Chapter 5
SUMMARY

5.1 Discussion of the Findings

The chapter discusses the research outcomes and the implication of the causal relationship between Lean SCM practices, Green SCM practices and organizational performance. The results are interpreted to fulfill the aim of the research. In the previous chapter, MANCOVA was used to establish the influence of Lean adoption and ISO 14001 certification on Lean SCM practices, Green SCM practices and organizational performance. The framework on the causal relationship between Lean and Green supply chain practices and organizational performance developed was tested using structural equation modelling. The individual relationships and the managerial implication drawn from the analysis are explained in detail in this chapter along the limitations of the study and future opportunities for scholarly research.

5.2 The influence of Lean Adoption and ISO 14001 certification on Lean SCM practices and Green SCM practices

The influence of Lean adoption on Lean SCM practices, Green SCM practices and organizational performance when covaried by ISO 14001 certification was found significant.

Further analysis of the results show that, ISO 14001 certification has a significant influence on all the variables, Lean SCM practices, Green support practices, Green SCM practices and Organizational performance. This is due to the fact that when firms undertake ISO 14001 certification, they imbibe the change in the management practices within the organization and across the supply chain. Hence ISO 14001 certification has proved to have a positive influence on Green support practices, Green
SCM practices and Lean SCM practices implementation and the organisational performance.

5.3 Causal Model: “Causal relationship between Lean and Green SCM practices and Organisational performance”

The SEM model of “Causal relationship between Lean and Green SCM practices and organizational performance” contributes to the body of knowledge in the area of supply chain management.

Each of these areas has important theoretical and managerial implications. All previous studies have focused on either of the two, Lean or Green SCM practices. This is probably the first study to focus on both in manufacturing firms. An integrated model of Lean SCM practices, Green SCM practices and organizational performance with both direct and indirect relationships was formulated. This paves way for the companies to tune up their Lean and Green SCM practices simultaneously. The established causal model clearly traverses the relationships, directions and strength which is discussed in detail in the following section.

The causal model also depicts a positive direct and indirect relationship between Lean SCM practices and Green SCM practices and organizational performance. This clearly provides evidence for the integration of Lean and Green SCM practices with the positive influence on organizational performance.

Firm’s supply chain could integrate these practices and implement them to harvest improved performance.

5.4 Contributions

The finding from the research contributes to the body of knowledge in the area of supply chain management, Lean and Green SCM practices and
organizational performance. Each of these areas has important theoretical and managerial implications. The inclusion of the individual framework for lean and green supply chain management, the operationalization of the constructs and the empirical testing of the variables are attempted in this research.

All previous studies have focused on either of the two Lean or Green practices this is probably the first study to focus on both on manufacturing firms. An attempt has been made to integrate the Lean SCM practices and Green SCM practices as a framework with both direct and indirect relationship forming a causal model.

The research provides a framework of causal relationship between Lean SCM practices, Green SCM practices and Organisational performance. Lean SCM practices can be ascertained by demand management, value addition, product standardization, industry standardization, culture and cross enterprise collaboration. Green SCM practices can be configured by Green inbound practices, green operational practices, green outbound practices and reverse logistics. The link between the individual dimensions can be analysed by future researchers.

The research work is also a first attempt to link the Lean and Green SCM practices and organisational performance. The individual concepts had been widely studied internationally. The research attempts the same in Indian context in a combined format. This paves way for the companies to tune up their SCM with both lean and green practices simultaneously.

The research also proves that environmental performance has a direct and positive impact on firms' financial performance. This provides a great motivation to practitioners to work proactively implement environmental management.
The causal model established clearly traverses the relationships, directions and strength between the constructs. This provides a new avenue in the body of knowledge on SCM, and a direction for future researchers. The knowledge generated through empirical results have wide implications to practitioners and academicians.

The concurrent benefit is its ability to clearly show how Lean and Green SCM practices affects the organisations supply chain management practices and ultimately its bottom line. This in-turn would make these concepts more accessible to supply chain managers and increase their livelihood of becoming key contributors in creating a sustainable supply chain management.

Organisational performance evolves directly from improved Lean and Green SCM practices. This helps organisation to realize the dual benefit of improved environmental and financial performance.

The research ascertains that Green drivers influences Green SCM practices through Green support practices. The addition of Lean SCM practices and its influence on Green SCM practices is particularly important as it is a tremendous effort to incorporate cost reduction and waste elimination tools into the full supply chain to result in higher environmental and financial performance.

By trying to relate lean and green SCM practices the researcher allows the user to see the business impact. This helps bring sustainability out of realm of afterthought and into a strategic piece of supply chain management.

Having validated the model, the Causal relationship between Lean and Green SCM practices framework can be deliberately conceived as a tool to be used by any organisation with a supply chain, specifically interested
in both environmental and financial impact of its operations. However organisations that have already adopted Lean and Green in their supply chain should have little difficulty incorporating this framework with organisation specific adjustments in place.

5.6 Limitation and Recommendation for future research

The causal model suggests to practitioners that implementation of Lean and Green SCM practices as a single entity rather than as separate entities could foster realization of benefits.

Cross sectional surveys limits the research to one point of time assessment. Future study could be a longitudinal study using the framework. The research can be extended to include benefits and problems in implementation of Lean and Green SCM practices. Inclusion of moderating variables could explain the constructs better. Secondary data and qualitative data can also be used to analyze the framework for further generalization. Analysis across industry types and size can be replicated to validate the model. A practical implication for the model could be in planning any supply chain. Food distribution in India is a major concern with growing population and reducing per capita grains. The PDS (public distribution system) poses major challenge from sourcing to distribution. The Causal relationship green and Lean SCM practices could be modified and tested for public systems like food storage and distribution to identify points of deviation and suggest control mechanisms.

The sample is based on manufacturing companies that are only adopting many of these practices from the recent past. The model fitness among more mature adopters in developed countries needs to be investigated.

The research only examines the relationships between Green SCM practices, Lean SCM practices and Organisational performance. Further analysis can incorporate other variables. Antecedents to lean adoption and
ISO 14001 certification, barriers to implementation of Lean and Green SCM practices are some of the few areas for future research.

Only environmental and economic performance of the Lean and Green SCM practices were ascertained. Other aspects such as operational performance could be ascertained.

5.7 Conclusion

The research identifies government regulations and export markets as the prime drivers for green initiatives by manufacturers. Green support practices were found prominent and had a direct and positive influence on Green SCM practices. Green operational practices and Green outbound practices were highly adopted by the industries than Green inbound practices and reverse logistics. Green SCM practices have significantly high positive and direct influence on Organisational performance. Assimilation of Lean principles was found to be in early stages among majority of the respondents. Lean culture and Process standardization were prominently cited in majority of the manufacturing firms.

The influence of Lean adoption on Lean SCM practices, Green SCM practices and Organisational performance in the presence of ISO 14001 certification signals that it is the prime time for Lean and Green Thinking to be integrated into the supply chain.

The validation of the causal relationship between Green Drivers, Green support practices, Green SCM practices and Lean SCM practices on Organisational performance has the proof of advantage for integrating Lean and Green SCM practices towards organizational performance.