WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Assessing the Impact of Sustainable Logistics Practices on Business Performance in Coimbatore

Dr. M. Saravanan[1], Aruna Devi S[2]

[1]Associate Professor & Head, Department of International Business, PSG College of Arts & Science, Coimbatore-641 014
Email.: saravanan@psgcas.ac.in
[2]II M.Com (IB) Student, Department of International Business, PSG College of Arts & Science, Coimbatore-641 014
Email.: ad775422@gmail.com
DOI : https://doi.org/10.55248/gengpi.6.0425.1363

ABSTRACT

This exploratory study examines sustainable practices in logistic companies, focusing on their integration, challenges, and environmental and operational impacts. As the logistics sector contributes significantly to carbon emissions, companies are under pressure to adopt sustainable practices. The research identifies strategies such as fuel-efficient transportation, renewable energy use as well as the role of technology in driving sustainability. The study finds that logistics are progressing towards sustainability, challenges like high initial costs, regulatory complexities, and a lack of industry standard persist. However, companies that adopt sustainable practices report long-term cost savings, better brand reputation. The study contributes valuable insights for companies seeking to balance economic growth and environmental responsibility, while also suggesting areas for further research and policy development.

Keywords: *Sustainable practices, logistics companies, carbon emissions, fuel-efficient transportation, long term cost-savings, environmental responsibility.*

INTRODUCTION

Logistics involves the planning, execution and management of the efficient movement and storage of goods, services and information throughout the supply chain from the point of origin to consumer. The logistics sector covers various functions such as transportation, warehousing, inventory control, packaging, order fulfillment and distribution.

SUSTAINABLE PRACTICES IN LOGISTICS

As businesses face growing demands for quicker delivery, cost reductions, and environmental responsibility the logistics field is continually evolving. Sustainable practices are now a central a central focus, as companies strive to minimize their environmental footprint while ensuring effective and efficient performance in their logistics operations.

STATEMENT OF THE PROBLEM

The logistics industry plays a crucial role in global trade and supply chain management, contributing significantly to economic development. However, this sector is also a significant contributor to environmental degradation, with high carbon emissions, waste generation and resource consumption. In recent years, there has been increasing pressure from outsiders for companies in the logistics sector to adopt sustainable practices that mitigate these negative impacts. Though many logistics companies face challenges in unveiling sustainability into their operations due to factors such as cost, technological barriers and lack of clear guidelines or incentives.

This exploratory study aims to investigate the extent to which logistics companies are implementing sustainable practices, the challenges they face in doing so, and also the benefits they realize from adopting these practices. This study seeks to fill this gap by examining logistic companies approaches to sustainability, identifying the barriers to adoption and the areas which influencing more sustainable practices in company.

REVIEW OF LITERATURE

Su et.al. (2022) revealed that stakeholder pressure is the most significant factor influencing the suppliers sustainable development, followed by strategic positioning, sustainable policy and the commitment of the top management team. Russell et al.(2018) explored the inter dependencies between

sustainability, financial strength and performance and test hypotheses with regression analysis. Kumar et al. (2017) It validates scale measurements of logistics practices and explores the influence of sustainable logistic practices on logistic transport performance.

OBJECTIVES OF THE STUDY

To examine the sustainable practices and its implementation in the logistic companies.

To know the benefits and outcomes in logistics companies by adoption of sustainability.

METHODOLOGY OF THE STUDY

Both primary and secondary data have been used for the study. But primary data is extensively used. The study is based on primary data that has been collected through a structured questionnaire collected from 50 respondents from Logistics companies in Coimbatore City. Secondary data was collected from various books, journals and publications related to logistics and transportation.

TOOLS USED FOR ANALYSIS

Correlation and SEM Model were used for analysis.

Correlation: Correlation is a statistical measure that indicates the strength and direction of the relationship between two variables.

SEM Model: Structural Equation Modeling (SEM) is a statistical method used to examine complex relationships between observed and latent variables.

DATA ANALYSIS AND INTERPRETATION

TABLE 4.1

Correlations

		Operational year of company	Percentage of aligned sustainable in logistics operations
Operational year of company	Pearson Correlation	1	.481**
	Sig. (2-tailed)		.000
	N	50	50
Percentage of aligned sustainable in logistics operations	Pearson Correlation	.481**	1
	Sig. (2-tailed)	.000	
	N	50	50

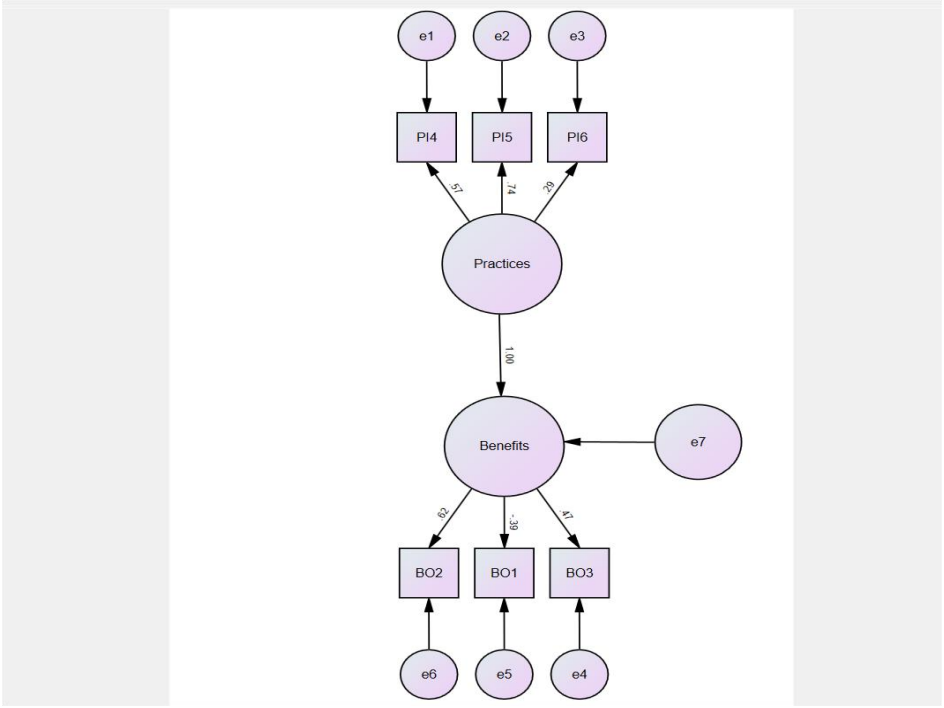
Interpretation:

r=0.481 p-value=0.000 sig at 1%level

It is clear that r=0.481 and the p-value indicates 0.000 with the significance value at 1% (0.001). Since r value is positively correlated, the significance relationship between No of years in operational and percentage aligned for sustainable practices in logistics operations tends to increase. Hence, p-value is lesser than the significance value, the correlation is statistically significant at 1%.

Thus, it is concluded that the Number of years in operational are more likely to integrate sustainable practices in logistics companies. The positive correlation which denotes the importance in implementing sustainable in logistics operations.

FIGURE 4.1 SEM MODEL FOR PRACTICS AND BENEFITS



MODEL FIT SUMMARY FOR PRACTICES AND BENEFITS

TABLE 4.2

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	19	8.946	8	.347	1.118
Saturated model	27	.000	0		
Independencemodel	6	49.246	21	.000	2.345

TABLE 4.3

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.818	.523	.977	.912	.967
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

TABLE 4.4

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.381	.312	.368
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

TABLE 4.5

NCP

Model	NCP	LO 90	HI 90
Default model	.946	.000	12.587
Saturated model	.000	.000	.000
Independence model	28.246	11.507	52.687

TABLE 4.6

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.175	.019	.000	.247
Saturated model	.000	.000	.000	.000
Independence model	.966	.554	.226	1.033

TABLE 4.7

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.048	.000	.176	.441
Independence model	.162	.104	.222	.002

TABLE 4.8

AIC

Model	AIC	BCC	BIC	CAIC
Default model	46.946	52.991		
Saturated model	54.000	62.591		
Independence model	61.246	63.155		

TABLE 4.9

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.921	.902	1.149	1.039
Saturated model	1.059	1.059	1.059	1.227
Independence model	1.201	.873	1.680	1.238

TABLE 4.10

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	89	115
Independence model	34	41

Interpretation:

X^2=1.118 X^2 Tab (DF:2) = 8 p-value:0.05

It is clear that the X^2=1.118 for the default model is 8.946 with 8 degrees of freedom (df), which is in acceptable range. Thus, the model fits the data well and does not show significant discrepancies between the expected and observed covariance structures.

Thus, it is concluded proposed model provides a good fit to the practices and implementation and benefits and outcomes with strong support from CFI (0.967), TLI (0.912), and RMSEA (0.048). Overall, the model is well-structured and reasonably supported by the data.

FINDINGS

Since r value is positively correlated, the significance relationship between no of years in operation and percentage aligned for sustainable practices in logistics operations tends to increase. The CMIN/DF of 1.118 is in acceptable range thus the model fits the given data between Practices and implementation and benefits and outcomes. In Baseline comparisons, the RFI is quite low, indicating for the improvement. In Parsimony-Adjusted Measures PNFI (0.321) and PCFI (0.368) are relatively low, states that the model fits well. Since the NCP value closer to zero indicates a better fit, this suggests a strong model fit. The RMSEA value of 0.048 is below the 0.05, indicates the good model fit. The AIC value of 46.946 for the default model is lower than the independence model, indicates that the proposed model is preferable. The ECVI value of 0.921 which is acceptable range. The Hoelter index states that the sample size is sufficient to support the model's goodness fit.

RECOMMENDATIONS

New Logistics companies should be encouraged to embrace sustainability from the outset through incentives, training programs, and industry partnerships. They should prioritize implementing green logistics practices, such as utilizing energy-efficient warehouses and transitioning to electric or hybrid fleets, to realize significant sustainability gains. To maintain progress, these companies should regularly assess their sustainability performance against industry benchmarks and continuously refine their strategies based on metrics like carbon foot print reduction, fuel efficiency and waste management effectiveness.

CONCLUSION

It concludes that the research on sustainable practices in logistic companies highlights the importance of developing strategies that cater to different company sizes and industry requirements. While company size does not play a significant role in sustainability adoption, firms with more experience in the sector are more likely to implement sustainable practices. The findings also indicate a strong link between sustainability initiatives and operation efficiency, emphasizing the need for logistic companies to adopt green logistics strategies such as energy efficient warehouses and Eco-friendly transportation. Moreover, leveraging digital technologies like AI, IoT and block chain can improve supply chain transparency and reduce waste, further driving sustainability efforts. Ultimately, this study underscores the necessity of a structured, technology-driven, and adaptable approach to sustainability, enabling logistics firms to achieve more efficient and environmentally responsible operations.

REFERENCES

- Diego Delmonico, Barbara Stolte Bezerra (2020), A systematic literature review on sustainable logistics, Latin American of Management for Sustainable Development, Volume 5(1), pp.47
- Mia Su, Mingije Fang, Qiwei Pang, Keun-sik Park (2022), Exploring the role of sustainable logistics service providers in multinational supply chain cooperation: An integrated theory- based perspective, Environmental Economics and Management, Volume 10. https://doi.org/10.3389/fenvs.2022.976211
- Mohanraj, P., & Blessita, A. (2023). A Study on the Perception of Engineering Goods Exporters on Green Supply Chain Practices in Coimbatore District. *International Journal for Research in Engineering Application & Management, 9*(12), 47-53.