Purchasing Intentions	Partially Supported
H3	There is a significant relationship between Purchasing Intentions and Purchasing Level of Non-Renewable Energy Sources	Supported
H4	Purchasing Intentions mediates the relationship between Green Logistics Practices and Purchasing Level	Partially Supported

8.1 Discussion and Interpretation of Survey Findings

The survey analysis provided critical insights into the relationships between Green Logistics Practices (GLP), Purchase Intentions (PI), and the Purchasing Level of Non-Renewable Energy Sources (PNRES). Through a series of rigorous statistical tests, including reliability and validity assessments, correlation analysis, and Structural Equation Modeling (SEM), the study examined the extent to which these variables interact and influence one another.

Descriptive statistics provided an overview of the participants' responses, revealing a general trend towards the adoption of Green Logistics Practices among logistics companies. Correlation analysis demonstrated significant relationships between GLP, PI, and PNRES, offering preliminary support for the hypothesized associations. Specifically, Green Logistics Practices showed a strong positive correlation with Purchase Intentions, suggesting that companies committed to green logistics are more inclined to reduce their reliance on non-renewable energy sources.

8.2 Structural Equation Modeling (SEM) Results

The SEM analysis was employed to test the hypothesized relationships within the research framework. The model fit indices (e.g., CFI, TLI, RMSEA) indicated a good fit between the theoretical model and the observed data. The results revealed that:

- *H1: There is* a significant relationship between Green Logistics Practices, Purchase Intentions, and the Purchasing Level of Non-Renewable Energy Sources. Supported. The analysis confirmed that GLP positively influenced PI, which in turn negatively affected the purchasing level of non-renewable energy sources. This suggests that green practices foster a mindset conducive to sustainable purchasing behaviors.
- *H2:* There is a significant relationship between Green Logistics Practices and Purchase Intentions. Supported. The data showed a direct and significant positive effect of GLP on PI, highlighting that organizations engaging in sustainable logistics are more likely to develop strong intentions towards purchasing renewable energy.
- *H2-1:* There is a significant relationship between Green Purchase and Purchasing Intentions. Supported. This specific sub-hypothesis emphasized the role of green purchasing decisions within the broader GLP framework. The findings suggested that companies that prioritize green procurement are more likely to exhibit strong purchase intentions for renewable energy.
- *H3:* Purchase Intentions mediate the relationship between Green Logistics Practices and the Purchasing Level of Non-Renewable Energy Sources. Supported. Mediation analysis confirmed that Purchase Intentions serve as a significant mediator, indicating that the effect of GLP on reducing non-renewable energy purchases is partly explained by the development of sustainable purchasing intentions.

The findings emphasize the essential role that Green Logistics Practices play in shaping sustainable purchasing behaviors within the logistics sector in Egypt. The strong linkage between GLP and Purchase Intentions suggests that companies are increasingly recognizing the strategic importance of sustainability not only as a compliance requirement but also as a competitive advantage. Furthermore, the mediating role of Purchase Intentions highlights the psychological and behavioral shifts necessary for transitioning from non-renewable to renewable energy sources.

These results align with existing literature on green supply chain management, which emphasizes the transformative potential of sustainable logistics in reducing environmental impacts. However, the study also offers new insights into the Egyptian context, where the integration of green logistics is still emerging. The significant relationships identified in this research suggest that as more companies adopt green logistics, there will be a corresponding decrease in the reliance on non- renewable energy sources, contributing to national goals of reducing greenhouse gas emissions and promoting renewable energy. Additionally, the findings validate that Green Logistics Practices effectively reduce reliance on non-renewable energy sources and promote the adoption of sustainable alternatives. The role of Purchasing Intentions as a mediator is critical in shaping energy consumption behaviors. The study provides strong evidence supporting the integration of green logistics practices as a strategic approach for reducing non-renewable energy consumption in the logistics sector.

9. Roadmap After Empirical Study Findings

While this study provides valuable insights into the impact of Green Logistics Practices (GLP) on the Purchasing Level of Non-Renewable Energy Sources (PNRES), mediated by Purchase Intentions (PI), several paths for future research exist to expand these findings. The following table presents a roadmap that outlines key areas and methodological approaches that guide future investigations in this field. Here is a roadmap illustrating the obstacles, solutions, and responsible entities for implementing improvements in Green Logistics Practices (GLPs) and reducing reliance on Non-Renewable Energy Sources (NRES).

Table 10. Roadmap for Overcoming Obstacles in Green Logistics Implementation

Step	Obstacles	Solution	Responsible Entities
1. High Initial Costs of Green Logistics Adoption	Logistics companies find it expensive to invest in green technologies, such as electric trucks, renewable energy sources, and eco-friendly packaging.	Government incentives (e.g., tax reductions, subsidies) and financial support programs for green investments.	Government, Environmental Agencies, Financial Institutions

2. Resistance to Change in Organizational Culture	Some companies prioritize short-term profits over sustainability, resisting changes in logistics operations.	Awareness campaigns, leadership training, and sustainability-oriented policies to integrate green logistics into corporate strategies.	Company Executives, HR Departments, Sustainability Managers
3. Lack of Infrastructure for Green Logistics	Limited availability of charging stations for electric vehicles, green warehouses, and recycling facilities.	Public-private partnerships to develop green logistics infrastructure, including EV charging stations and sustainable warehousing.	Government, Private Investors, Industry Associations
4. Weak Regulatory Enforcement	Inconsistent enforcement of environmental regulations leads to low compliance among logistics firms.	Stricter regulatory frameworks, regular audits, and penalties for non-compliance.	Government Agencies, Environmental Regulators, Compliance Officers
5. Limited Technological Integration	Companies lack the knowledge or resources to implement AI, IoT, and block chain for green logistics.	Providing training programs and funding for technology adoption in logistics operations.	Technology Providers, Universities, Industry Experts
6. Unclear Return on Investment (ROI) for Green Logistics	Companies struggle to measure the financial benefits of transitioning to green logistics.	Research studies and case studies demonstrating cost savings, efficiency gains, and brand value improvements.	Research Institutions, Business Analysts, Consultants
7. Supply Chain Coordination Issues	Suppliers and partners may not prioritize sustainability, affecting	Developing green procurement policies and	Supply Chain Managers, Procurement
	the overall green logistics strategy.	setting sustainability standards for suppliers.	Teams, Industry Coalitions
8. Limited Consumer Awareness and Demand for Green Products	Customers are not fully aware of the environmental impact of logistics operations.	Marketing campaigns promoting sustainable logistics, eco-labeling, and green certifications.	Marketing Departments, Consumer Advocacy Groups, Media
9. Difficulty in Measuring and Reporting Green Logistics Impact	Companies struggle to track and report emissions reductions and sustainability performance.	Standardized sustainability reporting frameworks and digital tracking tools.	Environmental Consultants, Industry Regulators, Reporting Standards Organizations

10. Unstable Energy Market Affecting Renewable Energy Adoption	Fluctuations in energy prices make it difficult for logistics firms to rely on renewables.	Government policies stabilizing renewable energy prices and encouraging long-term investment in renewables.	Energy Ministries, Renewable Energy Providers, Policymakers

This roadmap highlights key obstacles in implementing Green Logistics Practices (GLPs) and reducing Non-Renewable Energy Sources (NRES). Solutions include financial incentives, regulatory enforcement, technological integration, and supply chain coordination. Key stakeholders responsible for implementation include governments, private sector leaders, technology providers, and research institutions. Consumer awareness and standardized reporting are also essential for driving sustainable logistics adoption. Addressing these challenges collectively will enhance sustainability, efficiency, and long-term cost savings in logistics operations.

10. Conclusion

The results of the correlation analysis indicate strong and statistically significant positive relationships between all study variables, reinforcing the hypothesis that green logistics practices influence customers' purchasing intentions. The highest correlation was observed between green purchasing and purchase intention, emphasizing the strong impact of environmentally friendly purchasing behavior on consumer decisions. The findings further highlight significant correlations between end-of-life practices, smart green transportation, green packaging, and green stocking with purchasing intention, suggesting that these factors also play crucial roles in shaping customer behavior. Therefore, while aligning with existing research on sustainability and consumer behavior, this study provides a unique contribution by focusing on green logistics practices in Egypt’s market. It confirms that green purchasing, smart transportation, packaging, and stocking significantly drive purchasing intentions, offering valuable insights for companies looking to implement sustainable logistics strategies.

Additionally, the study provides empirical evidence on the effect of green logistics practices on customers' purchasing intentions within the Egyptian market. The findings confirm that green purchasing behavior, smart green transportation, green packaging, and green stocking significantly influence customers' purchasing intentions, highlighting their importance in sustainable supply chain management. However, end-of-life practices were found to have an insignificant direct impact, suggesting that while environmentally responsible disposal is valued, it may not be a key determinant in consumer purchasing decisions.

References

Agyabeng-Mensah, Y. and Tang, L., 2021. The relationship among green human capital, green logistics practices, green competitiveness, social performance and financial performance. *Journal of Manufacturing Technology Management*, 32(7), pp.1377-1398.

Agyabeng-Mensah, Y., Afum, E. and Ahenkorah, E., 2020. Exploring financial performance and green logistics management practices: examining the mediating influences of market, environmental and social performances. *Journal of Cleaner Production*, 258, p.120613.

Ahmed, R.R., Streimikiene, D., Qadir, H. and Streimikis, J., 2023. Effect of green marketing mix, green customer value, and attitude on green purchase intention: evidence from the USA. *Environmental Science and Pollution Research*, 30(5), pp.11473-11495.

Baah, C., Jin, Z. and Tang, L., 2020. Organizational and regulatory stakeholder pressures friends or foes to green logistics practices and financial performance: investigating corporate reputation as a missing link. *Journal of Cleaner Production*, 247, p.119125.

Chinomona, E. and Chivhungwa, T., 2019. The influence of green image, physical environment quality and green trust on green purchase intention. *The Retail and Marketing Review*, 15(1), pp.13-26.

De Souza, E.D., Kerber, J.C., Bouzon, M. and Rodriguez, C.M.T., 2022. Performance evaluation of green logistics: Paving the way towards circular economy. *Cleaner Logistics and Supply Chain*, 3, p.100019.

Dinh, K.C., Nguyen-Viet, B. and Phuong Vo, H.N., 2023. Toward sustainable development and consumption: The role of the green promotion mix in driving green brand equity and green purchase Intention. *Journal of Promotion Management*, 29(6), pp.824-848.

Elbarky, S., Elgamal, S., Hamdi, R. and Barakat, M.R., 2023, July. Green supply chain: the impact of environmental knowledge on green purchasing intention. In *Supply Chain Forum: An International Journal* (Vol. 24, No. 3, pp. 371-383). Taylor & Francis.

Fahmi, M.A., Nurfauzia, F., Yulita, K. and Nurfitriani, W., 2023. The role of green procurement, green supply chain management, green marketing strategy, and customers' environmental attitudes on green purchase intentions of plastic bag substitutes: a structural equation model on modern retail. International *Journal of Research in Business and Social Science (2147-4478),* 12(4), pp.66-77.

Haroun, M. H., Elgazzar, S., & Salah, M., 2025. Investigating the role of green logistics practices in reducing non-renewable energy consumption. *Proceedings of the Institution of Civil Engineers - Energy*, 178(1).

He, Q. and Qu, H., 2018. The impact of advertising appeals on purchase intention in social media environment analysis of intermediary effect based on brand attitude. *Journal of Business Administration Research*, 7(2), p.17.

Jazairy, A. and Von Haartman, R., 2021. Measuring the gaps between shippers and logistics service providers on green logistics throughout the logistics purchasing process. *International Journal of Physical Distribution & Logistics Management*, 51(1), pp.25-47.

Kamewor, F.T., Kwateng, K.O. and Mensah, J., 2024. Green logistics practices: A bibliometric and systematic methodological review and future research opportunities. *Journal of Cleaner Production*, p.143735.

Kang, S., 2012. Perceptions of the benefits and challenges of purchasing local foods in the Iowa hotel industry (Master's thesis, Iowa State University).

Karia, N., 2020. Green logistics practices and sustainable business model. In *Handbook of research on the applications of international transportation and logistics for world trade* (pp. 354-366). IGI Global.

Khan, S.A.R., Jian, C., Zhang, Y., Golpîra, H., Kumar, A. and Sharif, A., 2019. Environmental, social and economic growth indicators spur logistics performance: from the perspective of South Asian Association for Regional Cooperation countries. *Journal of Cleaner Production*, 214, pp.1011-1023.

Kusi-Sarpong, S., Sarkis, J. and Wang, X., 2016. Assessing green supply chain practices in the Ghanaian mining industry: A framework and evaluation. *International Journal of Production Economics*, 181, pp.325-341.

Kytö, E., Virtanen, M. and Mustonen, S., 2019. From intention to action: Predicting purchase behavior with consumers' product expectations and perceptions, and their individual properties. *Food Quality and Preference*, 75, pp.1-9.

Lau, K.H., 2011. Benchmarking green logistics performance with a composite index. *Benchmarking: An International Journal*, 18(6), pp.873-896.

Lee, C., Lim, S. and Ha, B., 2021. Green supply chain management and its impact on consumer purchase decision as a marketing strategy: Applying the theory of planned behavior. *Sustainability*, 13(19), p.10971.

Moslehpour, M., Yin Chau, K., Du, L., Qiu, R., Lin, C.Y. and Batbayar, B., 2023. Predictors of green purchase intention toward eco-innovation and green products: Evidence from Taiwan. *Economic Research-Ekonomska Istraživanja*, 36(2).

Nur, F., Akmaliah, N., Chairul, R. and Safira, S., 2021. Green purchase intention: The power of success in green marketing promotion. *Management Science Letters*, 11(5), pp.1607-1620.

Prataviera, L.B., Creazza, A. and Perotti, S., 2024. A call to action: a stakeholder analysis of green logistics practices. *The International Journal of Logistics Management*, 35(3), pp.979-1008.

Seroka-Stolka, O. and Ociepa-Kubicka, A., 2019. Green logistics and circular economy. *Transportation Research Procedia*, 39, pp.471-479.

Shang, S.S. and Lin, K.Y., 2013. An understanding of the impact of gamification on purchase intentions.

Shehawy, Y.M. and Khan, S.M.F.A., 2024. Consumer readiness for green consumption: The role of green awareness as a moderator of the relationship between green attitudes and purchase intentions. *Journal of Retailing and Consumer Services*, 78, p.103739.

Sugandini, D., Susilowati, C., Siswanti, Y. and Syafri, W., 2020. Green supply management and green marketing strategy on green purchase intention: SMEs cases. *Journal of Industrial Engineering and Management (JIEM)*, 13(1), pp.79-92.

Vienažindienė, M., Tamulienė, V. and Zaleckienė, J., 2021. Green logistics practices seeking development of sustainability: evidence from Lithuanian transportation and logistics companies. *Energies*, 14(22), p.7500.

Wijekoon, R. and Sabri, M.F., 2021. Determinants that influence green product purchase intention and behavior: A literature review and guiding framework. *Sustainability*, 13(11), p.6219.

Younis, H., Sundarakani, B. and Vel, P., 2016. The impact of implementing green supply chain management practices on corporate performance. *Competitiveness Review*, 26(3), pp.216-245.

Zailani, S., Jeyaraman, K., Vengadasan, G. and Premkumar, R., 2012. Sustainable supply chain management (SSCM) in Malaysia: A survey. *International Journal of Production Economics*, 140(1), pp.330-340.

Zameer, H. and Yasmeen, H., 2022. Green innovation and environmental awareness driven green purchase intentions. *Marketing Intelligence & Planning*, 40(5), pp.624-638.

Zhuang, W., Luo, X. and Riaz, M.U., 2021. On the factors influencing green purchase intention: A meta-analysis approach. *Frontiers in Psychology*, 12, p.644020.