

**EFFECT OF ECONOMIC AND SOCIAL ASPECTS IN
SUSTAINABLE SUPPLY CHAIN MANAGEMENT IN
APPAREL INDUSTRY**

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Degree of Master of Science

Department of Transport and Logistics Management

University of Moratuwa

Sri Lanka

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Thesis submitted in partial fulfillment of the requirements for the degree Master of
Science in Supply Chain Management

Department of Transport and Logistics Management

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Sri Lanka

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ABSTRACT

Apparel industry being a labor sensitive arena in the global market, the social sustainability conscious global consumers are demanding for transparency along the global apparel supply chain. Meanwhile, the outsourced apparel manufacturing in developing countries such as Sri Lanka, Bangladesh along with other local manufacturers are seeking for economic improvements despite the attention towards sustainability practices. However, the social sustainability practices resulting in improved economic performance is an under investigated arena both in the operational and research level. Hence this research fills the gap of exploring the effect of social sustainability on the economic sustainability of the apparel supply chain.

The inputs from industry experts were gathered and analyzed while initiating to develop a common framework for social sustainability and economic sustainability dimensions under the Global Goals (UN SDGs). Further, a survey was conducted in order to understand the socially and economically sustainable practices in the Sri Lankan apparel supply chain. Finally, the relationship between social and economic sustainability dimension was explored using Partial Least Square Structural Equation Modelling (PLS SEM) technique.

The best social sustainability performance was well reflected by the actions of exporting apparel manufacturers compared to the local apparel manufacturers. However, it was revealed that the social sustainability practices are resulting in the economic performance improvements of the apparel manufacturers in the Sri Lankan context.

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LIST OF ABBREVIATIONS

SCM	Supply Chain Management
SSCM	Sustainable Supply Chain Management
3BL/ TBL	Triple Bottom Line
UNWCED	United Nations World Commission on Environment and Development
MDG	Millennium Development Goals
SDG	Sustainable Development Goals
GRI	Global Reporting Initiative
UN	United Nations
WBCSD	World Business Council for Sustainable Development
GSCM	Green Supply Chain Management
ECSC	Environmentally Conscious Supply Chain
ESC	Environmental Supply Chain
IT	Information Technology
LCA	Life Cycle Assessment
ECD	Environmental Conscious Design

1. INTRODUCTION

This chapter introduces the Sustainable Supply Chain Management (SSCM) arena along with the different dimensions in the SSCM.

1.1. Background

Application of sustainability concept in the supply chain has widely become a major topic among the scholars in the supply chain management field. In order to perform better and survive in the long run, companies are paying their attention to manage different dimensions coming under SSCM somehow. According to Danish Fashion Institute (2013), fashion and textiles is the second most polluting industry in the world.

Embuldeniya (2015) shows that the apparel industry creates a high impact on the economy of Sri Lanka. Further as the apparel industry in Sri Lanka provides jobs for a significant number of women (Gurusinghe, 2012), the apparel industry is one of the most suitable research avenues in order to understand the interrelationship between the social and economic dimension as suggested by Seuring (2013).

1.1.1. Supply Chain Management (SCM)

The Supply Chain Management (SCM) concept initiated in 1980s covers the whole physical process beginning from the gathering of raw material until the final product is manufactured, and the product is delivered to the end consumer, along with the flow of the information (Tay, Rahman, Aziz, & Sidek, 2015). Further as Tay et al., (2015) exposes, in order to satisfy the end consumer needs, many of the supply chains have engaged other individual companies. As they further elaborate on this fact, therefore transporting companies, warehousing people, retailers and customers are a part of the supply chain, other than the manufacturer and suppliers. As per a comparative literature analysis done by Ahi and Searcy (2013), the key characteristics of SCM can be pointed out as flow focus, coordination focus, stakeholder focus, relationship focus, value focus, efficiency focus, and performance focus.

1.1.2. Sustainability in Supply Chain Management

Sustainable Supply Chain Management (SSCM) needs to be an enhanced version of SCM which focus on the environmental, social and economic dimensions in the academic aspect and real world business (Göran Svensson, 2014). These three aspects of sustainability are interrelated and interdependent (Gopalakrishnan, Yusuf, Musa, Abubakar, & Ambursa, 2012). The literature review by Walker (2015) reveals that the 3BL (Triple Bottom Line) is a vastly used term in the literature to understand the concept of SSCM and helps to categorize the different dimensions in the sustainability as economic, social, environmental and integrated. But as Carter and Easton (2011) discusses the evolution of SSCM, when sustainability was a new concept in the SCM arena, both researchers and managers have used the words, “sustainability” and “environment” conversely. But as they elaborate, later these people have understood the difference and now consider that the term “sustainability” comes under the triple bottom line concept.

Further SSCM helps to improve the economic bottom line of any organization in the long term existence and provide answers to the managers regarding the future of the company in order to prosper for a longer period and make them actively participate in the process to make it a reality (Carter & Easton, 2011). Therefore, SSCM is a booming area (Walker, 2015).

1.1.3. Social Sustainability Dimension in SSCM

Walker (2015) elaborates a relationship among the dimensions of the sustainability. As per their discussion, the society exists with an environment and therefore the social dimension lies within the environmental aspect. On the other hand, as an economy arises within a society, the economic aspect lies within the social dimension. This shows why it is important to investigate the interrelation between social and economic dimensions as they are inter connected as shown in the Figure 1.1.

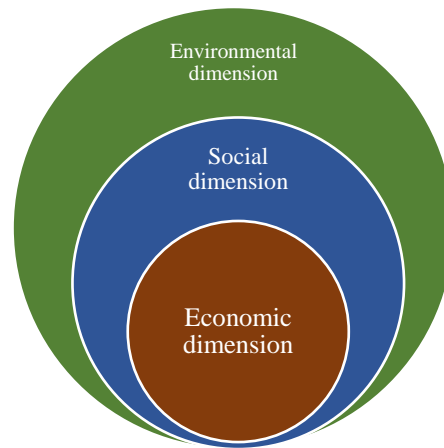


Figure 1.1. Relationship between sustainability dimensions

1.1.4. Economic Sustainability Dimension in SSCM

The economic dimension is considered as “profit making and attaining and sustaining competitive advantage through sustainability” in triple bottom line (Gopalakrishnan et al., 2012). When a product is designed, the manufacturers should be considerate not only about the environmental aspect, but also the economic aspect of sustainability throughout the supply chain (Kremer et al., 2016). Therefore, economic dimension is an important aspect to consider in the apparel industry.

1.1.5. Apparel Industry in Sri Lanka

The Industry Capability Report prepared by Export Development Board - Sri Lanka in 2012 defines apparel industry in categories such as “sportswear, lingerie, lounge wear, bridal wear, work wear, swimwear and children’s wear, etc.” As they further mention Sri Lankan apparel industry has won the name as “the world's number one ethical apparel sourcing destination”. As a result, Sri Lanka is a renowned apparel manufacturer in the global context.

1.2. Research Gap

Seuring (2013) revealed that there is a necessity of the integration of social dimensions with the environmental and economic dimensions. As a result, this research is conducted with the amalgamation of the two aspects of SSCM, i.e. social and economic.

Further they suggested that an in-depth analysis needs to be done in order to understand how social performance impact supply chain performance. Moreover, they emphasized that the models developed so far have considered the “trade-offs among the environmental and the economic dimensions”. Therefore, considering this relationship between social and economic aspect will also give opportunities to new models to rise.

As Govindan et al. (2016) stressed out in their research, research needs to be conducted in low income countries who are facing the sustainability issues urgently. This point was further proven by Silvestre (2015) as they claimed that still there is an opportunity for research to be conducted on how the focal companies in emerging economies can implement sustainability approach successfully in their supply chains. Therefore, this research is more suitable to be conducted in a developing country like Sri Lanka.

As Silvestre (2015) highlighted the strategy of managing and implementing of sustainable supply chain is “context-specific issues”. As it further pointed out the difficulty of “theoretical, managerial and policy generalizations” to achieve sustainable supply chains. He also insisted on conducting research on practical examples where the implementation of sustainability in the supply chain of different industries in different countries is a success. Since the apparel sector in Sri Lanka has taken some turning points in their processes to successfully implement sustainability during the last few years (Lanka & Development, 2014) this is a good area to be researched.

1.3. Problem Statement

Social and economic sustainability dimensions in the sustainable supply chain have been touched sparsely in the literature of SSCM. Further, their relationship has not been understood properly. With this research, the inter relations between these two dimensions explored while looking deep into each dimension under the guidance of an independent framework.

1.4. Research Objectives and Research Questions

Following are the Research Objectives explored in this research.

1. To identify the metrics of social sustainability dimensions related to apparel supply chain
2. To identify the metrics of economic sustainability dimensions related to apparel supply chain
3. To identify the most commonly used metrics related to social and economic dimensions in apparel supply chain
4. To identify the interrelation between social and economic sustainability in apparel supply chain

And following are the research questions addressed in this study.

- What are the metrics of social sustainability dimensions related to apparel supply chain?
- What are the metrics of economic sustainability dimensions related to apparel supply chain?
- What are the most commonly used metrics related to social and economic dimensions in apparel supply chain?
- What is the interrelation between social and economic sustainability in apparel supply chain?

1.5. Overview of the Thesis

This thesis consists of eight chapters including an introduction, literature review, research methodology, research analysis and discussion and conclusion. Following is an introduction to the content of each chapter.

The first chapter gives an overview, including the purpose of the research, its importance and its contribution towards filling the knowledge gap that exists in the area of social and economic sustainability dimensions of the SSCM. This chapter also describes the scope of the research.

The second chapter explains the literature around the research area which has also been used in understanding the social and economic sustainability dimensions. A Literature review was carried out understand the SSCM arena and apparel supply chain while understanding the UN SDGs and their impact on the supply chains which will give the

reader a comprehensive understanding of the current findings in the scope of this research.

The third chapter explains the methodology adopted for conducting qualitative and quantitative data collection and analysis in relation to the current study.

The fourth chapter gives a clear idea of the conceptual framework development based on the qualitative data analysis in Phase 1. These findings were used in developing the survey questionnaire in the Phase 2.

The fifth chapter aims to quantitatively analyze the social and economic sustainability dimensions of the apparel supply chain. Further, PLS-SEM method was used in this chapter to explore the relationship between social and economic sustainability dimensions.

Chapter six and seven include the summary of the findings, conclusions, and recommendations. They also provide information on the limitations of the study, and suggestions and recommendations for future research.

2. LITERATURE REVIEW

This chapter discusses the progress of the integration between sustainable development and the supply chain management over the years and explores the areas that have been studied so far in the sustainable supply chain management arena. Further this chapter looks deep into each sustainability dimension of the supply chain and apparel industry.

2.1. Sustainable Development

Sustainability has played a major role since the introduction of “sustainable development” concept in the Burtland Report “Our Common Future” published in 1987. UNWCED (1987) has defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This definition focuses on two concepts;

- “the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given;” and
- “the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs” (UNWCED, 1987, p. 41).

Over the years, different approaches have been initiated by different leading researchers and organizations surrounding the concept of sustainable development to make the world aware of the concept. Following are two of the many approaches which are popular in the sustainability domain.

2.1.1. The Triple Bottom Line

Carter & Rogers (2008) discussed the three components in sustainability as “natural environment, society and economic performance” in aligning with the concept called “Triple Bottom Line” developed by Elkington (1998, 2004). Further, “the triple bottom line” concept illustrated the balance between the above three components “from a microeconomic standpoint”. Moreover, this model suggests that if a company engages in the activities at the intersection of these three elements, they can achieve long lasting economic benefits along with competitive advantage.

2.1.2. United Nation’s Approach towards Sustainable Development

United Nations is committed to making sure the sustainable development of the world. As a result, they are coming up with different approaches evolving over the years.

2.1.2.1. Millennium Development Goals (MDGs)

United Nations developed Millennium Development Goals (MDGs) in 2000 understanding the challenges faced by the world (McArthur, 2014). Figure 2.1 depicts the eight MDGs.



Figure 2.1. Millennium Development Goals (MDGs)

Source: United Nations

Once the MDGs reached their deadline in 2015, United Nations introduced Sustainable Development Goals (SDGs) as an extended version identifying the challenges faced by the modern world.

2.1.2.2. United Nations Sustainable Development Goals (UN SDGs)

In 2015, 194 governments, businesses, and civil society together with the United Nations started to mobilize efforts to achieve the Sustainable Development Agenda by 2030 under the theme “Transforming our world: the 2030 Agenda for Sustainable Development”. Figure 2.2 and Table 2.1 depict the 17 goals named as UN SDGs.



Figure 2.2. UN SDGs

Source: United Nations

Table 2.1. UN SDGs

Goal	Description
Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable, and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts*
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal	Description
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

Source: United Nations

Each UN SDG has been defined in a manner to balance among social, economic and environmental sustainability dimensions, however still certain SDGs are biased towards one or two dimensions (Cutter, Osborn, Romano, & Ullah, 2015). Therefore, amendments can be arranged to achieve the equilibrium among the 3 dimensions relating to each goal.

When UN SDGs touch the sustainability dimension in a global context, it is important to understand the role of companies within the UN SDGs. That's where SDG Compass comes into play as a result of the collaboration between GRI (Global Reporting Initiatives), the UN Global Compact and the World Business Council for Sustainable Development (WBCSD). Further SDG Compass provides guidance for companies to align their strategies while measuring and managing their contribution to the realization of the SDGs (GRI, UN Global Compact, & WBCSD, 2015). Additionally, SDG Compass maintains a database of business indicators in their online platform aiding companies to measure and report their contribution in achieving UN SDGs as a business. These business indicators have also been categorized into "key business themes" extending over all the business indicators derived from well-known performance indicator sources such as different sector disclosures in GRI.

2.2. Sustainable Supply Chain Management

Sustainable development concepts can be linked to the supply chain operations to ensure the application of multi-dimensions of sustainability in the business context.

2.2.1. Evolution of SSCM

Linton, Klassen, & Jayaraman (2007) discussed how sustainability is linked to supply chain from a hawk eye view. Sustainability is an inter-disciplinary concept; however, it has deeper connections with both physical and social sciences. As they further elaborated these sciences interact with different activities in the natural environment and leads in upbringing different policies to interpret and manage these integrations. Additionally, if a policy is changed, then the operations in the supply chain also need to be adjusted to match the policy. Because of these modifications in the policies, the environment where companies are performing also gets transformed. Therefore, Linton et al. (2007) pointed out that the companies come up with new strategies such as remanufacturing and reverse supply chain to align with policy changes. These changes further make companies bring up new production and management techniques. On the other hand, when the research and practices in supply chain lead to more sustainable approaches, they further emphasized the necessity of adjusting the policies to match with these new requirements. Therefore, sustainability is a potent weapon which can broaden the concept of supply chain management to optimize the operations.

Since the supply chain covers all the processes starting from the initial processing of raw material until delivering the final product to end consumer, the concept of sustainability is embedded along the supply chain rather than it being a separate concept. Linton et al., (2007, p. 1078) further suggested that sustainability needs to be incorporated further with other issues beyond supply chain operations such as “product design, manufacturing by-products, by-products produced during product use, product life extension, product end-of-life, and recovery processes at end-of-life”. However, since supply chain has expanded over the years to areas such as “remanufacturing, recycling, and refurbishing”, the concept of sustainability of SCM also has been evolved by adding complexity to the design of the supply chain. According to research, this situation has increased costs even in the short run. Further, concepts such as reverse logistics have been evolved over the years under these SSCM concepts as well (Sarkis, Helms, & Hervani, 2010).

Craig R., Carter, & Easton (2011) carried out a systematic literature review reflecting the evolution of the SSCM concepts over 20 years (from 1991 to June 2010) and highlighted that at the early stage of applying SSCM concepts, companies have managed their social and environmental issues separately. Later, they have come to understand the concepts such as “social responsibility” and “sustainability”.

2.2.2. Definitions of SSCM

Gopalakrishnan et al. (2012) pointed out that the definition of sustainable development in UNWCED (1987) does not provide a clear direction to build the concept of Sustainable Supply Chain Management. Carter & Rogers (2008) pointed out that there are no big differences among the definitions published on sustainability since they contemplated either environmental or economic dimension. Even the concept of CSR (Corporate Social Responsibility) was regarded as an intersection of social and environmental dimensions. Therefore, the concept of sustainability was defined more and more as an integration of social, economic and ecological responsibilities and now becoming a part of management and operations in the business arena (Carter and Rogers, 2008).

Carter & Rogers (2008, p. 368) defined SSCM as “the strategic, transparent integration and achievement of an organization’s social, environmental, and economic goals in the systemic coordination of key inter organizational business processes for improving the long-term economic performance of the individual company and its supply chains”. Further this definition is based on the concept of Triple Bottom Line and four other facades namely, “risk management, transparency, strategy, and culture”. This definition is further elaborated using their following framework in Figure 2.3.

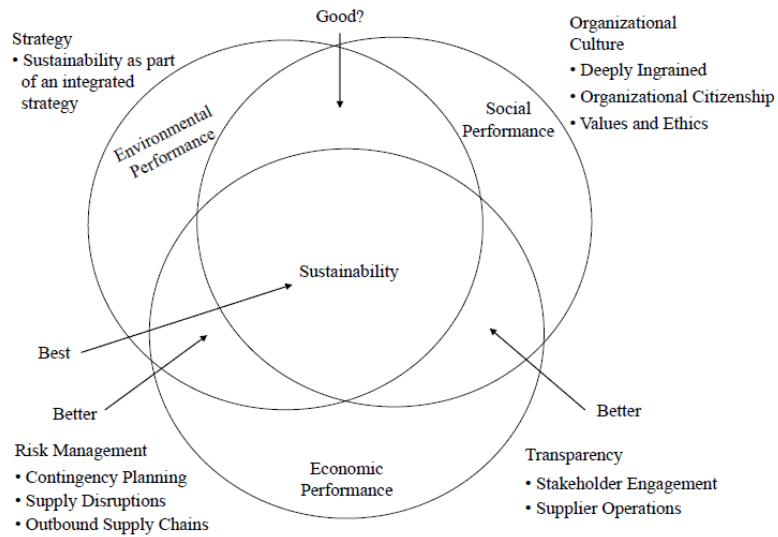


Figure 2.3. Sustainable Supply Chain Management

Source: (Carter & Rogers, 2008)

According to Carter & Roger (2008), when integrating environment and social aspects, it was questionable whether “good” performance can be achieved. However, the “best” performance is achieved at the intersection point where all the three bottom lines are concerned, and a true sustainability can be achieved at this point. At this intersection, companies tend to create their strategic vision and long-term goals incorporating social, environmental, and economic aspects broadly. They also suggested integrating the environmental and social dimensions with economic aspects while broadening the horizons relating to environmental and social sustainability dimensions by looking into supply chain activities rather than limiting to a focal company. Therefore, with this integration, companies can create enduring and hardly imitable processes in the supply chains.

Touboulic and Walker (2015) conducted a literature review on the definitions of SSCM and proclaimed that definitions prior to the year 2000 do not provide a definition that matches with SSCM, rather a definition on SCM and environmental aspect as a separate dimension. They have not indicated anything about GSCM or any other integrated concept. Literature shows that a clear and precise definition for SSCM by considering multidimensional aspects provides only from 2001 onwards. Further different authors have taken different approaches when defining SSCM. For example,

some have adopted “a procurement/purchasing perspective vs. a supply chain perspective”. They have found out that most recent definitions have integrated the concept of sustainability along with the concept of Triple Bottom Line (3BL). These definitions are looking at the big picture rather than concentrating on a single dimension of sustainability as “green” or “social”. Accordingly, they further elaborated, the latest definitions including the concept of “pressures from external stakeholders” and considered that SSCM has expanded beyond its traditional boundaries while being conscious about economic performance. According to these authors, when SSCM is defined from an operational perspective, the basis of SSCM consists of “both internal and external business processes” while all the members in the supply chain are being collaborated.

Figure 2.4 shows the evolution of the SSCM based on the structured literature review of (Touboulic & Walker, 2015).

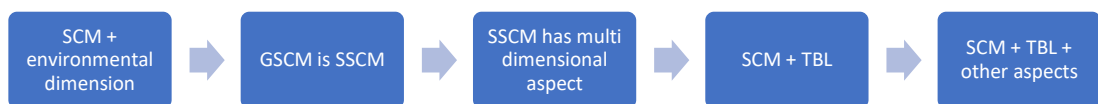


Figure 2.4. Evolution of the SSCM

Source: Developed by Author

2.2.3. Industries

Carter and Liane Easton (2011) explored the industries covered in the SSCM literature. The major industries such as Automotive, Consumer products, Food and beverage and Transportation has widely carried out research in the SSCM field during 1991- 2010. Some studies have considered more than one industry i.e. “multi industry” as well which won the highest proportion of all research, mainly due to the easiness in collecting data and generalizing the findings.

2.2.4. Drivers of SSCM

Dubey et al. (2016) identified 12 drivers of SSCM after conducting a systematic literature review. This includes;

- Green warehousing

- Strategic supplier collaboration
- Environment conservation
- Continuous improvement
- Enabling information technologies
- Logistics optimization
- Internal pressures
- Institutional pressures
- Social values & ethics
- Corporate strategy & commitment
- Economic stability
- Green product design

When the inter-relationships among these drivers were considered, “internal pressures” was considered as the main factor to make environmental conservation a reality, while environmental conservation is further achieved through green operations which is a combination of green technology and design. Further these green technologies improve brand image and brand equity along with green product design, warehousing and logistics which lead to a stable and profitable economy by strengthening the future of the company.

Seuring and Muller (2008) have conducted a literature review on SSCM using 191 research papers published during 1994-2007 and found out the “triggers for SSCM”. According to them, the stakeholders i.e. mainly customers, government and other stakeholders created external pressure and incentives to the focal company. Especially the pressure from customers is considered as a powerful factor since the customer is the ultimate decision maker on purchasing the product. On the other hand, the government can bring an immense pressure to the company as the regulator. They further categorized these pressures and incentives as “legal demands/regulation, response to stakeholders, competitive advantage, customer demands, reputation loss, and environmental and social pressure groups”. Once the focal company is under the pressure to be sustainable, they usually passed the risk to their suppliers on the upstream supply chain. To obtain the best results from sustainable practices, the focal

company has to consider operations of the entire upstream supply chain to make it a sustainable supply chain rather than passing the risk to its partners. According to literature, research shows that companies can use two types of strategies to ensure the sustainability of the supply chain:

- Supplier management for risks and performance
- supply chain management for sustainable products

With implementing “Supplier management for risks and performance” strategy, the focal company can further ask the suppliers to adhere with certain environmental and social regulations which are already existing in the system (e.g. ISO 14001, SA 8000) especially in industries such as textile and apparel. Further there are companies who have introduced “supplier evaluation schemes” where suppliers declare how they meet the social and environmental requirements in order to tackle the above-mentioned pressures and incentives. With this approach, supplier management risk is reduced while improving the overall supply chain performance.

The other strategy is “supply chain management for sustainable products”. Seuring and Muller (2008) defined sustainable products as “all kinds of products that have or aim at an improved environmental and social quality, which can be related back to the implementation of environmental and social standards. In order to identify the product related specifications, they pointed out that majority of the scholars have considered “life cycle assessment”. Further, supplier collaboration is also very important in order to accomplish this strategy.

Seuring and Muller (2008) explored current literature to identify the existing barriers to the implementation of SSCM. Three aspects have been mentioned very frequently in many research publications which includes, “higher costs, coordination effort and complexity, and insufficient or missing communication in the supply chain”. They have further found out that factors such as “Company-overlapping communication, Management systems (e.g., ISO 14001, SA 8000), Monitoring, Evaluation, Reporting sanctions, Training education of purchasing employees and suppliers and integration into the corporate policy” support the application of SSCM concepts in the supply chain operations of the companies.

Additionally, Abbasi & Nilsson (2012a) figured out costs, complexity, operationalization, uncertainties and mindset and cultural challenges as “five main areas of challenges facing sustainable supply chains”.

2.2.5. Theories in SSCM

Touboulic and Walker (2015) indicated that majority of the theories in SSCM have a macro perspective, where they are mainly considering organizational and strategic view, rather than “individual and behavioral perspective”. Accordingly, the mostly used theories in the literature are “Resource Based View (RBV) Theory”, “Non-Resource Based View Theory”, “Stakeholder Theory”, “Institutional Theory” and “Transaction Cost Theory”. Carter and Liane Easton (2011) also found out similar concepts from the literature review carried out during the period of 1991-2010. However, at the same time, they found out that a major proportion of research has not considered any theory in their research.

Touboulic and Walker (2015) have analyzed these theories and realized that the RBV theory advocates that “competitive advantage can be gained through unique sustainability-related competencies in their supply chains”. Both stakeholder and institutional theories have been used in research papers when they are focusing on “exploring drivers and enablers of SSCM and the challenges it poses”. Further, they highlighted the development of SSCM due to the impact from the related parties in the business.

Touboulic and Walker (2015) further illustrated the following theories used by many scholars in the SSCM arena.

- Resource dependence theory
- Dynamic capabilities
- Relational theory
- Network theory
- Agency theory
- Global value chain
- Systems theory

- Contingency theory
- Actor network theory
- Complexity theory
- Ecological modernization theory
- Ethical climate theory
- Ethical theory
- Exchange theory
- Industrial network theory
- Legitimacy theory
- Organizational learning theory
- Population ecology
- Resource advantage theory
- Social network theory
- Structuration theory

As they studied deeper, they have found out that there is a trend of using theories from other disciplines as well. Moreover, there is an emerging trend for developing new theories in SSCM.

2.2.6. Modelling Techniques in SSCM

Seuring (2013) reviewed more than 300 research papers published in SSCM, and only 36 studies have used a quantitative approach. However, interestingly social sustainability dimension has not been considered when developing these models rather the environmental dimension focusing on life-cycle assessment and impact criteria.

2.3. Environmental Sustainability Dimension in SSCM

Since GSCM gained the attention there are many research studies carried out in this area. As this is a vast area, only the literature review related to GSCM is considered in this topic.

Wang (2014) defined GSC as “environmentally conscious supply chain (ECSC) or environmental supply chain (ESC)” which is based on “green manufacturing theory” and supply chain management, considering “the environmental impact and resource

efficiency into an integrated supply chain”. As they further elaborated on GSCM, it tried to manage the impact or mitigate the negative effect created by both the supply chain and its members on the environment.

Since the late 1980s and early 1990s, companies’ attention over GSCM has been increased in order to use this as a strategic concept in the organizational management in order to gain the competitive advantage (Fahimnia, Sarkis, & Davarzani, 2015). Further, according to Min and Kim (2012) cost savings, improved market shares and glowing brand image also have been other reasons for companies to use GSCM as a strategy. They further highlighted that this trend has stimulated the scholars to initiate their research careers on GSCM focusing on different activities in the supply chain as “acquiring, storing, handling, and recovering virgin or recycled materials”.

Although there are more than enough literature on GSCM, still they have a limited focus and narrow perspective (Wang, 2014). Further Abbasi & Nilsson, (2012a) stressed that majority of the research focused on the greenness of upstream SCs. Therefore, they pointed out the opportunity available for research focusing on downstream SC based on “consumer demand and behavior, distribution, etc.”

2.3.1. Definitions

Ahi and Searcy (2013) presented various definitions for GSCM through a comprehensive literature review. One of such popular definition for GSCM was “an incorporation of environment-friendly initiatives into every aspect of supply chain activities encompassing sourcing, product design and development, manufacturing, transportation, packaging, storage, retrieval, disposal, and post sales services including end-of-product life management”(Min & Kim, 2012). Many articles address the managerial aspect of GSCM such as “assessment, measurement, monitoring, analysis and evaluation of environmental and sustainable activities” (Abbasi & Nilsson, 2012). Therefore, green initiatives such as “company-wide environmental guidelines/policy compliance with environmental regulations and standards (e.g., ISO 14000), supplier certification and selection based on its commitment to sustainability, use of renewable energy (e.g., sunlight, wind, rain, and geothermal heat), use of biofuels, use of degradable or compostable packages and environmental performance monitoring” are

the highly-considered practices among the companies (Min & Kim, 2012). As GSCM has a long history in the research arena, the majority of the metrics in the field of SSCM is represented by GSCM (Ahi & Searcy, 2015a).

2.3.2. Factors Affecting GSCM

According to Luthra et al., (2014), there are many practices enabling GSCM such as “regulations, environment management systems adoption, top management commitment, supplier management, organization involvement and encouragement, customers’ involvement, social perspective, IT enablement; technology advancement”. Further, they pointed out “Environment management systems and top management commitment” as leading enablers in GSCM implementation. Further “lack of commitment by the top management” has been identified as the “most repetitive barrier to implement GSCM practices” in their research.

The external factors such as “customer pressures, regulatory pressures, government supports, and environmental uncertainty” play a major role affecting implementation of the GSCM (Kuei, Madu, Chow, & Chen, 2015) and the cost is the prime issue when implementing GSCM (Abbasi & Nilsson, 2012).

Kuei et al. (2015) have identified the factors affecting GSCM on upstream, downstream and internal organizational levels. With respect to logistic operations on upstream SC, “compatibility, customer and regulatory pressures” are important for “organizational performance”. On the other hand, “organizational and governmental support” is crucial to increase the efficiency and effectiveness of the downstream SC. However, for both upstream and downstream supply chains “the lack of understanding and learning of green practices are the key barriers to implementing green practices”. Mathiyazhagan, Diabat, Al-Refaie, & Xu (2015) explored the factors affecting on pressure and implement GSCM in mining and mineral industry in India. Their findings show that “Pressure from Non-governmental organizations (NGOs) for environmentally friendly products” is the main factor affecting the mineral industry. Laari, Toyli, Solakivi, & Ojala, (2016) explored the internal GSCM practices and found out that “customer requirements” is an important factor to improve these internal practices. Further this research highlighted how to meet with customer requirement by

collaborating with the suppliers and monitoring their environmental performances while manufacturer makes sure that they meet with the customer requirement in the field of environmental sustainability.

2.3.3. Functions in GSCM

Many research studies found out that they address the environmental issues and consider majorly on GSCM practices (Rakesh Kumar Malviya & Kant, 2015). Environmentally sustainable SCs deal with many activities, policies and strategies (Abbasi & Nilsson, 2012). Sarkis (2012) identified the activities in GSCM which can be categorized under upstream, downstream and internal organizational functions as illustrated below

2.3.4. Upstream SC in GSCM

Sarkis (2012) elaborated, operational activities mainly related to purchasing and procurement come under upstream SC in GSCM (e.g. “outsourcing, vendor auditing, management and selection, supplier collaboration and supplier development”). Further transportation and movement of materials were also considered as a part of the upstream operation. They further indicated, all these activities can be expanded to meet the environmental sustainability while considering the strategic dimension of the companies. They also pointed out the importance of building a supplier network relating to the inbound logistics and managing beyond the first-tier suppliers which ultimately lead to the strategic aspects.

2.3.5. Internal Organizational SC in GSCM

Sarkis (2012) pointed out that the activities coming under traditional production and other operations are considered as internal organizational SC (e.g. “research and design, quality, inventory, materials, and technology management”). In GSCM how each of this activity can create impact on the environmental dimension is taken into consideration. Still these activities may vary based on whether the company is a manufacturer or a service provider.

2.3.6. Downstream SC in GSCM

According to Sarkis (2012), downstream GSCM dealt with the customers who are at the end of the supply chain who can be either “commercial” or “individual consumers”. This includes activities such as “outbound logistics and transportation, marketing, distribution, packaging, and warehousing”. In the supply chain, a great pressure is imposed by these people asking to improve the environmental performance of these activities which induce the upstream supply chain as well.

Luthra et al. (2016) pointed out that “green design, green purchasing, green production, green management, green marketing, green logistics” as major practices related to environmental sustainability in SCM. While supporting this argument, Wang (2014) identified additional practices such as “green remanufacturing”, “reverse logistics”, “green recycling” and “waste management”. Adding more practices to literature, Luthra et al. (2014) pointed out that “green product development” and “green process planning” as few other areas that required more attention.

Green design practices discussed in literature are mainly based on “life cycle assessment (LCA)” which is “a process for assessing and evaluating the environmental, occupational health and resource related consequences of a product through all phases of its life” and “environmental conscious design (ECD)” approaches (Wang, 2014). These green design practices depend on different factors such as “Internal Management, Customer Management and Supplier Management” (Luthra et al., 2016).

Green procurement is considered as the starting point of greening the supply chain as most of the activities related to this function are mostly happening outside the focal firm (Wang, 2014). “Regulatory and supplier management” also positively impact on the practices of green purchasing (Luthra et al., 2016).

Wang (2014) augured that reverse logistics activities such as “collection, transportation, inspection/sorting, storage, reprocessing (including recycling, reusing, repairing/refurbishing, etc.), and/or disposal” are common for any type of business unit. GSCM addresses these activities as well when they call an environmentally

supply chain. Further (Min & Kim, 2012) provided enough evidence to prove that reverse logistics is the most popular area amongst scholars in GSCM.

2.3.7. Industries and Countries

The manufacturing industry is the highly researched area in GSCM and automobile industry and electrical/ electronic industry are the majorly research focused areas (Luthra et al., 2014). On the other hand, industries such as fashion, food and beverage, logistics, textile and apparel comprising with small to medium-sized enterprises were also researched by various scholars (Rakesh Kumar Malviya & Kant, 2015).

Almost all the countries are now focusing on implementing GSCM in all types of industries (Mathiyazhagan et al., 2015). Rakesh Kumar Malviya and Kant (2015) have identified that even though many developed and developing countries (such as China, USA, UK, Australia, Canada, Germany, India, Turkey, Italy, the Netherlands, Denmark, Iran, Korea), Taiwan is the leading country that focuses on implementing GSCM practices. It was further found that most of research studies on GSCM are actually carried out in Asia, closely followed by those in the UK and USA, then Europe. They further emphasized the importance of conducting GSCM related research in developing countries because majority of the multi-national companies located their production plants in these new markets. This fact is further proven by Luthra et al., (2014).

2.3.8. Impact on Other Areas

Laari et al., (2016) entailed that when GSCM collaborates with the customer, financial performance of company can be improved efficiently and it is further proved by Rao and Holt (2005) showing how green supply chains help companies to reduce costs significantly, while enhancing sales and market share and giving more opportunities to explore new markets to earn more profits which ultimately affected the economic performance of the company. Further, they suggested that such collaboration among the greening of different functions in the supply chain may also lead to increase the competitiveness of the organization.

“e-waste in IT industry, disposal of hazardous waste in chemical industry, optimization of routes and alternative green fuels in logistic industry, disposal of ash and air pollution in thermal power generating industry, recyclability of tins and waste in food industry, cutting of trees for furniture industry and non-degradable dies in textile industry” have been suggested by Luthra et al., (2014, p. 33), as future areas to be researched further in GSCM arena.

2.4. Social Sustainability Dimension in SSCM

GSCM definitions do not provide any information regarding social issues in the supply chain (Ahi & Searcy, 2013). Most of the research in SSCM area mainly focused on the environmental dimension, compared to social dimension (Ashby, A., Leat, M., Hudson-Smith, 2012; Venkatesh Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey, 2016b; Tay et al., 2015; Walker, 2015). Seuring (2013) further revealed that the social dimension of SSCM has either extensively neglected or “interpreted in an unusual manner”. Even the economic dimension has been researched more than the social dimension (Venkatesh Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey, 2016a). Walker (2015) especially pointed out that a high fraction of the articles published during 2010 and 2013 focused on "green and mix sustainability issues", compared to social issues. Even the research papers that focused on social dimension pay their attention to a single aspect of the dimension, rather than looking at the big picture (Ashby, A., Leat, M., Hudson-Smith, 2012). Further when compared to economic and environmental aspects, social dimension is the most difficult dimension to quantify due to the nature of the impact it creates (Tay et al., 2015).

Narayanamurthy (2015) discussed the social dimension of sustainability. He mentioned that “social responsibility” goes beyond earning profits to satisfy the shareholders. Under this concept, the organization is responsible to the society at large. He further discussed that still only a few companies have understood their responsibility and role on improving performance on social aspects when doing the business. Many companies still neglect social aspect due to the novelty of the concept and their perception towards social sustainability dimension where they think it is merely another path to earn an additional profit to the company.

Social dimension in SSCM has two aspects including the individual aspect and organizational aspect (Marc Winter A. Michael Knemeyer, 2014). According to Mani et al. (2015), social sustainability can be considered as social interactions such as “inequality, gender discrimination, poverty, diversity, wages and education”. These aspects can differ from one country to another. They further demonstrated that the literature published for the past two decades identified “health and safety, child and bonded labor, living conditions, housing and equity problems” as areas mostly attracted issues of the social dimension in SSCM.

Ahi and Searcy (2015) identified the measures related to social sustainability. Issues related to safety, welfare and community are the performance indicators found through a comprehensive literature review and they have found 53 unique metrics. All these metrics identified through a systematic literature review were categorized as “quantitative vs. qualitative metrics” and “absolute, relative or context- based metrics”. “Health and safety incidents” is identified as the most frequently used metrics is. This research further proved that measuring social sustainability dimension is difficult by showing that a higher number of metrics reported are qualitative. Therefore, measuring social dimension is still at a very primitive stage and the existing examples are also limited. Further certain scholars tried to build new performance metrics in order to add value to this booming area. When they searched for performance indicators in the social sustainability dimension, they witnessed that the same metric has been defined in different ways. For example, the “health and safety” related dimensions identified using different terminologies such as “health and safety practices”, “health and safety incidents”, “worker health and safety” etc. Therefore, research shows that there is a necessity of developing a common terminology. As a result, Ahi and Searcy (2015) pointed out the importance of carrying out research in order to measure social issues in supply chains. The performance indicators identified under the social dimension of SSCM includes “fair trade, human rights, social responsibility and labor practices” (Marc Winter A. Michael Knemeyer, 2014).

Further, Mani et al. (2015) have identified 14 enablers through an extensive literature review. This includes;

1. Awareness of social sustainability- the lack of awareness is a barrier for the social sustainability of SSCM
2. Competitive pressure- the application of social sustainability by a single competitor can put pressure on the other players of the industry which ultimately leads to a trend.
3. Customer requirements
4. Direct incentives
5. Ability to spend (without any financial constraints)- in order to have enough money to spend, both the company and the environment it operates must be economically healthy. For that, being socially sustainable is important.
6. International certifications
7. Investor pressure
8. Easy to implement without resistance
9. Pressure from employee unions
10. Regulatory compliance (government regulation)
11. Skillful policy entrepreneur
12. Social concern
13. Social organization pressure
14. Stakeholder pressure (others)

They further showed that “Competitive pressure, customer requirements and employee union pressures” are few more enablers that need to be considered to improve the social sustainability dimension in the supply chain. These enablers activated the other enablers such as “financial liquidity, easy to spend without operational difficulties and stakeholder pressure” while in return they activate the enablers such as “social organization pressure and investor pressure”.

2.5. Economic Sustainability Dimension in SSCM

Doane and MacGillivray (2001) described if countries and companies understood the concept of economic sustainability, bankruptcies will not occur, instead full employment and less poverty will be improved. However, they further stressed that this concept of economic sustainability is not simple. Companies need to pay their attention to both internal and external environments to understand the existing conditions. Therefore, they pointed out two approaches for economic sustainability; “how organizations stay in business and approach the issue from the inside” and “what the economic impacts of an organization has on society – the outside or stakeholder view”.

Kremer et al. (2016) conducted a research in order to implant both environmental and economic sustainability along the product supply chains, especially at the early designing age of the product. This study found that majority of the scholars paid their attention towards implementing environmental sustainability, rather than economic sustainability. Further analysis showed that their discussions are mainly focused on economic aspects such as “direct, product related costs”. Further, the existing tools such as guidelines, metrics, and mathematical models also paid less attention towards integrating economic sustainability with other sustainability dimensions such as environmental or social.

Narayanamurthy (2015) also further discussed the economic aspect of the sustainability of supply chain. As per their discussion, packaging aspect in the supply chain is not only supported by the environmental dimension, but also by the economic dimension. Once the reusable packaging is used, it is not only positively effects on the environment by minimizing the use of resources, but also impact on the cash flow of the company by reducing the cost of purchasing, storing and transportation. Further economic growth can be achieved through “production technology process”, despite the considerable amount of capital needed in order to establish related facilities at the initiation. Moreover, when the return logistics aspect is well managed, the returned items create “a great deal of untapped revenue”. Especially the growing reselling markets give those better opportunities to earn more revenues. Moreover, the companies handle the return items by their own, ultimately leading to saving a huge

amount of money without paying extra as penalties to the relevant authorities. According to a survey, they found out that consumers are highly satisfied with the companies who use effective reverse logistics. Such companies have improved their customer loyalty over the years.

2.6. Apparel Supply Chain

There is always a continuous high demand for apparel since clothing is one of the basic needs of humans, (E. G. Hansen & Schaltegger, 2013). Three markets can be identified in the textile industry as “apparel, home textile and technical textile” (Thomassey, 2010). While Şen (2008) pointed out “fashion industry” as a sub category in the textile industry as which has “short product life cycles, tremendous product variety, volatile and unpredictable demand, and long and inflexible supply processes”. However, Chaudhry and Hodge (2012) figured out that matching the demand and the supply is extremely hard due to certain characteristics of the industry, which includes “increased competition, short product life cycles, long production cycles and increased fragmentation”. While agreeing with the above characteristics Lam and Postle (2006) further pointed out forecasting errors as another issue faced by the industry participants.

Hansen and Schaltegger (2013) pointed out, there has been a price war with starting to implement sustainable concepts in the industry over the last few decades. As a result, many European and USA companies have ended up outsourcing their activities to developing and emerging countries in Asia, with the aim of achieving comparative cost advantage and avoiding sustainable practices. Lee et al. (2014) revealed a few such emerging countries such as China, India, India and Vietnam who have gained this cost competitive advantage due to their low wage rates of labour. Moreover, Hansen and Schaltegger (2013) stressed that only value added activities such as designing and overall brand management are left in the European countries.

Additionally, Lee et al. (2014) depicted, there are several the operational issues which are related to “inventory management, supply chains agility and flexibility, supply chain costs, responsiveness, reliability, and asset management” in the textile and apparel industry.

2.6.1. Textile and Apparel Supply Chain

Thomassey (2010) described that the supply chain of textile and apparel industry connected with many companies. The structure is more complex due to the complexity of the manufacturing processes as shown in Figure 2.5. It was pointed out that, the most important part of the apparel supply chain is the operations in the downstream supply chain, mainly because upstream companies trigger their operations only after receiving the demand information from the downstream and only when the processes in the downstream managed properly. Therefore, the downstream supply chain is considered as “the driver of whole flows in the process”.

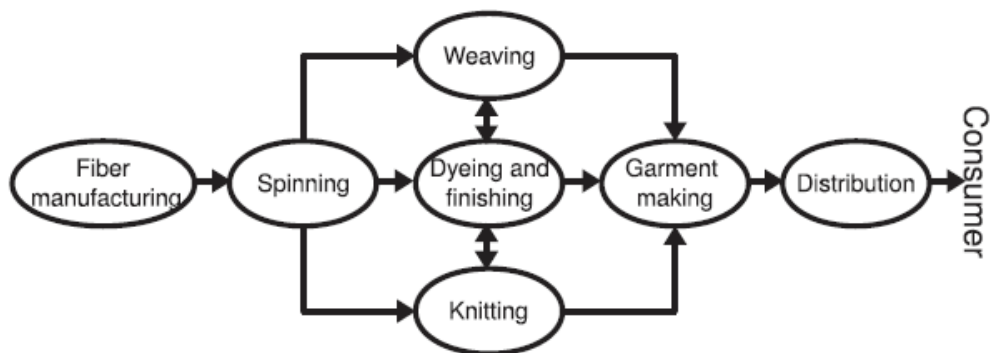


Figure 2.5. The Textile-Apparel Supply Chain

Source: Thomassey (2010)

Şen (2008) described the functions of the textile- apparel supply chain in detail as in Table 2.2.

Table 2.2. Functions of the textile- apparel supply chain

Function	Description
1. Fiber and yarn production	<ul style="list-style-type: none"> • “Fibers are usually classified into two groups: natural and man-made. Natural fibers include plant fibers such as cotton, linen, jute and cellulosic fibers and animal fibers such as wool that are produced by agricultural farms. Synthetic fibers include nylon, polyester and acrylic. Synthetic fiber production usually requires significant capital and knowledge, and thus synthetic fiber producers are large and sophisticated.” • “Natural and synthetic fibers of short lengths are converted into yarn by spinners, throwsters and texturizers. This conversion process is also capital intensive and considerably different for each type of fiber. Blending different fibers may need additional sophistication.”
2. Fabric production	<ul style="list-style-type: none"> • “This segment of the supply chain transforms the yarn into fabric by weaving, knitting or a non-woven process. In a weaving process, yarns are interlaced lengthwise and widthwise at right angles. Yarn may be woven by a simple procedure to produce generic goods and then dyed for a specific fabric. Alternatively, dyed yarns may be woven. In knitting, yarn is inter-looped by latched and spring needles. The process may output rolls of knitted fabric or may specialize in a particular apparel such as sweaters or hosiery. Non-woven processes involve compression and interlocking fibers by mechanical, thermal, chemical or fluid methods.”

Function	Description
3. Apparel manufacture	<ul style="list-style-type: none"> • “Apparel manufacturing starts with the design of the garment to be made. The design is either completed in-house or commissioned to smaller design companies. The first step in design is analyzing the consumer which the company is targeting.” • “Pattern pieces are created from the design which is then used to cut the fabric.” • “Whether it is a large or small manufacturing facility, garment or the cut fabric is usually assembled using the progressive bundle system (PBS). In PBS, or batch production with its general name, the work is delivered to individual work stations from the cutting room in bundles. Then the sewing machine operators systematically process them in batches. The supervisors direct and balance the line activities and check quality.” • “In order to move the apparel faster through the successive sewing operations, some apparel producers began to use Unit Production Systems (UPS) which reduce the buffer sizes between the operations.” • “The apparel segment is the most labor-intensive and fragmented segment of the supply chain.” • “Capital and knowledge requirements are not significant, making it attractive for new entries.” • “Apparel companies usually specialize in narrower product categories.” • “Companies manufacturing basic products can utilize larger batches and tend to be larger in size. Cost reduction is a priority for these companies. Companies manufacturing fashion products have to live with smaller batches and tend to be smaller in size.”

Function	Description
4. Distribution	<ul style="list-style-type: none"> • “Assembled garments are labeled, packaged and usually shipped to a warehouse. The garments are then shipped to the retailers' warehouses.” • “In an effort to compress the time from placement of the retailer order to the consumer's purchase of the apparel, several practices are gaining popularity. First, there are increased automation and use of electronic processing in the warehouses of both manufacturers and retailers.” • “Manufacturers are assuming responsibility in many functions, once considered to be part of retailers' services. Among them are labeling products with retailer's price tags, preparing them on hangers and shipping them directly to stores.”
5. Retail	<ul style="list-style-type: none"> • “Fashion products are sold in a variety of retail channels.” • “Retailing organization is responsible for the following tasks: <ol style="list-style-type: none"> 1. buying merchandise for sale in stores 2. operating stores for the selling of merchandise 3. operating warehouses and trucks for receiving, storage and transshipment of merchandise in addition to the usual tasks such as finance, marketing and personnel management.”

Source: (Şen, 2008)

Further Şen (2008) provided an overall view of the operations of the industry. There are certain decisions to be made by the apparel producers to carry out their manufacturing operations effectively and efficiently. Traditional manufacturers will be primarily responsible for all the operations in the manufacturing process including design, production and selling. However, in the current competitive environment, the majority of the companies in the industry use jobbers who are responsible for processes such as designing, cutting and marketing. Meanwhile the contractors are responsible only for the sewing and assembly of the garments. However, the decision of

outsourcing or in-housing above processes depends on the objective of the company: whether to be responsive or cost efficient. Accordingly decide on the location of the manufacturing facility. Companies who focus on cost advantage strategy to achieve the competitive advantage move their facilities to the countries in Asia and Latin America.

Lam and Postle (2006) classified the ultimate product of the apparel supply as functional and innovative products. Functional products are defined as the products that normally do not change quickly with time. Such products have a steady demand and the demand can be forecasted very easily. Furthermore, functional products have a long product lifecycle. Therefore, these products face high competition and result in very lower profit margins. On the other hand, innovative products such as fashion apparel bring higher profits to the companies. However, their demand is unpredictable and have shorter life cycles. Due to these characteristics of the products, companies need to implement different supply chain strategies to meet the customer demand. Lam and Postle (2006) stressed that responsive supply chain strategies are more appropriate for innovative products whereas efficiency supply chain strategies best for functional products. While the responsive supply chain tries to reach the market as quickly as possible, efficient supply chain focus on achieving cost advantages by minimizing the overall supply chain cost. Hence, a new concept such as “late design responsive supply chain” are emerging the sector by combining “the traditional supply chain and agile design-responsive supply chain together to eliminate product inventories and to deliver on time for the fashion market.”

Hence, postponement is one strategy used by leading fashion apparel retailers like Zara (Chaudhry & Hodge, 2012),. Zara has used manufacturing postponement, as a strategy allowing companies to conduct business without keeping finished goods as inventory, instead stocked bulk of pre-customized inventories. Therefore, they can customize their products to match with the demand. However, implement such hybrid strategy requires better integration along the supply chain. For example, data sharing among the members in the supply chain is crucial. According to Lam and Postle (2006), lack of knowledge regarding the concept of supply chain management has become a barrier to better supply chain collaboration. It was pointed that there is a good opportunity to

research more on how the postponement can be used further in the textile and apparel industry with a comparison with other industries.

Kumar and Arbi (2007) discussed outsourcing in the apparel industry. They concluded that, outsourcing is a viable solution for “large seasonal orders” where they can enjoy the cost benefits while it is unsuitable for fashion items as they have a “short term demand market”. This is one of the reasons why Sri Lankan companies are major exporters of seasonal apparel items, rather than fashionable apparel items.

2.6.2. Life Cycle of Garments

Thomassey (2010) described the life cycle of a garment stating that there are four phases as “the launch or the implementation, the rise, the maturation and the decline. However, they further mentioned that different behaviors can be expected from different products. Accordingly, the apparel items are classified into three categories:

- “basic items” such as denim or white t-shirts which are sold throughout the years,
- “fashion items” which are sold only during a certain time period with less amount of replenishment and
- “best selling items” which are “sold each year with slight modifications according to the fashion trends which could be replenished during the season.”

2.6.3. Sustainability in Apparel Supply Chain

Khurana and Ricchetti (2016) explored the operations for two decades of fashion and textile industry. They highlighted that this industry is facing severe issues, especially related to labour standards and regulations and these issues have been discussed by the governments in their local countries. With the globalization, the complexity of this industry has grown, and these issues are now discussed on an international level. “The social profile and the lack of adequate local labor legislation weaken the voice and bargaining power of workers drastically and workers are more vulnerable to unfair practices and rights deprivation. Issues raised so far are not only related to the workers, but also related to the consumers and their health and safety. For example, the

hazardous chemicals used in clothes have been caught the attention and their impact on both human and environment have been vastly discussed over the years.

2.6.4. Future

Clothing and Textiles Research Journal (CTRJ) which is a specialized journal published research in the field of clothing and textile has conducted a literature review on researches published during the period of year 1993- 2012. They recommended conducting research to answer questions such as “Is a standardized set of labor policies possible? If so, what would it look like? If not, what type of labor practice-monitoring activities would be effective for people in both developing and developed economies?” (Ha-Brookshire & Hawley, 2014).

2.7. Apparel Industry in Sri Lanka

Carter and Easton (2011) found out the majority of the research carried out in sustainability area has more focused on consumer products and transportation industries. They further pointed out looking deep into a certain industry is important in the research context since most of the research published so far focused on “multi-industry samples”. They further stressed the fact that the researchers should be conscious when selecting the individual industry as it is necessary to identify which sustainability activities should be taken into consideration as suitable for the industry.

Majority of the “textile units” belong to the category of SMEs and they contribute massively to its economies even in the global context (Diabat, Kannan, & Mathiyazhagan, 2014). Therefore considering the social and economic sustainability in these SMEs is also important.

According to a survey done by Department of Census and Statistics in 2012, there are 104 apparel industry related establishments which have less than 100 people engagements, while it is 371 for the establishments where the engagement of people is more than 100. Further the value addition from the establishments less than 100 people is LKR 1.6 billion and for people more than 100 is LKR 176.3 billion. With these high contributions it is necessary to consider SMEs in this apparel industry in Sri Lanka.

Based on this literature review, it was found that there is a necessity to conduct research studies focusing on the social sustainability dimension especially focusing the supply chain operations in the developing countries. Further, another research gap was also identified in order to integrate social sustainability dimension with economic sustainability dimension and realize the impact on the supply chain management. Hence, the following research questions were developed to meet with the Research Objectives.

2.8. Developing Research Objectives and Research Questions

The developed Research Questions are;

- What are the metrics of social sustainability dimensions related to apparel supply chain?
- What are the metrics of economic sustainability dimensions related to apparel supply chain?
- What are the most commonly used metrics related to social and economic dimensions in apparel supply chain?
- What is the interrelation between social and economic sustainability in apparel supply chain?

Following Research Objectives were explored in this research understanding the gap in the literature.

2.8.1. To identify the metrics of social sustainability dimensions related to apparel supply chain

Social dimension is missing in the papers as they are either completely missing the point or understanding the concept in a “far too simplified manner” (Seuring, 2013). Further Seuring (2013) revealed that this has created a barrier to modeling for the social dimension in SSCM. As a result, he also suggested to deeply research the social dimension in SSCM, before an integration aspect was taken into consideration via modeling approaches. Furthermore, research have shown that the social sustainability indicators differ depending on the industry (Carter & Easton, 2008). Therefore,

looking into the social sustainability indicators in the apparel industry is an eye-opening area in the academic arena.

2.8.2. To identify the metrics of economic sustainability dimensions related to apparel supply chain

When it comes to economic dimension, direct and product-related costs are the ones considered under economic impacts (Kremer et al., 2016). As per the literature review by Seuring (2013) the research papers who have considered economic dimension in the SSCM have considered total cost or net revenues as indicators. But this does not reveal how companies are going to implement sustainability in their supply chains and actively manage their performance goals. As a result, they further suggest expanding the scope of economic dimension in SSCM in order to address these limited areas.

2.8.3. To identify the most commonly used metrics related to social and economic dimensions in apparel supply chain

With this, we can identify which metrics are popular in the apparel supply chains.

2.8.4. To identify the interrelation between social and economic sustainability in apparel supply chain

Seuring (2013) further acknowledges the importance of integrating a social dimension into different models based on how they create certain impacts. Further they suggest considering functions beyond the operations and supply chain functions when developing these models in order to find more opportunities in the field of SSCM.

When the relationship between GSCM and economic performance is investigated by Rao and Holt (2000), the variables such as new market opportunities, increments in the product price, profit margin, sales and market share are considered when measuring the economic performance. Although the frameworks so far suggested in the literature suggests addressing economic sustainability, they use only the traditional performance indicators such as market share, stock prices and profitability which are not the “true measures” of economic sustainability (Veleva & Ellenbecker, 2001). This shows the

necessity of looking into a new framework which indicates the real condition in the economic sustainability and reveals the connection with other dimensions in SSCM.

The next chapter explains the Research Methodology adopted in this study to answer the above-mentioned Research Objectives and Research Questions.

3. RESEARCH METHODOLOGY

The previous chapter described the existing Literature Review and developed the Research Objectives and Research Questions to fill the gap identified in this research. This chapter discusses the methodology employed to answer the Research Questions and to achieve research objectives described. The research methodology will be selected basically depend on the nature of the research questions.

The research questions to be answered in this study are;

- What are the metrics of social sustainability dimensions related to apparel supply chain?
- What are the metrics of economic sustainability dimensions related to apparel supply chain?
- What are the most commonly used metrics related to social and economic dimensions in apparel supply chain?
- What is the interrelation between social and economic sustainability in apparel supply chain?

3.1. Research Paradigm

3.1.1. Research Approach

Research methods are 3 folds as qualitative, quantitative and hybrid methods.

Qualitative Methods

The characteristics of the qualitative methods are as follows (Creswell, 2009, p. 175).

- Research occurs in the natural setting since the data collection occurs in the field while talking to people and observing how they behave rather than in a lab environment.
- The researcher is a key instrument as he or she is the one who collects data in the field without relying on other research instruments (e.g. questionnaires) prepared by other researchers.
- Multiple methods such as interviews, observations and documents are used to collect data to review and identify common themes in the latter stages.

- Inductive data analysis
- Depend on the meanings assigned by the participants
- A theoretical lens is used

In the first phase of the research, we used different secondary data sources to gather data, while conducting interviews with the industry experts to gather other relevant information since interviewing gives you the opportunity to explore deeply into a certain phenomenon (Jamshed, 2014). Hence, as per the characteristics mentioned above, we used qualitative methods for data gathering to answer Research Questions 1 and 2 which are exploratory in nature.

Quantitative Methods

Quantitative methods are mainly based on the survey instruments and they assist to understand the opinions and attitudes of the populations (Creswell, 2009). Hence to answer Research Question 3 and 4, we applied quantitative methods.

Hybrid Method (Mixed Method)

Because of the nature of the Research Questions in this study, a hybrid approach is appropriate. Therefore the following steps suggested by Creswell (2009) was taken into consideration when developing the Research Design for this study.

Data Collection Procedure

- Qualitative data was collected via open ended questions conducted as interviews, and quantitative data were collected via closed questions in interviews (surveys).
- Purposive sampling was used to collect qualitative data, while the random sampling techniques were used for quantitative data collection.

Data Analysis Procedure

- The survey instrument was developed based on the findings of the qualitative analysis.
- This instrument was then tested to a larger population.

The few research papers mentioned in Table 3.1 further justifies the mixed method approach followed in this research.

Table 3.1. Mixed Approach in Research Methodology

Research Methodology	Application	Author
Mixed Approach	Qualitative Approach	(Diabat et al., 2014)
	Literature review – to identify most common enablers	
	Interviews with industry experts – for verification purposes	
	Quantitative Approach	
Mixed Approach	Interpretive Structural Modeling – to identify influential enablers	(Jakhar, 2015a)
	Qualitative Approach	
	Literature review – to identify sustainable supply chain constructs and their measures	
	Quantitative Approach	
Mixed Approach	Structural Equation Modeling – to predict the model	(Kuei et al., 2015)
	Qualitative Approach	
	Literature review – to identify constructs	
	Quantitative Approach	
Mixed Approach	Partial Least Square Modeling – to identify the determinants of green practices	(Kuei et al., 2015)
	Qualitative Approach	
	Literature review – to identify constructs	
	Quantitative Approach	

Source: Author

3.1.2. Data Collection Methods

Data collection is a process where the useful information is gathered to learn about a particular subject (Cambridge, 2017). Johnson & Turner (2003) point out six major methods of data collection relating to qualitative and quantitative aspects below.

1. Questionnaires – A topic can be explored in depth using a qualitative questionnaire which consist of open ended questions. The quantitative questionnaire can be used to gather information on a certain aspect with structured and closed ended questions such as checklists and Likert scales.
2. Interviews – The interviewer can easily probe the interviewee for clarity or more details which is also an advantage of this method. A purely qualitative interview shall consist of unstructured, exploratory and open-ended questions. However, there can be interviews with structured and open-ended questions as well. On the other hand, the quantitative interviews can be arranged with an interview protocol.
3. Focus groups – In order to generate new ideas and understand the perceptions of the participants, a qualitative focus group approach is appropriate. On the other hand, a quantitative focus group interview can be introduced as a structured group interview where closed ended questions are discussed without allowing for in depth analysis.
4. Tests – This method is mainly used in quantitative research to measure the attitude and perception of the respondents. (E.g. an intelligence test, personality test etc.)
5. Observations – The researcher observes the participant very closely in a natural or structured environment. Pure qualitative observation is called as “naturalistic observation” where the participant is observed in the real-world scenario. Using standardized coding instruments, the participant is observed under the quantitative observations.
6. Secondary data – when all the above mentioned five methods are focusing on collecting primary data, secondary data can be collected via other sources such as personal and official documents, physical data and archived research data. Further this data can be quantitative or qualitative.

3.1.2.1. Qualitative Data Collection Methods

As discussed in the previous section, there are specific data collection methods when it comes to qualitative data. Interviewing is one of the most popular strategies to collect qualitative data (Dicicco-bloom & Crabtree, 2006). The aim of interviews is to “explore the views, experiences, beliefs and/or motivations of individuals on specific matters” (Gill, Stewart, Treasure, & Chadwick, 2008). On the other hand, to understand what has been carried out in a certain research area, secondary data can be collected by referring to the research conducted so far.

3.1.2.1.1. Semi Structured Interviews

Semi structured interviews are commonly used in qualitative data collection method which can be conducted with a single interviewee or a group of interviewees expanding across several hours (Dicicco-bloom & Crabtree, 2006). Research shows that these interviews should be conducted at a convenient location where the respondents do not get disturbed by the day-to-day work (Dicicco-bloom & Crabtree, 2006).

The respondents for the interviews can be selected via different sampling methods such as judgmental sampling, snowballing etc. Judgmental sampling is a non-probabilistic sampling method and comes under purposive sampling (Lunsford & Brenda Rae Lunsford, 1995). Purposive sampling is mainly done when the “information rich cases” are needed to be selected in qualitative research (Patton, 2002).

The questionnaire in the semi structured interview consists of a few main questions covering the scope of the research and digging deeper into the information as the interview is progressed (Dicicco-bloom & Crabtree, 2006; Gill et al., 2008).

The following steps are suggested to follow when conducting a semi structured interview (Dicicco-bloom & Crabtree, 2006).

1. Pilot Study

Conducting a pilot study is crucial to improve the interview protocol and make sure the clarity of the questions (Gill et al., 2008).

2. Pre-Interviewing

Prior conducting the interview, the interviewees should be given an introduction to the interview since that awareness gave them a clear idea of what is expected from this interview (Gill et al., 2008).

3. Conducting the interview

- Building the rapport

Before conducting the interviews, a rapport needs to be built with the interviewees. Hence at the beginning of the interviews, trust and respect for the interviewee and the information willing to be shared in a convenient environment are built (Dicicco-bloom & Crabtree, 2006).

- Selecting Interviewees

Judgmental sampling is a non-probabilistic sampling method and comes under purposive sampling (Lunsford & Brenda Rae Lunsford, 1995). Purposive sampling is mainly done when the “information rich cases” are needed to be selected in qualitative research (Patton, 2002). Therefore, once the interviewees are selected for the interviews, the most suitable personnel with expertise in the field are chosen using purposive sampling.

- Interview Process

Following the interview protocol prepared, the interviews are conducted. Both “face to face” and “telephone interviews can be used at this phase since no sufficient evidence have been found that the quality of the data gathered through telephone interviews are lower compared to the data gathered through face to face interviews (Novick, 2008).

3.1.2.2. Quantitative Data Collection Methods

As discussed in the earlier sections, quantitative data can be collected via many different techniques such as questionnaires, interviews, focus groups and etc. however, one of the most suitable and convenient methods to gather quantitative data is via a structured questionnaire known as a survey.

3.1.2.2.1. Survey

When developing the survey the following principals are to be taken into consideration (Johnson & Turner, 2003, p. 303).

1. Make sure that the questionnaire items match your research objectives.
2. Understand your research participants.
3. Use natural and familiar language.
4. Write items that are simple, clear and precise.
5. Do not use “leading” or “loaded” questions.
6. Avoid double-barreled questions.
7. Avoid double negatives.
8. Determine whether an open-ended or closed- ended question is needed.
9. Use mutually exclusive and exhaustive response categories for closed ended questions.
10. Consider the different types of response categories available for closed ended questionnaire items.
11. Use multiple items to measure abstract constructs.
12. Develop a questionnaire that is easy for the participants to understand and use.
13. Always carry out a pilot survey to test your questionnaire.

3.1.3. Data Analysis

Data analysis techniques differ based on the quantitative or qualitative approach.

3.1.3.1. Qualitative Data Analysis Techniques

Thematic analysis is a data analysis technique to identify and analyze patterns in qualitative data. Further, thematic analysis is suitable for analyzing both secondary data from different media sources and primary data from interview scripts because of its theoretically flexible nature (Clarke & Braun, 2013).

The following guideline in Table 3.2 was followed in this research to achieve best results from the analysis.

Table 3.2. Phases of thematic analysis

Phase	Description of the Process
1. Familiarizing yourself with your data	Transcribing data (if necessary), reading and rereading the data, noting down initial ideas.
2. Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic „map“ of the analysis.
5. Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.
6. Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, the final analysis of selected extracts, relating back to the analysis of the research question and literature, producing a scholarly report of the analysis.

Source: (Braun & Clarke, 2006)

Braun & Clarke (2006) discussed the thematic analysis in detail. They discussed what a theme is; “theme captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set” (Pg. 88). There is no hard and fast rule to make sure that a certain proportion of the content needs to be covered in order to consider a code as a theme.

Therefore, the flexibility of thematic analysis leads to the freedom in determining themes in numerous ways. Additionally, another similar qualitative data analysis procedure has been introduced by Creswell (2009) as well.

3.1.3.2. Quantitative Data Analysis Techniques

There are different quantitative data analysis techniques. However, when quantitative data were collected using a survey instrument, the descriptive data analysis should be done before going deeper with complicated techniques. Creswell (2009, p. 151) has suggested an approach towards quantitative data analysis as in Table 3.3.

Table 3.3 Quantitative Data Analysis Approach

Step 1	Mention the response rate of the survey
Step 2	Conduct a respondent-non-respondent test to determine the response biasness.
Step 3	Provide a descriptive analysis of data for all independent and dependent variables in the study.
Step 4	If the proposal contains an instrument with scales or a plan to develop scales (combining items into scales), identify the statistical procedure for accomplishing this.
Step 5	Identify the statistics and the statistical computer program for testing the major inferential research questions or hypotheses in the proposed study.
Step 6	Interpretation of the results

Source: (Creswell, 2009, p. 151)

3.1.3.2.1. Descriptive Data Analysis Techniques

Descriptive data analysis is about transforming raw data in a manner to understand the interpret the patterns in the data set by manipulating the data (Zikmund, 2003).

Table 3.4 shows the data type and the descriptive data analytic technique (Zikmund, 2003).

Table 3.4. Descriptive Data Analysis Techniques

Data Type	Data Analytic Technique
Nominal	Two Categories <ul style="list-style-type: none"> • Frequency table • Proportion (percentage) More than two categories <ul style="list-style-type: none"> • Frequency Table • Category proportions (percentages) • Mode
Ordinal	Rank order Median
Interval	Arithmetic mean
Ratio	<ul style="list-style-type: none"> • Index numbers • Geometric mean • Harmonic mean

Source: (Zikmund, 2003)

3.1.3.2.2. Data Analysis Techniques to Understand the Relationship Among Variables

Seuring (2013) and Taticchi et al. (2014) conducted literature reviews covering the research methodologies of nearly 15 years expanded SSCM literature. Four mathematical modelling approaches were categorized by Seuring (2013) as Life-Cycle Assessment (LCA) Models, Equilibrium Models, Multi-Criteria Decision Making (MCDM) and Analytical hierarchy process (AHP). LCA Models developed so far measured environmental impacts throughout a supply chain and minimized the impact, while equilibrium models balanced the economic and environmental factors to meet with an equilibrium. Meanwhile MCDM models optimized economic and environmental dimensions and balanced the tradeoff and AHP models built a process of decision making and gained a result based on “semi-quantitative criteria and respective weights”. Further suggesting future improvements, Seuring (2013) and Taticchi et al. (2014) suggested “multi-objective optimization or the AHP” models to find the interrelation among the social and the environmental dimensions. Therefore,

this study pointed out that what has been done so far give an opportunity to use these models in the social and economic dimensions where almost all the models are mainly considering the environmental dimension along with the economic aspect.

In addition, Taticchi et al. (2014) conducted a separate literature review on decision support tools used in SSCM literature mainly focusing on developing models based on performance measurement. They created a framework as shown in figure 3.1 to categorize the research methodologies so far used in the SSCM literature.

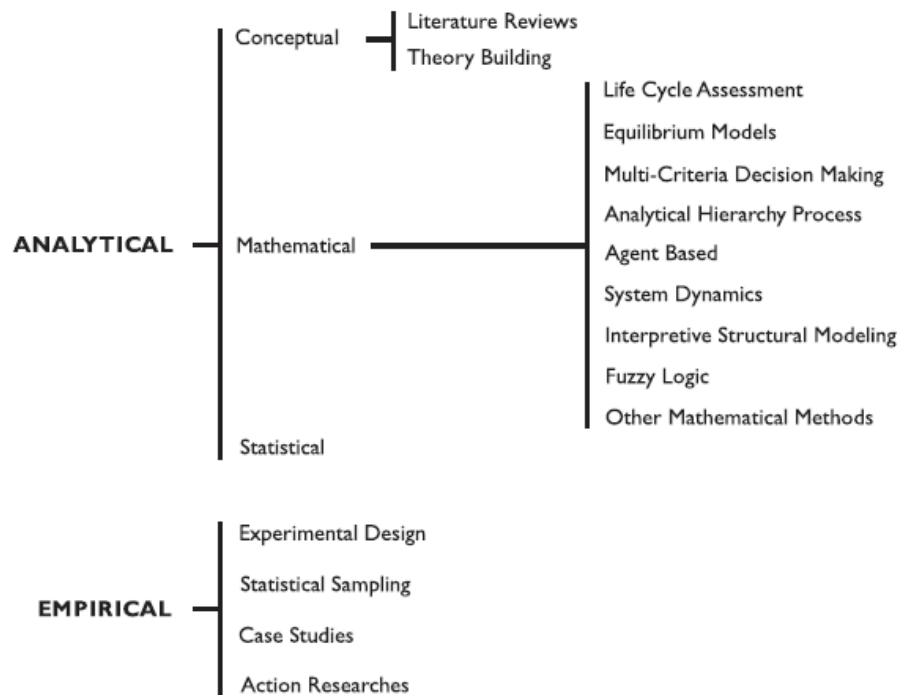


Figure 3.1. Research Methods in SSCM

Source: (Taticchi et al., 2014)

Majority of the papers in the analytical category belonged to conceptual work regarding building theories and, they were mainly based on “equilibrium models, MCDM, fuzzy logic and LCA” supporting the arguments of Seuring (2013). However, Carter and Easton (2011) pointed out that the development of these conceptual theories in SSCM was lacking due to “the lack of methodological training in the conceptual theory development methodology among the broader community of supply chain

management scholars”. Meanwhile, the majority of the empirical research projects are based on surveys and case studies (Seuring, 2013).

Carter and Easton (2011) further suggested that in order to explore the connection between performance measurement and SSCM, models such as “fuzzy logic and MCDM” are much preferred. However, they pointed out that statistical sampling also gained a popularity over the years to understand the relationships. They also suggested that the application of methods used in other domains such as conjoint analysis coming under technique of Discrete Choice Analysis (DCA), when conducting research related to “policy development and implementation and consumer research” in SSCM as a trendy area.

Moreover, Carter and Easton (2011) pointed out that majority of the studies have used a survey as their primary data collection method. However, they further predicted that there would be a decline in the use of surveys in the coming future as it is difficult to collect larger samples from “cross-sectional surveys” and as there are “limitations associated with common method variance”. As they further point out, during the period of 2001 -2010, the statistical analytics techniques used in SSCM research have moved from descriptive statistics or summary statistics to “regression analysis, structural equation modeling, path analysis, and rigorous qualitative data analysis to investigate inferential relationships, and factor analysis to assess measurement validity”.

3.1.3.3. Research Methodologies used to Identify Relationships in SSCM Literature

Table 3.5 shows the different methodologies adopted in SSCM in order to identify relationships among different factors. To understand the relationship between dimensions, many research studies have used Structural Equation Modelling (SEM) successfully.

Table 3.5. Research Methodologies in SSCM

Research Methodology	Application	Author
Multivariate Tests	“To investigate whether companies’ environmental and social supply chain activities are associated with their financial performance using publicly available data.”	(Zhihong Wang Joseph Sarkis, 2013)
SEM + Fuzzy AHP	“To develop sustainable supply chain performance measures and propose a partner selection and flow allocation decision-making model”	(Jakhar, 2015a)
Interpretive Structural Modelling	“To identify influential enablers for SSCM”	(Diabat et al., 2014)
Partial Least Squares (PLS) method	“To identify the determinants of green practices.”	(Kuei et al., 2015)
	“To test the hypothesized relationships between practices and performance in SSCM.”	(Sancha, Gimenez, & Sierra, 2016)
	“To test the hypotheses on a sample of 119 Finnish manufacturing firms in order to identify the direct and indirect relationships between customer-driven GSCM practices and environmental and financial performance in manufacturing.”	(Laari et al., 2016)
Analytical Hierarchy Process (AHP) technique	“To investigate the pressures for GSCM adoption and to rank the pressures based on experts' opinion”	(Mathiyazhagan et al., 2015)

Research Methodology	Application	Author
Structural Equation Modelling (SEM)	“To identify potential linkages between GSCM, economic performance and competitiveness amongst a sample of companies in South East Asia.”	(Rao & Holt, 2000)
	“To examine how socially responsible supply management activities, affect a firm’s costs”	(Reefke & Mattia, 2013)

Source: Author

3.2. Research Design of the Current Research

Depending on the nature of the Research Questions and Research Objectives, this research adopted a mixed method approach in two phases. This is illustrated in Figure 3.2.

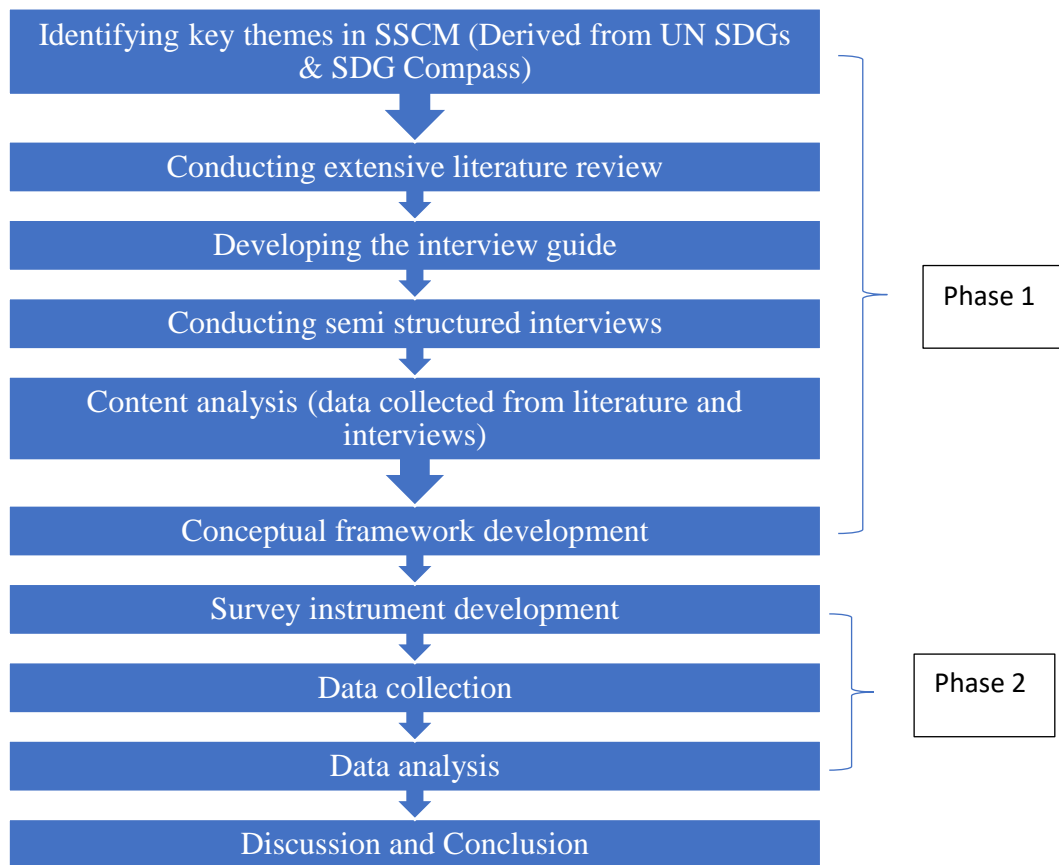


Figure 3.2. Research Design

As discussed in the Research Paradigm section ([Section 3.1.1](#)), the mixed method approach was more applicable for this research. Phase 1 aimed to answer the RQ 1 and 2, while RQ 3 and 4 were answered in Phase 2.

During the Phase 1, the key themes in SSCM were identified based on the guidance developed by UN SDGs and SDG Compass. Then a comprehensive literature review was conducted to identify the business themes and performance indicators coming under the social and economic dimensions of a supply chain. Further, the interview guide along with the semi structured questionnaire were prepared to explore the social and economic sustainability dimensions in the apparel industry. Then a thematic analysis was carried out based on the literature review and semi structured interview results. Based on these findings, a conceptual framework was developed.

A self-administered questionnaire with matrix questions was developed as an initiation to the second phase and understand the relationships in the conceptual framework. Then the data collected via this survey instrument was analyzed.

3.3. Data Collection

In this study, both qualitative and quantitative data were collected based on the mixed method approach followed.

3.3.1. Phase 1

During the Phase 1, a qualitative approach was addressed because of the exploratory nature of the Research Question 1 and 2. Therefore, the data collection was conducted through existing literature and semi structured interviews with the industry experts.

3.3.1.1. Identification of Key Themes in SSCM

Identification of the key themes along with the sample performance indicators in the SDG Compass was done in the first step.

Key themes were identified from the website of SDG Compass (GRI et al., 2015). There, a business indicator inventory was observed in a new tab and its appearance is as in Figure 3.3.

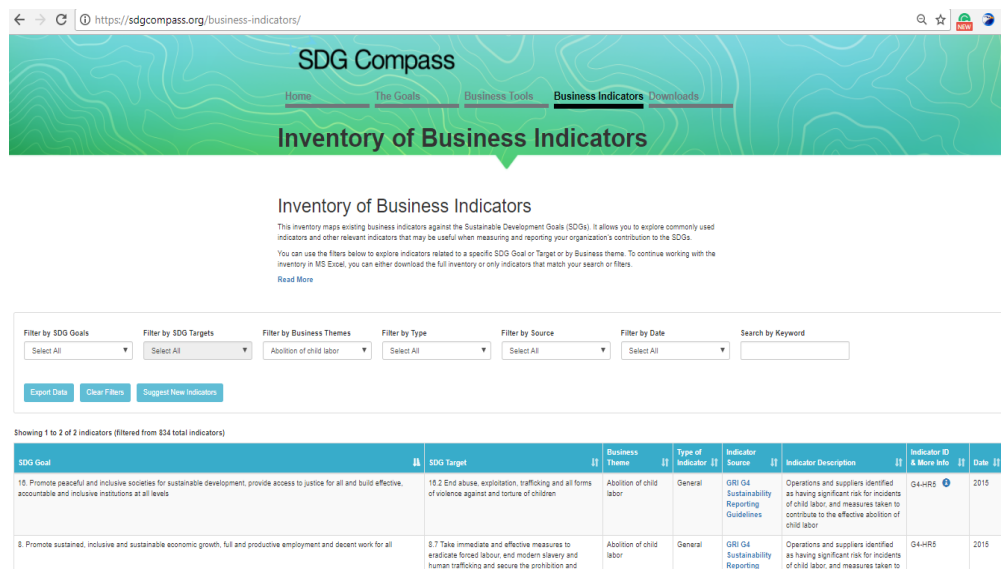


Figure 3.3. Online interface of SDG Compass

Source: (GRI et al., 2015)

Initially, the key themes and their performance indicators were filtered from the system.

Once the indicators were selected for a certain theme we used the following rule.

- If the theme had indicators related only to a “sector- specific”, we considered whether such indicators can be integrated into apparel supply chain as well, with enough evidence we gathered from literature and interviews.
- If the theme had both types of indicators; i.e. “general” and “sector specific”, we considered only the general indicators in this research.

3.3.1.2. Data Collection through Existing Literature

As the performance indicators in the sustainable apparel supply chain are widely discussed in the existing literature, a focused approach was needed to conduct this research. Therefore, the guidance provided by the United Nations Sustainable Development Goals (UN SDGs) was used as the guideline as mentioned in the previous step.

First, the research papers were selected through a systematic literature review. This literature review focused on the articles published mainly in Scopus and Google Scholar as they majorly cover English peer reviewed management and engineering related journals. In the initial stage, the keywords such as “social”, “economic”, “sustainability”, “supply chain*”, “apparel”, “textile”, clothing” were searched in Scopus and the results were limited to 72 papers. References cited in the selected research papers were also searched through databases such as Google Scholar and Emerald and used to identify additional relevant publications. However, as these papers did not provide enough evidence related to the themes in social and economic sustainability dimensions in apparel supply chain, a literature analysis was conducted in the second stage using broader key words such as “sustainable supply chain management”, “social sustainability in supply chain*”, “economic sustainability in supply chain*”, “sustainable supply chain in apparel industry”, “supply chain management in apparel industry” along with the terms “metrics” and “indicators”. The date range was set for the papers published from “All years” to “Present” (2017).

3.3.1.3. Data Collection through Semi Structured Interviews

As mentioned in the Section 3.1.2 to gather specific data from experts, one of the primary modes of data collection in Phase 1 was semi structured interviews with industry experts.

3.3.1.3.1. Development of Semi Structured Interview Questions

Semi structured interviews were employed to collect data from the industry. Following the instructions of (Gill et al., 2008), the semi structured interview protocol was developed in the order that the difficulty of questions improve as the interview is progressed. The following key questions were developed in the semi structured interview questionnaire based on the literature.

1. A brief introduction to your company and your role in the company.
2. What's the role of social sustainability in the apparel supply chain?
3. What are the social sustainability practices in the apparel supply chain?
4. What's the role of economic sustainability in the apparel supply chain?
5. What are the economic sustainability practices in the apparel supply chain?
6. How does sustainability reporting happen in apparel supply chain?

3.3.1.3.2. Conducting Semi Structured Interviews

The respondents were selected based on purposive sampling (Creswell, 2009) where the experts in the field of apparel supply chain were taken into consideration. The guidance provided by Diccio-bloom & Crabtree (2006) in the Data Collection section was followed here.

1. Pilot Test

This semi structured questionnaire was sent to three supply chain managers and a sustainability expert in the apparel industry of Sri Lanka to judge the validity of the interview protocol. With their feedback the questionnaire was edited with minor changes and the interview protocol was developed.

2. Pre-interviewing

Prior to the interviewing, the interviewer explained the purpose of the interview (to collect data for the Masters Research in University of Moratuwa). Further the interviewee was informed why they have been chosen for the interview (since they are the experts in the sustainability dimension of apparel supply chain). Moreover, they were informed that all the information gathered in this interview will be confidential and used for academic purposes only.

Before starting the interviewing procedure properly, the interviewee was informed that the discussion is recorded for further reference and obtained the oral consent for that.

3. Conduct the interview

Therefore, majority of the interviews were carried out “face to face” because it is widely accepted by many experts as the best and the most popular method. However, “telephone interviews” were also conducted considering the convenience of the respondents. In total 7 interviews (6 face-to- face semi structured interviews and 1 telephone semi structured interview) were conducted with the top management and consulting in the apparel industry.

Other than the questions mentioned above in Section 3.3.1.3.1, certain questions popped up as the interview progressed were also raised.

- **Building Rapport**

The interviews were arranged either at the office of the interviewee or any other convenient location for them while making sure that they were not getting disturbed by the work. Additionally, an introduction to the interview was made to make sure that the interviewee understands the purpose of this interview. Furthermore, the questionnaire was shared with them in advance, so that they can clearly understand the expectations before facing the interview.

- **Selecting Interviewees**

The sample frame consisted of top management of the apparel industry in Sri Lanka and sustainability experts. The interviewees were selected through judgmental

sampling (as described in Section 3.1.2.1.2.) where the interviewees were selected based on their knowledge and experience in the Sri Lankan apparel supply chain.

- Interview Process

A total number of 76 top management personnel, academics and consultants were contacted initially considering their experience and status, only 14 number respondents replied back with a positive feedback where the response rate is around 18 percent. However, only six were freely available to conduct the interviews within the limited time frame of this study.

- Technical Issues

In this research, all the interviews were recorded using a tape recorder which is a common method to record the interviews (Dicicco-bloom & Crabtree, 2006). Atlas.ti, a computer assisted qualitative data analysis software was used to transcribe this data.

- Data Saturation

There was a point where no new themes were emerging from the interviewees. This point is identified as the “data saturation” which signals the time to stop data collection and finalize the data collection process. During the current research, the saturation level was achieved after carrying out six interviews.

4. Post Interview

At the end of the interview, the interviewee was thanked for his or her valuable time and corporation.

3.3.2. Phase 2

3.3.2.1. Data collection using the Survey Questionnaire

During the Phase 2, data collection was completed using a self-administered questionnaire to test the hypotheses and the conceptual framework developed in Phase 1.

3.3.2.2. Development of Survey Questionnaire

The questionnaire consisted of 56 questions as shown in Appendix 3. Four-point Likert scale (1- Strongly Disagree and 4- Strongly Agree) was applied to force respondents to check either on the negative or positive side rather than loading heavily on the median point (Rao & Holt, 2000).

The survey questionnaire was developed as an online Google questionnaire which can be self-administered and easily sent via email. The survey questionnaire was distributed among top management, middle management and operational level management personnel working in the apparel industry. However, in the cases with difficulty of approaching respondents via email, face to face and telephone methods were also used.

3.4. Data Analysis

In this study, qualitative data analysis techniques were used in Phase 1, while quantitative techniques are used in Phase 2.

3.4.1. Phase 1

The data collected in Phase 1 were analyzed using thematic analysis.

3.4.1.1. Data Analysis of Existing Literature

The collected 181 source files were read using Atlas.ti software, a qualitative data analysis software.

The key words identified in the SDG Compass were used as initial codes in the Atlas.ti software and each research paper were analyzed thoroughly. Then the gathered content of articles under each key word was segregated into themes coming under the SDG Compass (These themes were identified in the initial stage).

3.4.1.2. Data Analysis of Semi Structured Interviews

Qualitative data analysis was done concurrently with the data collection (Dicicco-bloom & Crabtree, 2006). Hence, immediately after an interview, the data were analyzed with a detailed summary along with a list of main points highlighted out by the respondent. Whenever there was a doubt, a telephone call was made for further

clarifications. Therefore, the familiarizing of the data collected via interviews were easy. Further the interviews were transcribed into written form.

These word documents were submitted to the Atlas.ti software and the coding began based on the key words identified in the SDG Compass (similar to the steps followed in the data analysis of existing literature).

Later, based on the identified codes, the themes were identified (as per the key themes identified in the SDG Compass). After categorizing all the codes into themes, a reviewing was done to make sure all the codes belong to a certain theme. The final result of this theme is in the findings of the data analysis (next chapter).

3.4.2. Conceptual Framework Development

Conceptual framework reflects the understanding of the variables in the study. Therefore, the conceptual framework was developed based on studies conducted under the similar context of this research (apparel supply chain in the developing countries). In order to align with the existing categorizations of SSCM in the literature, we followed the guideline provided by Tajbakhsh & Hassini (2015) when categorizing themes identified using UN SDGs. Further, this categorization was supported by V Mani, Agrawal, & Sharma (2015) and Venkatesh Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey (2016) who focused on the social sustainability dimensions of manufacturers and suppliers in the Indian apparel supply chain. Whenever a new theme arose and enough evidence to support the acceptance could not be found they were categorized based on the key words as instructed by Ryan, Bernard, Ryan, & Bernard (2003).

From the data analyzed in the initial stage, the variables coming under social and economic sustainability dimensions and their relationships were identified. This variable identification assisted in developing the conceptual framework. Hence, with this model, the relationship between the social and economic sustainability dimension in the apparel supply chain was assessed.

3.4.3. Phase 2

Under phase 2 we explore the relationship between social and economic sustainability dimensions in the apparel supply chain. Since relationship identification is a quantitative approach, we used quantitative data collection and analysis methods at this stage.

3.4.3.1. Data Analysis in Survey Questionnaire

Out of the 119 responses, 49 responses belonging to the small-scale manufacturers were collected mainly using face-to-face and telephone conversations. The rest of the respondents were approached via email where the response rate was 23%. Further, in order to avoid the response biasness, four middle management respondents who were unable to fill the survey form due to their busy schedules were contacted via telephone and gathered their idea on social and economic sustainability practices in their apparel manufacturing companies. Since their approach did not significantly differ from the majority of the respondents, it was decided that the survey was not response biased.

Data collected via survey questionnaire were analyzed using descriptive data analytic techniques such as cross tabulations and, charts and graphs using MS Excel and SPSS software.

3.4.3.2. Data analysis techniques to understand the relationship among variables

From the data analysis techniques mentioned in the [Section 3.1.3.2.2](#), the Partial Least Square Structural Equation Modelling (PLS SEM) was used to predict the relationship between social and economic sustainability dimensions in the apparel supply chain.

3.4.3.2.1. Partial Least Square Structural Equation Modelling (PLS SEM)

Partial Least Structural Equation Modelling (PLS SEM) is a variance based structural equation modelling which is very similar to Covariance Based Structural Equation Modelling (CBSEM).

The guideline provided by Xiaosong & Lai (2012), F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser (2014) and Joseph F. Hair, Sarstedt, Ringle, & Gudergan (2017) were followed in this research.

3.4.3.2.1.1. The Reasons for Selecting PLS SEM

The fourth research objective in this research is exploratory and predictive in nature as the relationship between social and economic sustainability dimensions in the supply chains have rarely investigated. Hence, we used PLS SEM as the data analysis technique. Since “data collected for social science research often fails to follow a multivariate normal distribution” (Joe F Hair, Hopkins, Sarstedt, & Kuppelwieser, 2014, p. 108) PLS SEM is the most suitable techniques to work with these non-normal data compared to CB SEM. Moreover, PLS SEM can be used with small sample sizes even when the models are highly complex. PLS SEM is further suggested when the formative indicators are part of the model (Joe F Hair et al., 2014).

Joe F Hair, Ringle, & Sarstedt (2011, p. 144) further came up with the following rules of thumb when selecting in between CB SEM and PLS SEM.

- The goal is predicting key target constructs or identifying key driver constructs.
- The research is exploratory or an extension of an existing structural theory.
- Formative constructs are a part of the structural model.
- The structural model is complex (many constructs and many indicators)
- The sample size is relatively low.
 - PLS SEM minimum sample size should be equal to the larger of the following.
 - Ten times the largest number of formative indicators used to measure one construct OR
 - Ten times the largest number of structural paths directed at a particular latent construct in the structural model.
- Data are to some extent non-normal

Based on the above reasons, we are using PLS SEM in this research along with the smartPLS 3 software. Further PLS SEM has been used in SSCM as an analysis technique (Freise & Seuring, 2015; Hami, Razali, & Ebrahim, 2016; Kuei et al., 2015;

Laari et al., 2016; Rao & Holt, 2000; Sancha et al., 2016; Teixeira, Jabbour, De Jabbour, Latan, & De Oliveira, 2016).

3.4.3.2.1.2. PLS Path Model Development

When developing the PLS path model based on the conceptual framework, the following concepts also need to be considered.

There are indicators and latent constructs in a PLS model. Since the latent construct (what we are actually interested in learning) cannot be measured directly, the indicators are used as the observed variables (the questions in the survey form). For example, the equity improvement in the apparel supply chain cannot be directly measured using a survey form. Therefore, used observed variables such as “non-discrimination” and “diversity and equal opportunity”. By identifying the relationship between latent constructs and indicators, the measurement models were developed as shown in the Figure 3.4. The exogenous latent variables are the independent variables and the endogenous variables are the dependent variables.

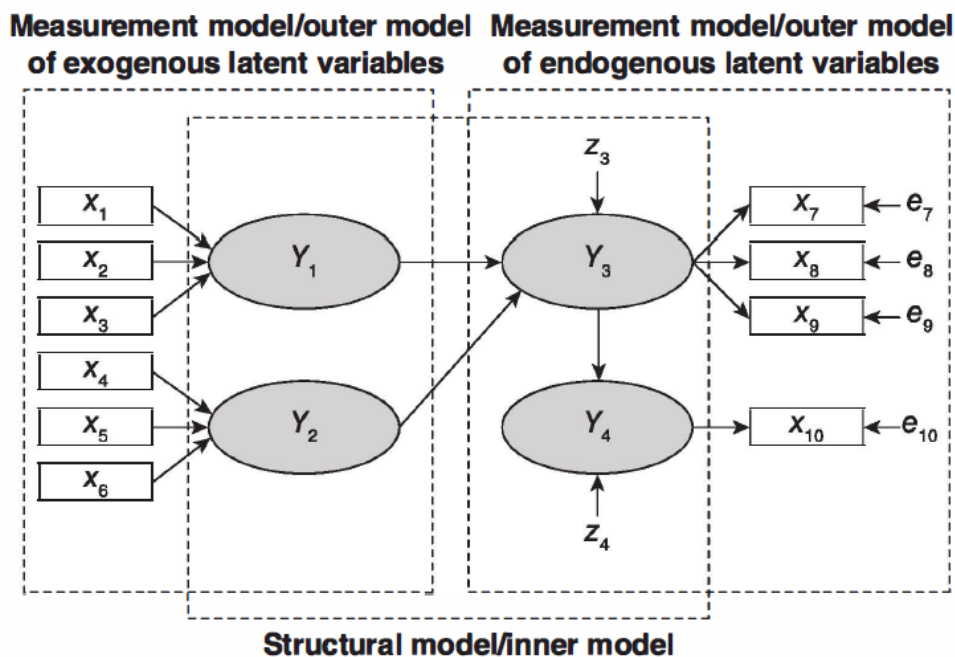


Figure 3.4 A sample PLS Path Model

Source: (Joseph F Hair, Hult, Ringle, & Sarstedt, 2014)

3.4.3.2.1.2.1. Hierarchical Component Model (HCM)

Since many sub components (themes) were derived as latent variables during Phase 1 analysis, Hierarchical Component Models (HCM) were applied when developing the PLS Path Model to reduce the number of relationships and the complexity of the model. “A hierarchical component model represents a more general construct, measured at a higher level of abstraction, while simultaneously including several sub components, which cover more concrete traits of the conceptual variable represented by this construct” (Joseph F. Hair et al., 2017, p. 37).

HCM includes two elements as “Higher Order Component (HOC)” capturing the abstract entity and “Lower Order Component (LOC)” capturing the subdimensions of the abstract entity (Joseph F Hair et al., 2014, p. 230). Based on the relationship between LOCs and HOC, there are several types of HCM as shown in Figure 3.5.

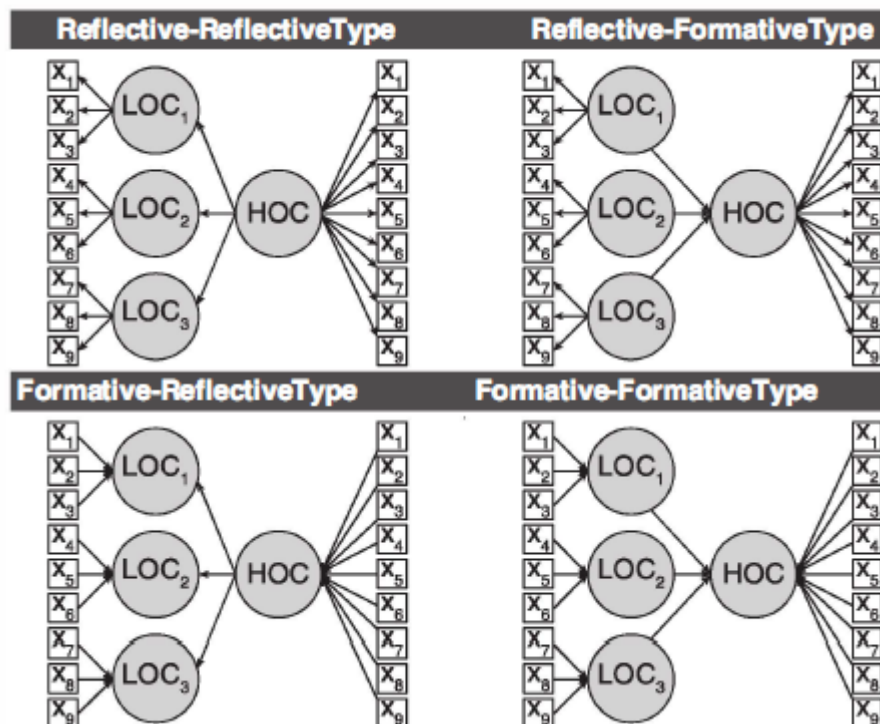


Figure 3.5 HCM Types

Source: (Joseph F Hair et al., 2014, p. 231)

Therefore, similar to an LOC, HOC also has a measurement model which can either be reflective or formative. For example, the formative-formative type HCM reflects a

formative relationship between LOCs and HOC, whereby each of the LOC is measured by formative indicators. Therefore, different methods have been identified in order to assign values to HOC and “Repeated Indicators Approach” is one such technique.

3.4.3.2.1.2.2. Repeated Indicators Approach

It is more appropriate to use “repeated indicators approach” where all the indicators from LOCs are assigned to HOC, for a formative type hierarchical component model (Becker, Klein, & Wetzels, 2012). Further, the repeated indicator approach is the generally used method to assess HCMs in PLS path models (Joseph F. Hair et al., 2017).

Attention should be paid to the following concerns when using repeated indicators approach in the PLS path model (Joseph F. Hair et al., 2017, p. 50).

1. The number of indicators should be equal (or at least comparable) across the LOCs.
2. The measurement models of HOC also need be evaluated, other than the measurement models of the LOCs.
3. Special consideration should be given when the reflective-formative and formative-formative HCMs have an antecedent latent variable.

3.4.3.2.1.3. Assessment of PLS Path Model

In our research we conduct PLS SEM in two steps. In the first step, we will be assessing the measurement model or outer model through reliability and validity testing. The second step would be in assessing the structural model or inner model.

3.4.3.2.1.3.1. Assessing Measurement Model

The measurement model assessment is also done in two stages for LOCs and HOC separately because the relations between LOCs and HOC need clarification (Joseph F. Hair et al., 2017).

- 1.1. What is measurement model or outer model?

The outer model depicts the relationships between the latent variable and its observed variables. Here, the latent variable is the variable which cannot be directly measured

(e.g. Benefits to the society). Hence, the observed variables (e.g. partnerships with other organizations) help to measure this variable. Further, the precision of the outer model is important since the relationships hypothesized in the inner model is valid and reliable based on the outer model (Joe F Hair et al., 2014).

There are two types of measurement models as “reflective” and “formative”. In the reflective model, latent variable causes the observed variables, while the latent variable is caused by the observed variables in the formative model (Xiaosong & Lai, 2012).

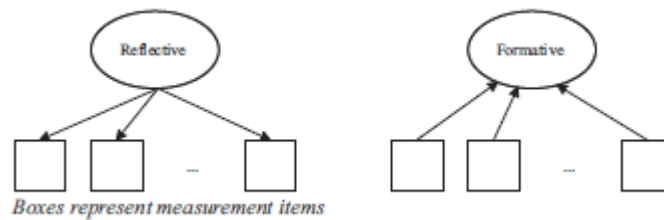


Figure 3.6. Reflective vs Formative Measurement Model

Source: (Xiaosong & Lai, 2012)

Formative variables are suitable when a study aims to explain and predict key constructs (Joe F Hair et al., 2014). Further, in the formative model, the parameters are mutually exclusive and you can barely remove them because “omitting an indicator is equivalent to omitting a part of the construct” (Joe F Hair et al., 2014).

3.4.3.2.1.3.1.1. Assessing Formative Measurement Models of LOCs

The following steps need to be taken into consideration when assessing the formative measurement models as in Figure 3.7.

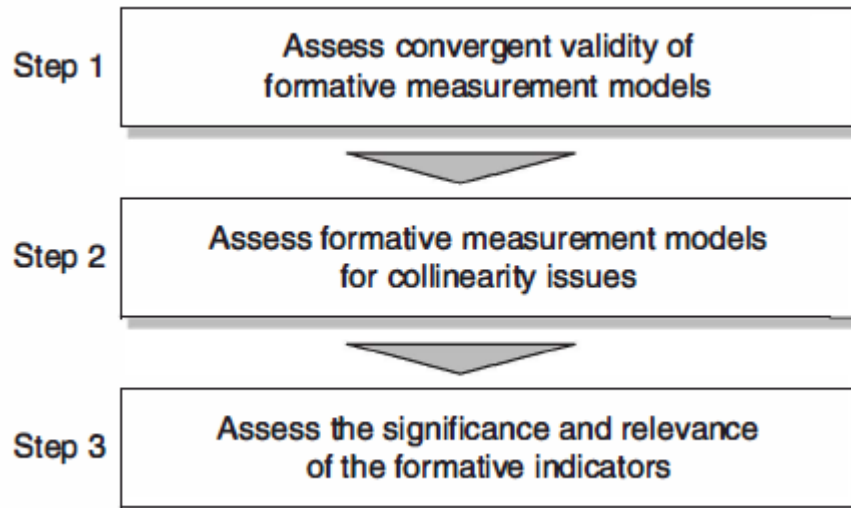


Figure 3.7. Formative Measurement Model Assessment Procedure

Source: (Joe F Hair et al., 2014, p. 121)

1. Assess the content validity of the construct under the guidance of the experts

Before evaluating the formative constructs, the content validity should be tested. “Content validity evaluates the extent to which the indicators capture the major facets of the construct” (Joe F Hair et al., 2014, p. 112) since a comprehensive set of indicators should be included to cover the domain of the formative construct.

2. Assess convergent validity

Convergent validity assessment assists to understand the extent a certain indicator relates to the other indicators in the same construct (F. Hair Jr et al., 2014). To conduct this assessment a global item (an endogenous single item construct) which summarizes the content of the indicators relating to the formative construct can be used. Hence a separate question relating to each theme need to be added to the questionnaire. The strength of the path coefficients should be above 0.8 to indicate the validity of the set of formative indicators.

3. Test for collinearity

High collinearity among two or more formative constructs can lead to biasness because they effect the estimation of weights and statistical significance (Joseph F Hair et al., 2014). Variance Inflation Factor (VIF) is a related measure of collinearity used in this

test. Therefore, a VIF value lower than 0.2 or higher than 5 reflect a potential collinearity issue (Joseph F Hair et al., 2011). Consequently, the steps in Figure 3.8 can be followed when testing for collinearity.

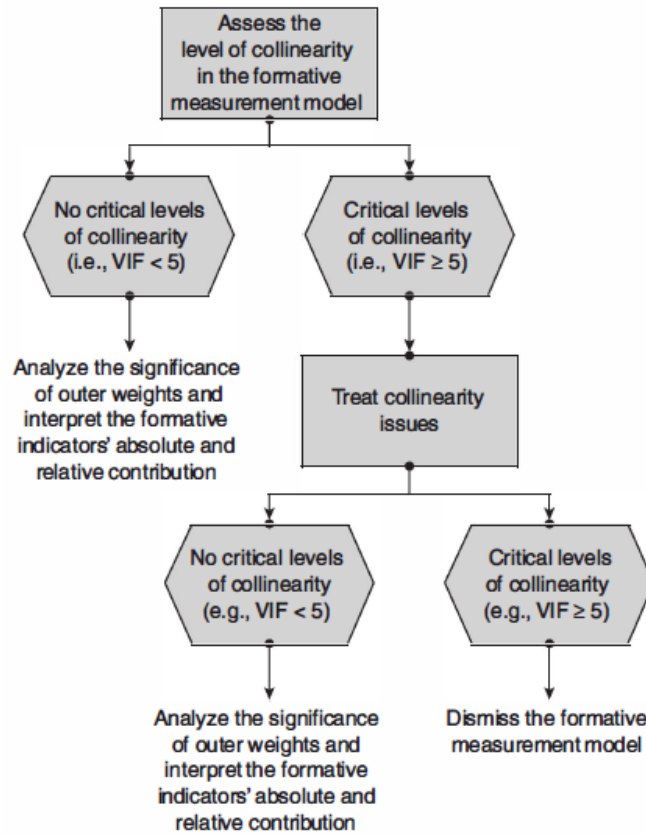


Figure 3.8 Steps in Test for Collinearity

Source: (Joseph F Hair et al., 2014)

4. Evaluate the significance and relevance of each formative indicator.

In this step, we explore whether the formative indicators are truly contributing towards forming the formative construct. Therefore, we tested whether the outer weights of the formative measurement model are significantly different from zero. Since PLS SEM does not assume normal distribution, bootstrapping techniques should be used to understand the significance of each weight assigned to each variable (Joe F Hair et al., 2014).

The following set of decisions are followed to understand the significance of the indicators (Sarstedt, Ringle, Smith, Reams, & Hair, 2014).

1. If the weight of the indicator is significant (t value >1.96), the indicator is included in the model.
2. If the weight of the indicator is not significant (t value < 1.96), but the indicator's loading is 0.5 or higher, the indicator is included in the model.
3. If the weight is non-significant and the loading is less than 0.5, the indicator is excluded from the measurement model. However, the researcher can decide whether to accept or reject the indicators at this stage. The condition for this kind of a situation is explained as follows.

“Researchers must then decide whether to retain or delete a non-significant indicator, which is always crucial for the theoretical underpinnings and interpretation of empirical results. If the theory-driven conceptualization of the measure strongly supports the indicator's inclusion (e.g., by means of the face, expert, and content validity), it should be kept in the formative measurement model and the researcher should focus on explaining the empirical outcome. However, the researcher can also interpret the empirical finding as countering the conceptual foundations that support the indicator's inclusion and thus decide to exclude the non-significant indicator from further analysis.” (Sarstedt et al., 2014, p. 146)

3.4.3.2.1.3.1.2. Assessing Formative Measurement Models of HOC

When it comes to the assessment of the measurement model of HOC in the path model, the relations between HOC and LOCs are considered.

The relationships between LOCs and HOCs are mapped as path coefficients in a PLS-SEM analysis. From a modeling perspective, these path coefficients correspond to weights (in case of reflective-formative or formative-formative HCMs) and need to be interpreted accordingly (Joseph F. Hair et al., 2017, p. 51). The same guidelines followed in assessing LOCs is followed thereafter (refer Figure 3.7 in [Section 3.4.3.2.1.3.1.1](#))

Once the measurement model assessment is completed, the structural model assessment can be initiated.

3.4.3.2.1.3.2. Assessing Structural Model

1.2. What is the Structural Model or Inner Model?

The structural model depicts the relationship between latent variables. Here, the latent variable can either be exogenous (independent) or endogenous (dependent). Further, the inner model must not have any causal loop since “the PLS-SEM algorithm can only handle models that have no circular relationship between the constructs” (Joe F Hair et al., 2014, p. 110).

The following steps were taken into consideration when the structural model is assessed (Joe F Hair et al., 2014)

1. Assess structural model for collinearity issues.

To assess collinearity VIF values considered in assessing the measurement models of formative constructs are considered (Joseph F Hair et al., 2014). If VIF values are above 5 and indicate collinearity, collinearity problem should be treated.

2. Assess the significance and relevance of the structural model relationships.

The path coefficients varied from -1 to +1 indicate the hypothesized structural model relationships between latent constructs. Coefficients closer to +1 depicts the strong positive relationship, while coefficients closer to -1 hint the strong negative relationships. Bootstrapping is used for analyzing the significance of these relationships and the minimum number of bootstrap sample is considered to be 5000 (Joseph F Hair et al., 2011). Then the relevance of these relationships (whether the sizes of these coefficients are meaningful) should be studied. Further, an analysis of relative importance should be conducted among the path coefficients in order to interpret the results and come to conclusions (Joseph F Hair et al., 2014).

3. Assess the level of coefficient of determination (R^2)

R^2 ranges from 0 to 1, while 1 interprets the perfect predictive accuracy. Different R^2 values of 0.75, 0.50 and 0.25 are described as substantial, moderate or weak respectively (Joseph F Hair et al., 2011). However, depending merely on the R^2 value

to assess the quality of a PLS model can be an issue sometimes (Joe F Hair et al., 2014).

4. Assess the effect sizes (f^2)

f^2 is calculated based on the change in R^2 occur “when a specific construct is eliminated from the model”(Joe F Hair et al., 2014, p. 114). Further, f^2 depicts how the omitted exogenous construct impact on the endogenous construct and the values of 0.02, 0.15 and 0.35, respectively, represent small, medium, and large effects of the exogenous construct (F. Hair Jr et al., 2014).

The following steps are followed to assess the effect size (f^2).

1. Select a target construct
2. Compute the R^2 of the target construct
3. Select a path relationship that goes into the target construct
4. Delete the selected latent variable that explains the targets construct
5. Compute the R^2 of the target construct after the deletion
6. Compute the f^2 effect size of the select latent by applying Cohen’s equation:

$$f^2 \text{ effect size} = \frac{R^2 (\text{included}) - R^2 (\text{excluded})}{(1 - R^2 (\text{included}))}$$

5. Asses the predictive relevance or cross validated redundancy (Q^2)

Blindfolding technique can be used to get Q^2 (Joseph F Hair et al., 2011). Q^2 calculates “the inner model’s predictive relevance” (Joe F Hair et al., 2014). The model is considered to have a predictive validity, if the value of Q^2 is greater than zero. However, this blindfolding technique is only used to endogenous constructs which have reflective measurement models (Joseph F Hair et al., 2014). Since this path model does not contain any construct with reflective measurement model, we do not calculate Q^2 .

This chapter discussed the mixed method approach followed in this research study in order to answer the Research Questions and Research Objectives identified in the

Chapter 2. The next chapter will describe the results of the qualitative analysis of Phase 1.

4. RESEARCH ANALYSIS – Phase 1

Previous chapter discussed the research methodology used in this study. This chapter discusses the data analysis in Phase 1 of the research and provides insights to selecting the key themes coming under the social and economic sustainability dimensions of the apparel supply chains. Therefore, the data collected via literature review and semi structured interviews are analyzed, and a conceptual framework is developed in this chapter.

4.1. Identification of Key Themes in Sustainable Apparel Supply Chains

111 key themes were derived from the UN SDGs and semi structured interviews as related to environmental, social, and economic sustainability dimensions in supply chains. All the findings are based on the last access to SDG Compass on 01st August 2017.

4.1.1. Acceptance and Rejection of Themes

Out of the selected 111 themes 58 were accepted to consider under the social and economic sustainability dimensions of the apparel supply chain due to the following reason.

- The literature and/or interviews with industry experts provided enough evidence that the performance indicator/s relating to a certain theme has been considered under the social or economic sustainability dimension/s of apparel supply chain (this theme can also be applicable to any/specific industry as well).

Meanwhile, the other 53 themes were rejected due to the following reasons.

- Enough evidence did not support that the performance indicator/s relating to a certain theme have been considered under the social or economic sustainability dimension/s in apparel supply chain.
- When the performance indicators did not clearly reflect the theme from a different industry.

- The specific theme has been considered under the environmental sustainability dimension in the SSCM literature.

Table 4.1 depicts the accepted key themes and rejected key themes in summary.

Table 4.1. Summary of Accepted and Rejected Themes

No.	Accepted Theme	No.	Rejected Theme
2	Earnings, wages and benefits	1	Availability of products and services for those on low incomes
3	Economic development in areas of high priority	6	Electricity availability and reliability
4	Access to quality essential health care services	14	Indirect Impact on Job Creation
5	Access to WASH (Water, Sanitation and Hygiene)	22	Access to financial services
7	Non-discrimination	23	Economic inclusion
8	Healthy and affordable food	28	Sustainable buildings
9	Occupational health and safety	33	Physical and economic displacement
10	Access to medicines	45	Jobs supported in the supply chain
11	Education for sustainable development	51	Security
12	Availability of a skilled workforce	52	Socially inclusive events
13	Capacity Building	55	Accessibility of buildings
15	Youth Employment	56	Accessibility of events
16	Equal remuneration for women and men	57	Accessibility of media content
17	Diversity and equal opportunity	58	Access to land
18	Access to Reproductive health care facilities	59	Air quality
19	Workplace violence and harassment	61	Cultural diversity through media content
20	Women in leadership	62	Cultural heritage
21	Childcare services and benefits	63	Deforestation

No.	Accepted Theme	No.	Rejected Theme
24	Access to affordable housing	65	Electricity access
25	Infrastructure investments	66	Energy efficiency
26	Sustainable transportation	67	Environmental investments
27	Access to public spaces	68	Food labelling
29	Effective, accountable and transparent governance	72	Forest degradation
30	Compliance with laws and regulations	73	GHG emissions
31	Anti-corruption	74	Genetic diversity of farmed and domesticated animals
32	Public access to information	75	Indigenous rights
34	Inclusive decision making	76	Land remediation
35	Abolition of child labor	77	Landscapes, forest management and fiber sourcing
36.1	Employee Retention	78	Marine biodiversity
36.2	Employee Attraction	79	Materials efficiency
36.3	Improved image	80	Materials recycling
36.4	Customer attraction	81	Media literacy
36.5	Customer retention	82	Mountain ecosystems
37	Elimination of forced or compulsory labor	83	Natural habitat degradation
38	Employee training and education	84	Noise
39	Employment	85	Ocean acidification
40	Ethical and Lawful behavior	87	Procurement practices
41	Freedom of association and collective bargaining	89	Renewable energy
42	Gender equality	90	Resource efficiency of products and services
43	Grievance mechanisms	91	Responsible content dissemination
44	Health financing	92	Responsible finance
46	Labor/management relations	93	Risks and opportunities due to climate change
47	Labor practices in the supply chain	95	Spills
48	Parental leave	96	Sustainable sourcing
49	Protection of privacy	97	Sustainable tourism

No.	Accepted Theme	No.	Rejected Theme
50	Research and development	98	Sustainable water withdrawals
53	Women empowerment through technology	100	Terrestrial and inland freshwater ecosystems
54	Work life balance	101	Waste
60	Changing the productivity of organizations, sectors, or the whole economy	102	Water-related ecosystems and biodiversity
64	Disaster/ Emergency planning or response	103	Water discharge to oceans
69	Food prices	104	Water efficiency
70	Food safety	105	Water quality
71	Foreign direct investment	106	Water recycling and reuse
86	Partnerships		
88	Product and service information and labeling		
94	Sexual exploitation		
99	Technological legacies		
107	Improved profits		

Source: Author

The detailed justification for the acceptance and rejection of the above mentioned key themes are in Appendix 2.

4.2. Themes in the Conceptual Framework

The conceptual framework is developed by dividing the above accepted themes into 12 categories as follows under the instruction of Tajbakhsh & Hassini (2015), V Mani, Agrawal, & Sharma (2015), Venkatesh Mani, Gunasekaran, Papadopoulos, Hazen, & Dubey (2016) and Ryan, Bernard, Ryan, & Bernard (2003) where past research relating to the social sustainability dimension of supply chains have been conducted. The themes identified earlier were categorized into 12 topics as follows.

1. Social Sustainability Practices towards Society (SB)
2. Education Benefits (EB)
3. Equity Improvement (EqIONE)
4. Gender related Equity Improvement (EqITWO)
5. Ethical Improvement (EI)

6. Health and Safety Improvement (HS)
7. Improved Labor Conditions (R2)
8. Child and Bonded Labor Conditions (R1)
9. Regulatory Responsibility (RR)
10. Improved Wage Conditions (WC)
11. Workers' and employees' Conditions (WEC)
12. Improved Economic Performance (EP)

These 12 categories are discussed below.

4.2.1. Social Sustainability Practices Benefiting towards Society (SB)

This category covers the social sustainability practices within the supply chain creating an impact on the society. Access to healthcare facilities, education on sustainable development, youth employment, access to sanitation and hygiene, Research & Development etc. are some of the key components considered under this theme in the conceptual framework. The themes coming under the category SB is discussed in detail in Appendix 1. Table 4.2 summarizes how the themes are linked to this category and their respective performance indicators.

Table 4.2. Summary of themes under SB

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
SB1	4	Access to quality essential health care services	44- Health financing 18 - Access to sexual and reproductive health-care services	Construction of primary health centers, hospitals (Venkatesh Mani et al., 2016c) Conducting health camps relating to sexual health and reproduction	<ul style="list-style-type: none"> • Proportion of workers with access to health services for work related accident or disease • Proportion of workers with access to health services for other personal health issues made available or paid for by the Company system • Proportion of people benefitted from the health service made available to family members of employees and community members • Does the company provide a rationale for investing in health infrastructure-related philanthropic projects? • Do the company's health related philanthropic 	(Chardine-baumann & Botta-genoulaz, 2014) (Ruwanpura, 2014) (Kale, 2016) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<p>activities align with and support implementing national health system development plans?</p> <ul style="list-style-type: none"> The total number of women workers having access to reproductive health services in surveyed communities. 	
SB2	11	Education for sustainable development	<p>32 - Public access to information</p> <p>88 - Product and service information and labeling</p>	<p>Making awareness among everyone on sustainability</p> <p>average response time to requests for publicly available information (Tajbakhsh & Hassini, 2015)</p>	<ul style="list-style-type: none"> Number, type, and impact of sustainability initiatives designed to raise awareness, share knowledge, and impact behavior change, and results achieved Nature and the extent of knowledge transfer of best practice, and lessons learned 	<p>(ISM, 2012, p. 5)</p> <p>(Khurana & Ricchetti, 2016)</p> <p>(Bernstein, 2018)</p> <p>(Claudia Colicchia, Marco Melacini, 2011)</p> <p>(Narayanamurthy & John, 2015)</p> <p>(Rakesh Kumar Malviya & Kant, 2015)</p>

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<ul style="list-style-type: none"> Type of product and service information required by the organization's procedures for product and service information and labeling, Percentage of significant product and service categories subject to such information requirements 	(Sadaat Ali Yawar & Stefan Seuring, 2015) (Fashion Revolution, 2017) (Surendraraj, 2017) Interviews
SB3	15	Youth Employment		Employment for eligible local youth (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Total number and rates of new employee hires and employee turnover by age group 	(Venkatesh Mani et al., 2016a) (Lopez-Acevedo & Robertson, 2016) (Madurawala, 2017) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
SB4	5	Access to Sanitation and Hygiene		Building toilets for health and hygiene (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Number of employees receiving hygiene training and awareness raising • Number of toilets/urinals provided (on the basis of a rate of 2 toilet seats and 2 urinal facilities per 45 male-workers and 3 toilet seats per 50 females) • Percent of facilities with fully functioning WASH services for all workers 	(Akter, 2016) (Ruwanpura, 2014) Interviews
SB5		Philanthropic Activities	25 - Infrastructure investments 3 - Economic development	Philanthropic activities (Poverty reduction, Construction of community centers for social well-being of	<ul style="list-style-type: none"> • Percentage of investment in new, resilient infrastructure in developing countries 	(Tate, Ellram, & Kirchoff, 2010) (Roca & Searcy, 2012) (Gardetti & Subramanian, 2015)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
			in areas of high priority 27 – Access to public spaces 60 - Changing the productivity of organizations, sectors, or the whole economy	people) (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Percentage of changes in existing infrastructure to make it more sustainable The total number of dependents supported by income from one job 	(Lopez-Acevedo & Robertson, 2016) (Servaes, 2017) Interviews
SB6	50	Research & Development	99 – Technological legacies	Considering the social impact created by R&D on the society	<ul style="list-style-type: none"> Total environmental protection expenditures and investments by type Number of patents 	(Roca & Searcy, 2012) (Labuschagne, Brent, & Van Erck, 2005) (European Commission, 2011)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<ul style="list-style-type: none"> • Amount of investment in R&D 	(Carter & Rogers, 2013) Interviews
SB7	64	Disaster/ Emergency planning or response		Implementation of a program to improve community outreach efforts; number of community outreach activities (Tajbakhsh & Hassini, 2015)	<ul style="list-style-type: none"> • Number of emergency response operations supported • Donations of staff time 	(Piecyk & Björklund, 2015) Interviews
SB8	86	Partnerships	10 – Access to medicines	number of community – company partnerships (Tajbakhsh & Hassini, 2015)	<ul style="list-style-type: none"> • Number of partnerships with stakeholders and communities • Number of partnerships with health care NGOs and public clinics to raise awareness and increase access to targeted health 	(Akter, 2016) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					services for women and men workers and their families	

Source: Author

4.2.2. Education Benefits (EB)

Under this category, the educational benefits provided to the employees via education and training by developing on-the-job and off-the-job in the apparel supply chain were discussed. Education and training are provided to the apparel employees in distinct levels in order to make sure the availability of skilled work force. Moreover, companies are expanding their boundaries and planning to provide opportunities to improve their soft skills helpful in their day to day lives as well. Table 4.3 depicts the themes discussed under this category. Each of this theme is discussed in Appendix 2.

Table 4.3. Summary of themes under EB

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EB1	12	Availability of a skilled workforce		Imparting training and education for skill development and promotion (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region Number of programs and processes to ensure the availability of a skilled workforce Investment in staff education and training 	(Jakhar, 2015b) (Lopez-Acevedo & Robertson, 2016) Interviews
EB2	13	Capacity Building			<ul style="list-style-type: none"> Number of opportunities provided to improve employees' (job) skills for their current and future employment 	(Labuschagne et al., 2005, p. 7) (Yawar & Seuring, 2017) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EB3	38	Employee training and education			<ul style="list-style-type: none"> • Average hours of training per year per employee by gender, and by employee category • Percentage of employees receiving regular performance and career development reviews, by gender and by employee category • Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings 	(Chardine-baumann & Botta-genoulaz, 2014) (Lopez-Acevedo & Robertson, 2016) Interviews

Source: Author

4.2.3. Equity Improvement (EqIONE)

This category discusses how the equity improvement has been addressed in the supply chain with the social sustainability practices. Non- discrimination, diversity and equal opportunity and inclusive decision making are the three aspects considered in this conceptual framework under this theme. Table 4.4 depicts how themes are connected with each other. These themes are discussed in detail in Appendix 3.

Table 4.4. Summary of themes under Equity Improvement

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EqI1	7	Non - discrimination	43 - Grievance mechanisms	Non-discrimination based on age, gender, income, race, community, nationality, religion, and geography (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Total number of incidents of discrimination and corrective actions taken • Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms • Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms • Number of grievances about labor practices filed, addressed, and resolved 	(Chardine-baumann & Botta-genoulaz, 2014; Egels-Zandén & Lindholm, 2015; Gurusinghe, 2012; V. Mani et al., 2015; V. Mani, Agrawal, & Sharma, 2016; Venkatesh Mani et al., 2016c; Piecyk & Björklund, 2015; Sadaat Ali Yawar & Stefan Seuring, 2015; Turker & Altuntas, 2014) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					through formal grievance mechanisms	
EqI2	17	Diversity and equal opportunity		Ensuring diversity in hiring and promotion (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Number of policies promoting equal opportunities (regardless of gender and other diversities) • Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity 	(Amulya Gurtu & Cory Searcy & MY Jaber, 2015; Venkatesh Mani et al., 2016a)(Gardetti & Subramanian, 2015) (ISM, 2012, p. 3) Interviews
EqI4	34	Inclusive decision making		Not denying any rights and privileges to employee because of	<ul style="list-style-type: none"> • Number of employee engagements in decision making 	(Coppola et al., 2014) (Gopalakrishnan et al., 2012)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
				their age, sex, race, community, religion and nationality (Venkatesh Mani et al., 2016c)		(Narayanamurthy & John, 2015) Interviews

Source: Author

4.2.4. Gender Related Equity Improvement (EqITWO)

How the equity improvement relating to gender is affected by the social sustainability practices in the apparel supply chain is discussed in this category. Because of the higher number of gender disparity in the apparel supply chain gender related equity improvement was decided to be separately discussed. Themes under this category are discussed in Appendix 4. Table 4.5 summarizes the themes under gender related equity improvement.

Table 4.5. Summary of themes under gender related equity improvement (EqITWO)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EqI3	20	Women in leadership		Ensuring diversity in hiring and promotion (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Proportion of women employees who indicate that they are comfortable voicing their opinions about unequal treatment • Representation of women in i) management positions, ii) skilled (non-management) positions and iii) unskilled positions • Proportion of women representatives in leadership roles in trade unions, workers' committee and/or associations 	(RATNASINGHAM, 2015; Wage Indicator, 2017) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EqI5	42	Gender equality		Not denying any rights and privileges to employee because of their sex (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Average hours of training per year per employee by gender • Breakdown of employees per employee category according to gender • Percentage of employees receiving regular performance and career development reviews, by gender • Total number and rates of new employee hires and employee turnover by gender 	(Lopez-Acevedo & Robertson, 2016) (V. Mani et al., 2015; Turker & Altuntas, 2014; Yawar & Seuring, 2015a) (Henriques & Richardson, 2004; V. Mani, Agrawal, & Sharma, 2014) Interviews
EqI6	53	Women empowerment		Not denying any rights and privileges to	<ul style="list-style-type: none"> • Number of women participation in programs 	(Khan, 2009) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
		through technology		employee because of their sex (Venkatesh Mani et al., 2016c)	enhancing the use of enabling technologies	

Source: Author

4.2.5. Ethical Improvement (EI)

Ethical improvement discussed the social sustainability practices of the apparel supply chain leading to better ethics in the society and the focal company. The aspects such as anti-corruption and ethical behavior are discussed under this category and they can be found in Appendix 5 in detail. Further, the discussed two themes are summarized in Table 4.6.

Table 4.6. Summary of themes under ethical improvement

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EI1	31	Anti-corruption		Not allowing employees to engage in any unethical practices that include bribing, insider trading pollution, and whistleblower policy (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Number of employees trained on the anti-corruption policies • Number of corruption cases raised • Number of actions taken against bribery and extortion 	(Chardine-baumann & Botta-genoulaz, 2014) (ISM, 2012) (Gil-aluja, Terceño-gómez, & Ferrer-comalat, 2015) (Klassen & Vereecke, 2012) Interviews
EI2	40	Ethical and Lawful behavior		Not allowing employees to engage in any unethical practices that include bribing, insider trading pollution, and whistleblower policy	<ul style="list-style-type: none"> • Written internal and external mechanisms for reporting and seeking advice on concerns about unethical or unlawful behavior 	(Gardetti & Subramanian, 2015) (Tang & Zhou, 2012) (Dabija, Pop, & Postelnicu, 2016) (ISM, 2012, p. 3) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
				(Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Describing the organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics 	

Source: Author

4.2.6. Health and Safety Improvement (HS)

This category discusses the themes addressing the health and safety improvement lead by the social sustainability practices in the apparel supply chain. Following are the themes coming under this category. Refer Appendix 6 for in detailed information on each theme.

Table 4.7 summarizes the link between themes under this category.

Table 4.7. Summary of themes under HS

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
HS1	8	Healthy and affordable food	69 – food prices 70 – food safety 5- Access to Water	Ensuring health and hygiene (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Percentage of production volume manufactured in sites certified by an independent third party according to internationally recognized food safety management system standards 	(Perera, 2014) Interviews
HS2	9	Occupational health and safety		Complying with OHSAS 18000 certification for occupational safety and health (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Proportion of workers exposed to health hazards with access to Personal Protective Equipment (PPE) and training on its appropriate use Work-related injuries frequency rate (m/w) 	(Ahi & Searcy, 2015b; Akter, 2016; Venkatesh Mani et al., 2016c) (Hutchins & Sutherland, 2008) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<ul style="list-style-type: none"> • occupational diseases frequency rate (m/w) • severity rates of work-related injuries and occupational diseases (i.e. lost work days per year) (m/w) • number of work-related fatalities (m/w) along the value chain in last three years (m/w) and, where available 	

Source: Author

4.2.7. Improved Labor Conditions (R2)

Improving the labor condition in the apparel supply chain is explored under this theme and the following practices relating to labor conditions are discussed further. Appendix 7 provides a detailed description of each theme. A summary of the link between themes in this category is given in Table 4.8.

Table 4.8. Summary of themes under R2

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
LC1	19	Workplace violence and harassment	94 – Sexual exploitation	Non-appointment of sweat shop workers (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Number of incidents reported and resolved in all forms of violence at work, including verbal/ and/ or physical abuse and sexual harassment 	(Gardetti & Subramanian, 2015) (Hiller Connell & Kozar, 2012) (Ruwanpura & Wrigley, 2011) (Kelegama, 2009) Interviews
LC2	41	Freedom of association and collective bargaining		Encouraging human rights and right to associate with unions (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Percentage of total employees covered by collective bargaining agreements The proportion allowing for the right to freedom of association AND the right of its workers to 	(Akter, 2016; Chardine-baumann & Botta-genoulaz, 2014; Egels-Zandén & Lindholm, 2015; Huq, Stevenson, & Zorzini, 2014)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					collectively bargain (e.g., to join any trade union) along the supply chain	
LC3	46	Labor/management relations			<ul style="list-style-type: none"> Situations where the management and the laborers work together in coming to a mutual conclusion 	(Md. Mohiuddin, 2014) (Abraham, 2017)

Source: Author

4.2.8. Child and Bonded Labor Conditions (R1)

Themes specifically discussing the child and bonded labor conditions are discussed here since these two labor conditions are major issues in the global apparel supply chain (McClelland, 2017; Moulds, 2017). However, with the competitive advantage of Sri Lankan apparel in the global supply chain, being ethical is the solution. Hence, the Sri Lankan apparel manufacturers barely face with this issue.

These two themes are discussed in summary as in Table 4.9. For more information relating to each theme refer Appendix 8.

Table 4.9. Summary of themes under R1

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
LC4	35	Abolition of child labor	47 - Labor practices in the supply chain	Protecting labor rights (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Do ALL other major employers along the value chain have a policy/code on labour rights and standards? If no, what is the proportion of those who have a policy/code? • Are there discrepancies between the Company's and other employers' codes/policies and minimum standards (as recommended by 	(Chardine-baumann & Botta-genoulaz, 2014) (Hiller Connell & Kozar, 2012; Roos, Zamani, Sandin, Peters, & Svanstr??m, 2016) (Gardetti & Subramanian, 2015) (Lopez-Acevedo & Robertson, 2016) (Joint Apparel Association Forum Sri Lanka, 2009) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
LC5	37	Elimination of forced or compulsory labor			respected official bodies)?	(Chardine-baumann & Botta-genoulaz, 2014) (Joint Apparel Association Forum Sri Lanka, 2009) Interviews

Source: Author

4.2.9. Regulatory Responsibility (RR)

Suppliers need to be fulfilling the responsibilities of the regulatory country or regulatory firm in the apparel supply chain since the world implies sustainability as a responsibility of the focal company (Venkatesh Mani et al., 2016c). Hence, the governance of the apparel manufacturing companies (especially as the suppliers located in the developing countries) and their compliance to laws were considered under this theme. Table 4.10 summarizes the link between these themes and the performance indicators assisting the monitoring of the sustainability performance. More details relating to each theme can be found in Appendix 9.

Table 4.10. Summary of themes under RR

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
RR1	29	Effective, accountable and transparent governance	49 - Protection of privacy	Supplier compliance with local regulations (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data 	(Tay et al., 2015) (ISM, 2012) (The Island, 2007) (Dissanayake, Tilt, & Xydias-lobo, 2016; Piecyk & Björklund, 2015) Interviews
RR2	30	Compliance with laws and regulations			<ul style="list-style-type: none"> Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations Total number of incidents of non- 	(Venkatesh Mani et al., 2016a; Reefke & Mattia, 2013; Sancha et al., 2016)(Yawar & Seuring, 2015b) Interviews

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<p>compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes</p> <ul style="list-style-type: none"> • Total number of legal actions for anti-competitive behavior, anti-trust • Total number of substantiated complaints regarding breaches of 	

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					customer privacy and losses of customer data	

Source: Author

4.2.10. Improved Wage Conditions (WC)

To improve the performance of the employees in the apparel industry and motivate their work, providing the salaries that properly and fairly reward them for their work along with other benefits is crucial. This theme discusses such practices followed in the apparel supply chain and each theme is discussed in detail in Appendix 10. Table 4.11 discusses the summary of the themes along with the performance indicators that can be used to measure each theme within the companies in the supply chain.

Table 4.11. Summary of themes in WC

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
WC1	2	Wages and benefits negotiations along the supply chains	Earnings, wages and benefits	Providing the salaries that properly and fairly reward them for their work (Venkatesh Mani et al., 2016c)	<ul style="list-style-type: none"> • Estimated proportion of workers (m/w) along the value chain who have other jobs to sustain their livelihoods • Range of company benefits for permanent vs. part-time contractual workers – in low and high seasons 	(Campbell, 2007; Egels-Zandén & Lindholm, 2015; Huq et al., 2014; V. Mani et al., 2015, 2016; Venkatesh Mani et al., 2016b; Rajak & Vinodh, 2015; Sadaat Ali Yawar & Stefan Seuring, 2015). Interviews
WC2	2	Satisfactory benefits to the employees	Earnings, wages and benefits			
WC3	16	Equal remuneration for women and men				<ul style="list-style-type: none"> • Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
					<ul style="list-style-type: none"> • Frequency of periodic equal pay reviews/audits, including basic pay, overtime and bonuses 	Interviews

Source: Author

4.2.11. Workers' and Employees' Conditions (WEC)

We discuss the support extended to the workers and employees to continue their work in the working environment. Therefore, we considered three areas supporting employees' and workers' conditions such as providing childcare facilities, transportation facilities to reach work and support to build their own houses for their family. Appendix 11 illustrates the themes discussed under WEC category while Table 4.12 summarizes the link between these themes under WEC.

Table 4.12. Summary of themes under WEC

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
WEC1	21	Childcare services and benefits	54 – Work life balance	Support to continue their work at the factory	<ul style="list-style-type: none"> Number of employees using the day care facilities 	(Akter, 2016) (Huq et al., 2014) (Hutchins & Sutherland, 2008) (Closs, Speier, & Meacham, 2011; Keating, Quazi, Kriz, & Coltman, 2008) Interviews
WEC2	26	Sustainable transportation			<ul style="list-style-type: none"> Number and types of transport facilities provided to employees 	(Lopez-Acevedo & Robertson, 2016) (Ruwanpura, 2014) Interviews
WEC3	24	Access to affordable housing	54 – Work life balance	Construction and extending subsidies to employee housing	<ul style="list-style-type: none"> Budget allocated for providing subsidies to employee housing 	(Venkatesh Mani et al., 2016b) (V. Mani et al., 2015)

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
				(Venkatesh Mani et al., 2016c)		(Brandix, 2011) Interviews

Source: Author

4.2.12. Improved Economic Performance (EP)

Under this theme we discuss the themes coming under the economic sustainability dimension of the apparel supply chain and they are discussed in detail in Appendix 12. Further, Table 4.13 depicts the links between themes under EP.

Table 4.13. Summary of themes under EP

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EP1	36.1	Employee retention	36 - Economic performance 48 – parental leave	Employee retention, attraction, improved image, customer attraction and retention are considered under the economic success derived from CSR (Weber, 2008)	<ul style="list-style-type: none"> Total number and rates of employee turnover by age group, gender, and region Return to work and retention rates after parental leave, by gender 	(Gardetti & Subramanian, 2015) (Reefke & Mattia, 2013) (Freise & Seuring, 2015) (Azapagic & Perdan, 2000)
EP2	36.2	Employee attraction	36 - Economic performance		<ul style="list-style-type: none"> Total number and rates of new employee hires by age group, gender, and region 	(Varsei, Soosay, Fahimnia, & Sarkis, 2014)
EP3	36.3	Improved image	36 - Economic performance			

	No.	Theme	Linked with Theme	Description	Performance Indicators	Supporting Sources
EP4	36.4	New customers	36 - Economic performance			
EP5	36.5	Existing customers	36 - Economic performance			
EP6	71	Foreign direct investment/ Increase in investment		The total value of investments in sustainable development (Tajbakhsh & Hassini, 2015)		(Tajbakhsh & Hassini, 2015) (Huq et al., 2014)
EP7	107	Improved profits		revenue growth (Tajbakhsh & Hassini, 2015)		Interviews

Source: Author

4.3. Conceptual Framework Development

In order to clearly define the boundaries of the supply chain we are considering in this study, we divided the social sustainability dimension into two major categories as “In house Social Sustainability Practices” and “Social Sustainability Practices towards Society” under the categorization of (V Mani et al., 2015). Therefore, the ultimate categorization of the social sustainability dimension and economic sustainability dimension is as in Table 4.14.

Table 4.14 Categorization of Social Sustainability Dimension

Social Sustainability Dimension	In house Social Sustainability Practices	Education Benefits (EB)
		Equity Improvement (EqIONE)
		Gender related Equity Improvement (EqITWO)
		Ethical Improvement (EI)
		Health and Safety Improvement (HS)
		Improved Labor Conditions (R2)
		Child and Bonded Labor Conditions (R1)
		Regulatory Responsibility (RR)
		Improved Wage Conditions (WC)
		Workers’ and employees’ Conditions (WEC)
	Social Sustainability Practices towards Society	Access to quality essential health care services (SB1)
		Education for sustainable development (SB2)
		Youth employment (SB3)
		Access to Sanitation and Hygiene (SB4)
		Philanthropic activities (SB5)
		Research and innovation (SB6)
		Emergency relief (SB7)
		Building partnerships (SB8)
	Economic Performance	Employee retention (EP1)
Employee attraction (EP2)		

Economic Sustainability Dimension	Improved image (EP3)
	New customer attraction (EP4)
	Existing customer retention (EP5)
	Increase investment or volumes of trade (EP6)
	Improved profits (EP7)

This chapter discussed the data analysis in Phase 1 where the conceptual framework was built ultimately. In the next chapter, this conceptual framework will be tested.

5. RESEARCH ANALYSIS – PHASE 2

This chapter analyses the data gathered from the survey instrument in Phase 2 and explore the relationship between social and economic sustainability dimensions.

5.1.Descriptive Data Analysis in Survey Questionnaire

Initially the background analysis was conducted based on the data gathered from the survey instrument.

5.1.1. Demographic Data Analysis

Figure 5.1 depicts how the size of the companies' survey in this research vary. Majority of the respondents (59%) are representing the large-scale apparel companies in Sri Lankan apparel supply chain.

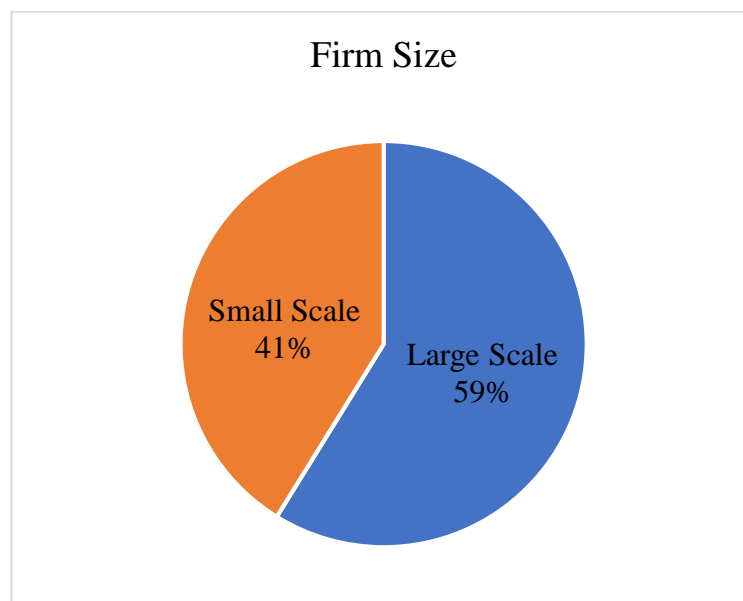


Figure 5.1 Firm Size Comparison

The type of business category is shown in Figure 5.2. Majority of the apparel companies considered in this research are manufacturing apparel with the aim of exporting.

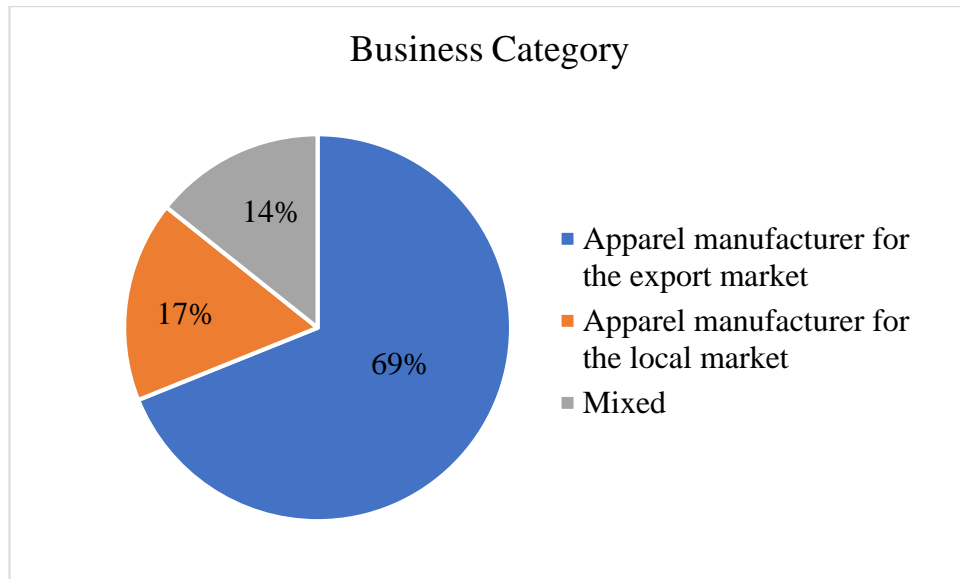


Figure 5.2 Business Category

The majority (50%) of the respondents participated in this survey belonged to the Operational Level Management as depicted in Figure 5.3. The responding level of both top management and middle level management is limited to 25% due to the lack of responding to their busy schedules. However, as Figure 5.4 depicts 19% of the respondents from top level management represented the small-scale manufacturers in the Sri Lankan apparel industry, the majority of respondents from the other management levels represented the large-scale apparel manufacturers. Meanwhile, the majority of the respondents represented the export apparel manufacturing companies in the industry according to Figure 5.5.

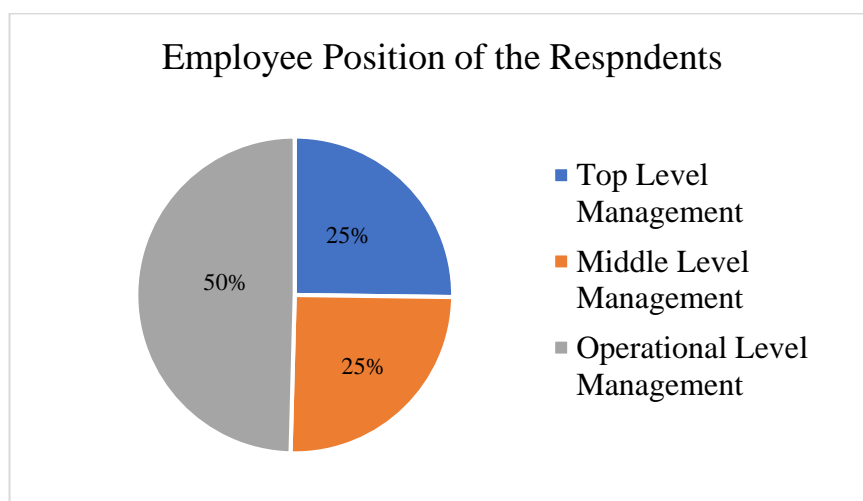


Figure 5.3. Job Position of the Respondents

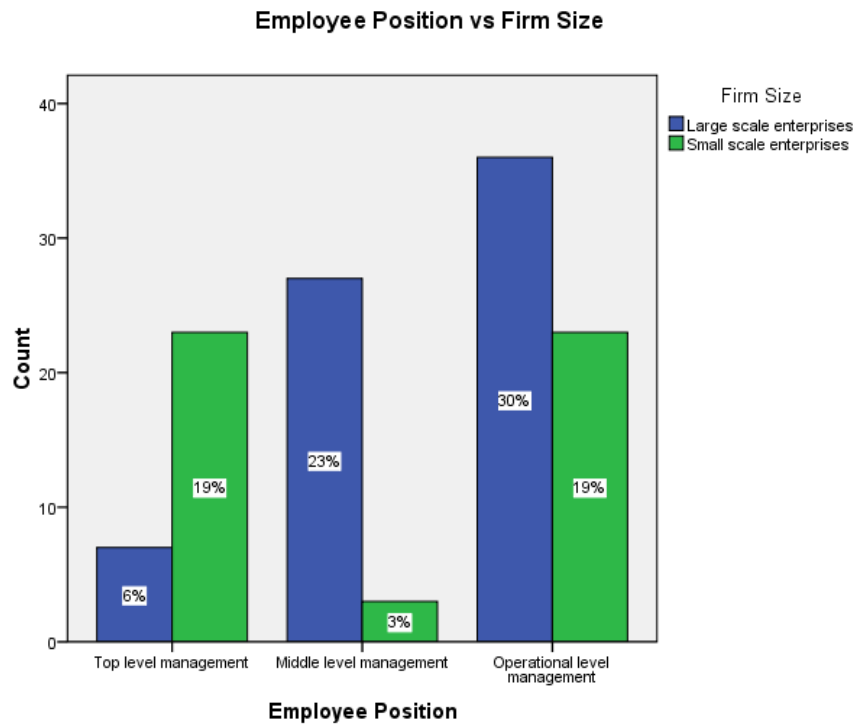


Figure 5.4. Employee position vs Firm size

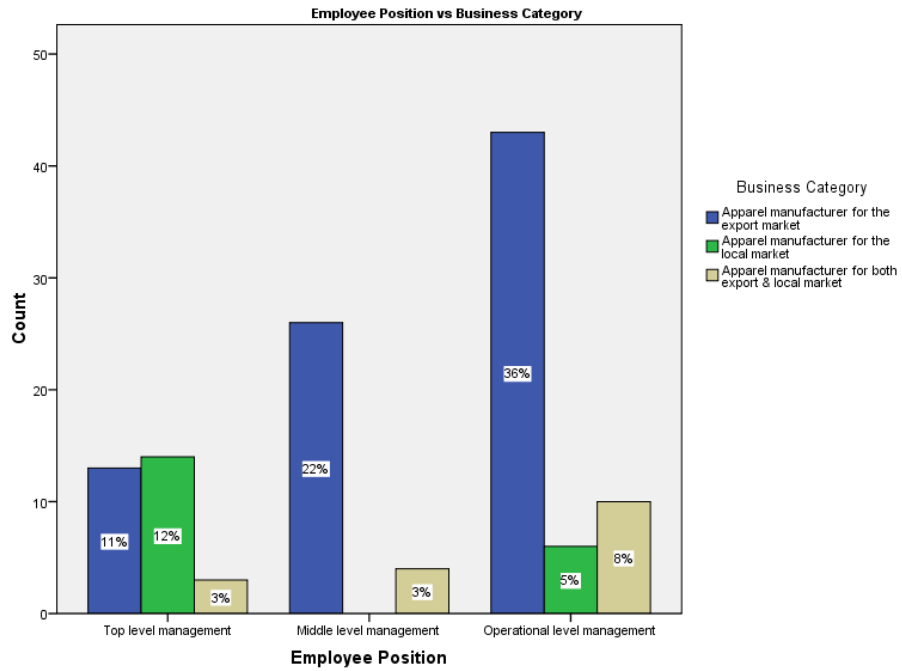


Figure 5.5. Employee position vs Business category

Figure 5.6 illustrates that the majority of the apparel companies practice socially and economically sustainable activities.

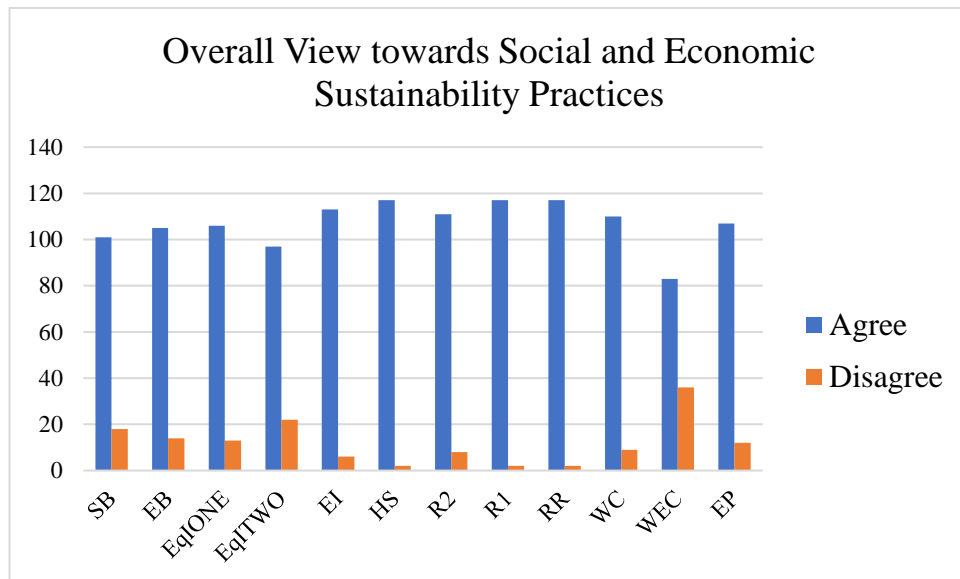


Figure 5.6. Social and Economic Sustainability Practices in Apparel Supply Chain

Figure 5.7 shows the practice of sustainable acts in apparel supply chain. All the respondents have replied that their companies are providing healthy and affordable food to the employees and workers of the company. More than 90% of the respondents agree with the following socially sustainable actions practiced by their companies.

1. Compliance with laws and regulations
2. Occupational health and safety applications
3. Abolition of child labor
4. Youth employment
5. Availability of skilled workforce
6. Elimination of forced or compulsory labor
7. Ethical and lawful behavior
8. Effective, accountable and transparent governance
9. Labor/ management relations
10. Working against workplace violence and harassment
11. Non-discrimination

Meanwhile, the least practiced sustainable acts are childcare services and benefits, and access to affordable housing.

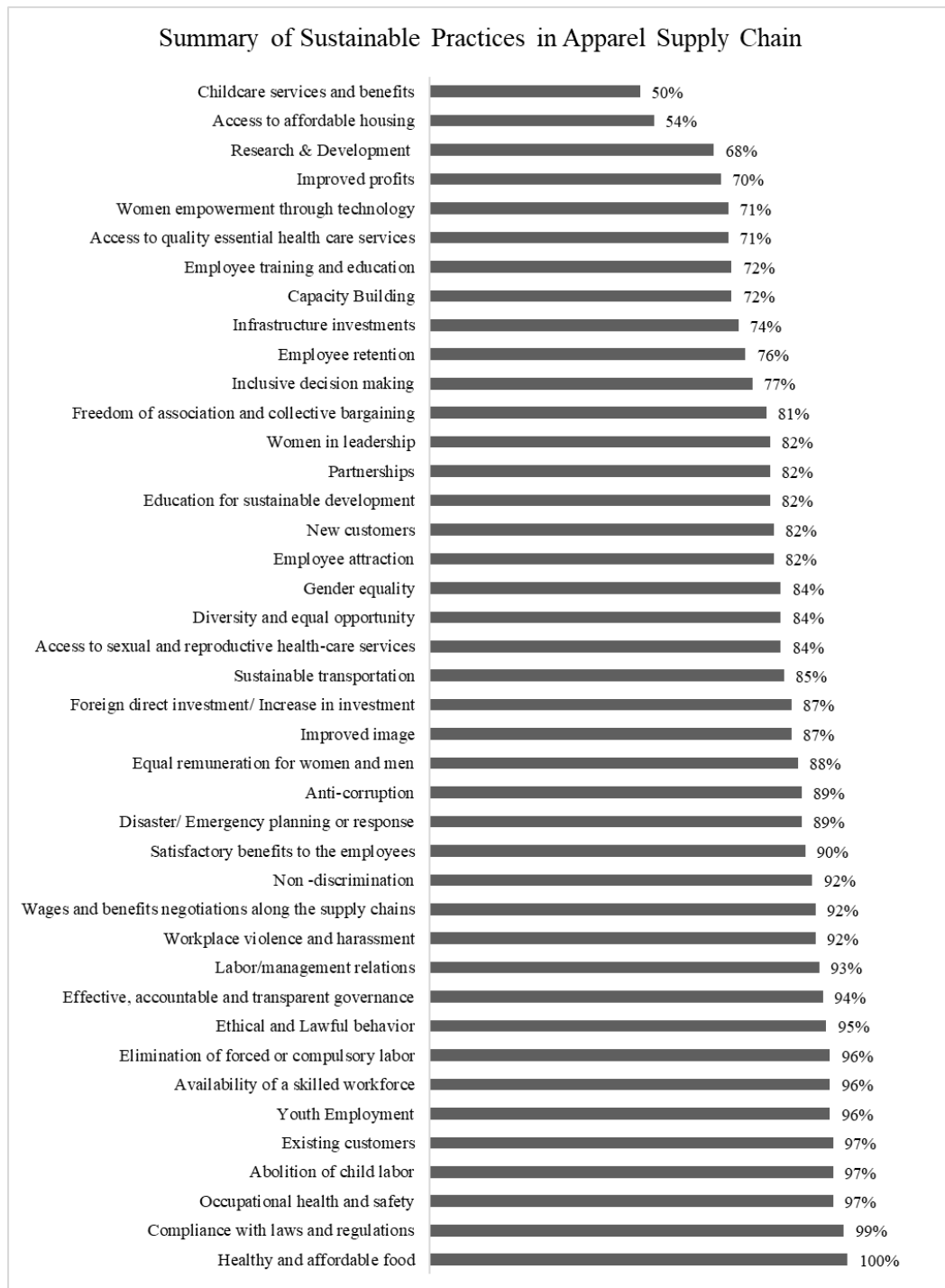


Figure 5.7. Summary of Sustainable Practices in Apparel Supply Chain

5.1.2. Social Sustainability Practices Benefiting towards Society (SB)

Figure 5.8 depicts how the social sustainability practices benefitting towards society are conducted in the apparel supply chain. Both large scale and small-scale companies are majorly (85%) agreeing on conducting these activities.

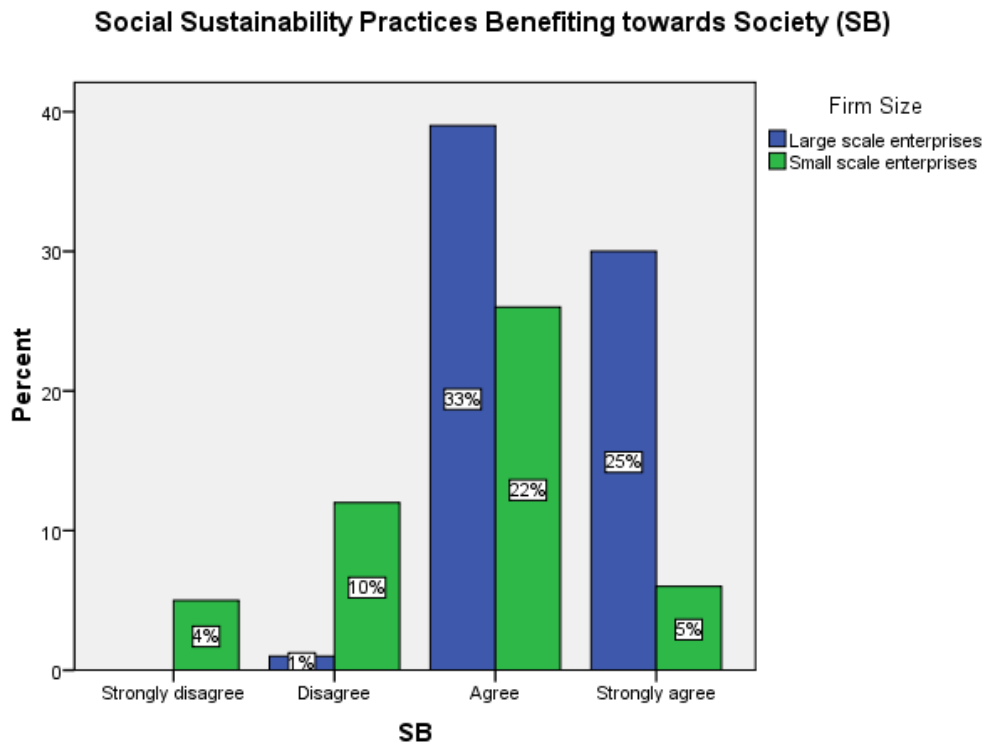


Figure 5.8. Social Sustainability Practices Benefiting towards Society vs Firm Size

5.1.2.1. Small Scale Enterprises vs SB Dimensions

When each factor coming under this theme is considered, the results are reflected in Figure 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15 and 5.16.

Figure 5.9 depicts that 56% of the small-scale exporting manufacturers and 76% of the local apparel manufacturers disagree with providing access to essential health care services (SB1), while 72% of the small-scale manufacturers for local and export market are agreeing on this social sustainability practice. Additionally, Figure 5.10, 5.11 and 5.12 depict that all the types of small-scale apparel manufacturing companies

consider the importance of following social sustainability practices in the apparel supply chains.

- Education for sustainable development (SB2)
- Youth employment (SB3)
- Access to Sanitation and Hygiene (SB4)

Philanthropic activities (SB5) is identified differently by different apparel manufacturing types as in Figure 5.13. While 88% of local apparel manufacturers do not see the importance of this social sustainability practices, 52% and 71% of apparel manufacturers in the export market and both markets respectively reflect the importance.

Figure 5.14 depicts that 68% and 64% of small scale manufacturers respectively for export and local apparel markets do not see the importance of research and development (SB6) as a social sustainability practice, while 72% of the small-scale apparel companies manufacturing for both local and export markets accept the importance.

Figure 5.15 depicts that every type of small scale apparel manufacturing companies provides disaster or emergency services (SB7) in the supply chain. As per Figure 5.16 two types of small scale manufacturers (manufacturers providing clothing for export markets and both local and export markets) identifies continuing partnerships (SB8) as a social sustainability practice with agreeing percentages of 52% and 100% respectively. However, 53% of the small manufacturers in the local market disagrees with this argument.

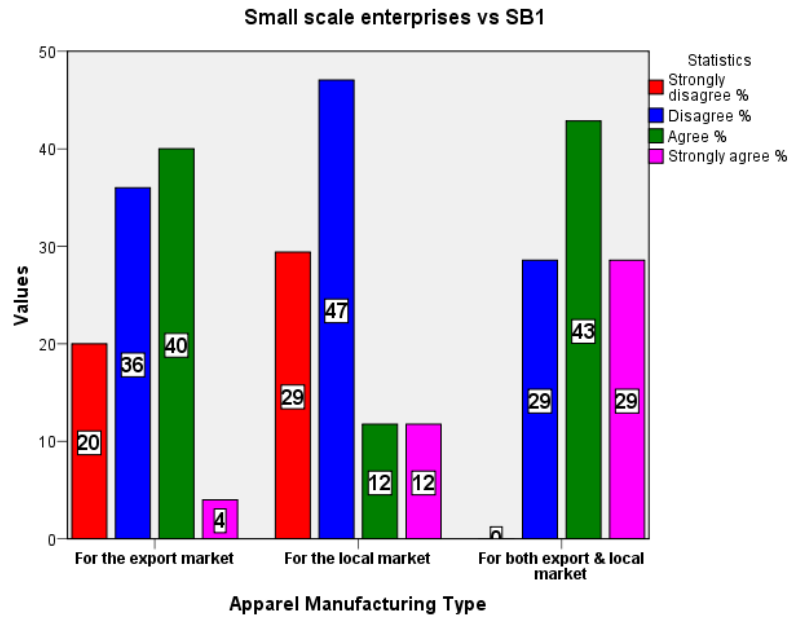


Figure 5.9. SB1 vs Small Scale Firm Type

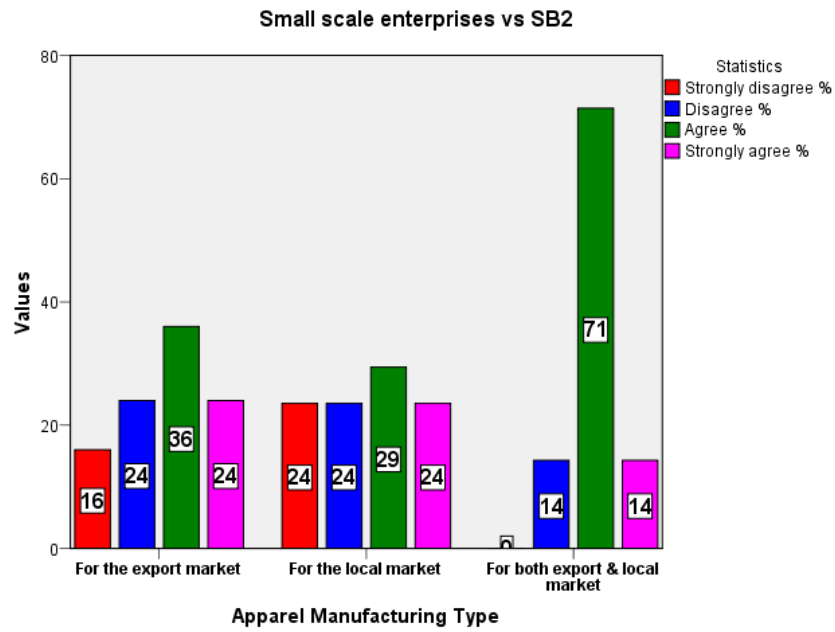


Figure 5.10. SB2 vs Small Scale Firm Type

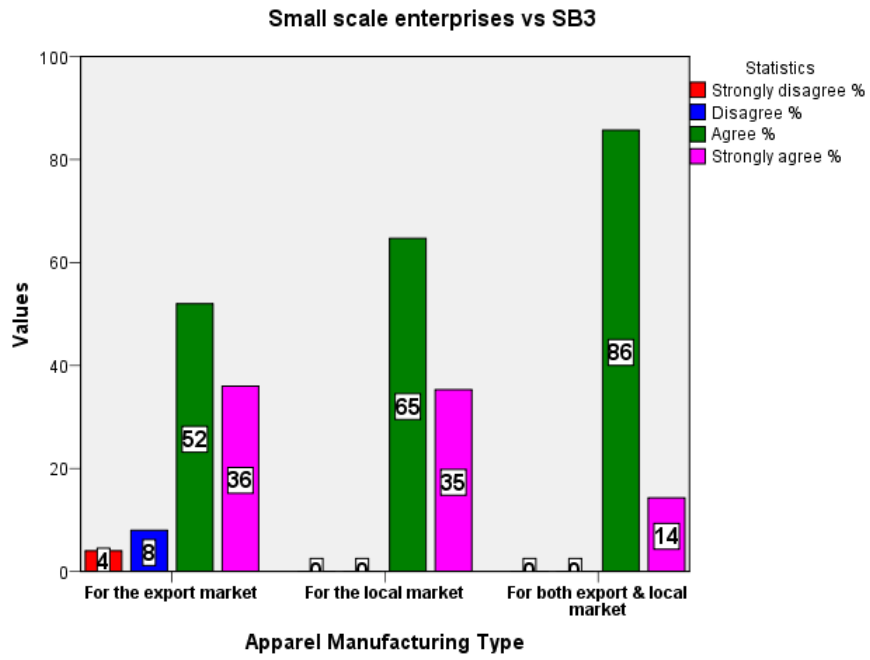


Figure 5.11. SB3 vs Small Scale Firm Type

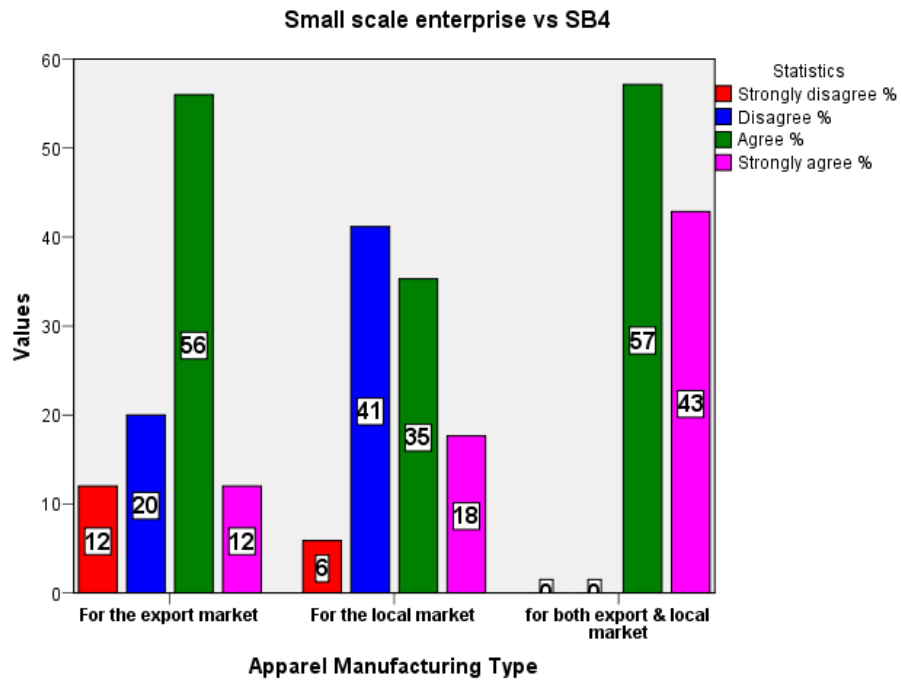


Figure 5.12. SB4 vs Small Scale Firm Type

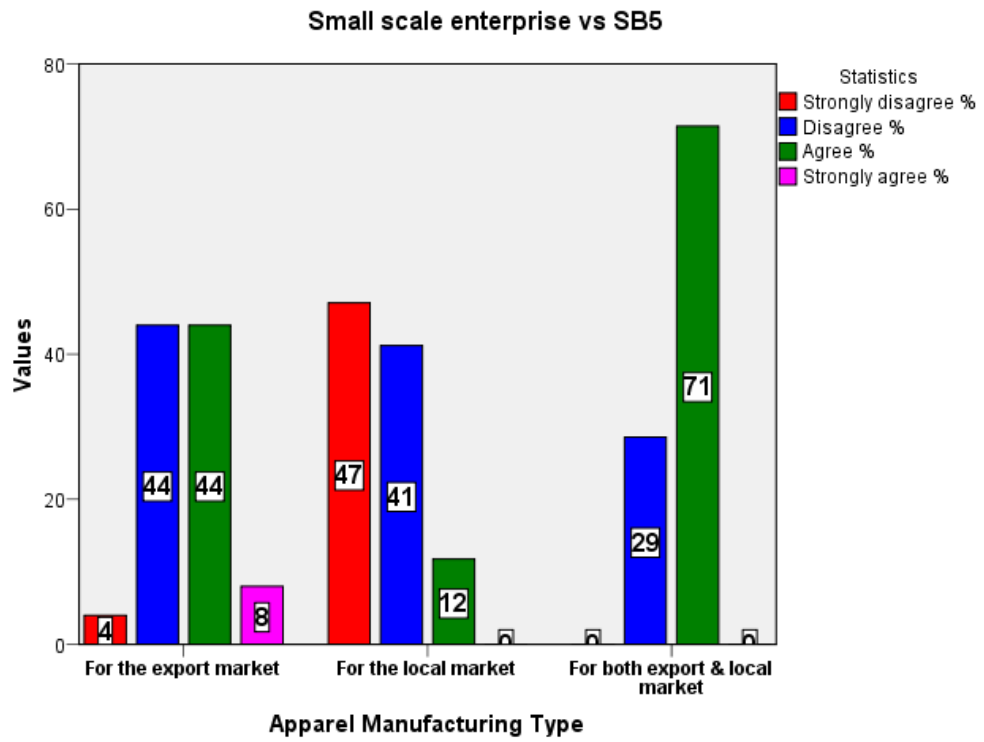


Figure 5.13. SB5 vs Small Scale Firm Type

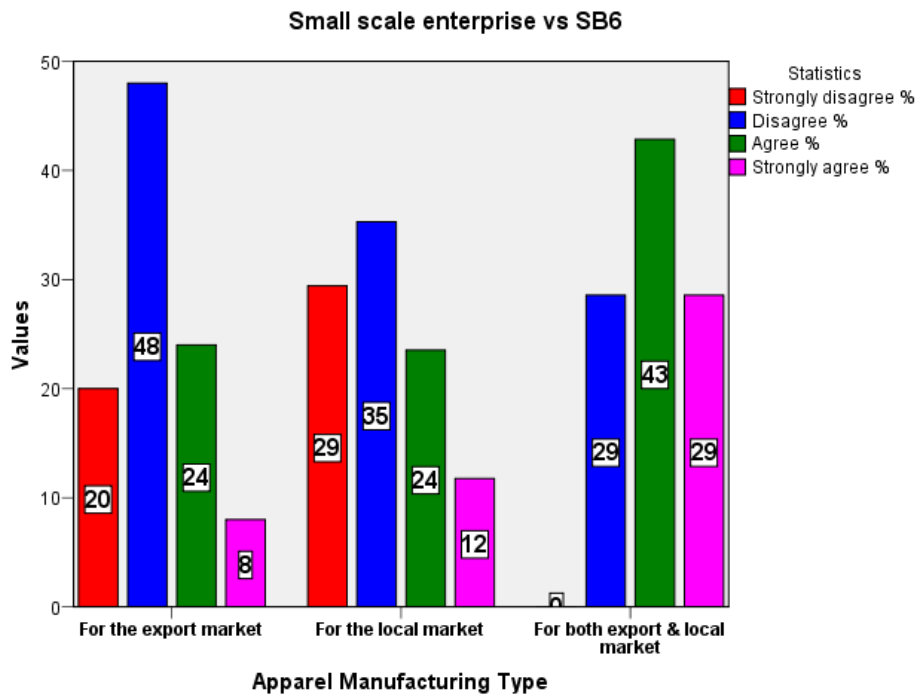


Figure 5.14. SB6 vs Small Scale Firm Type

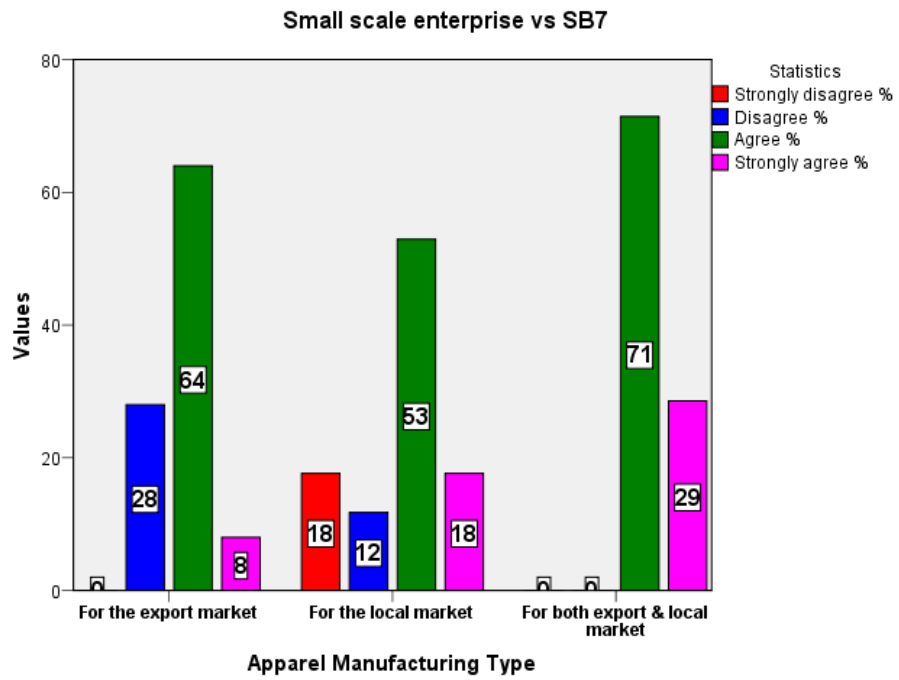


Figure 5.15. SB7 vs Small Scale Firm Type

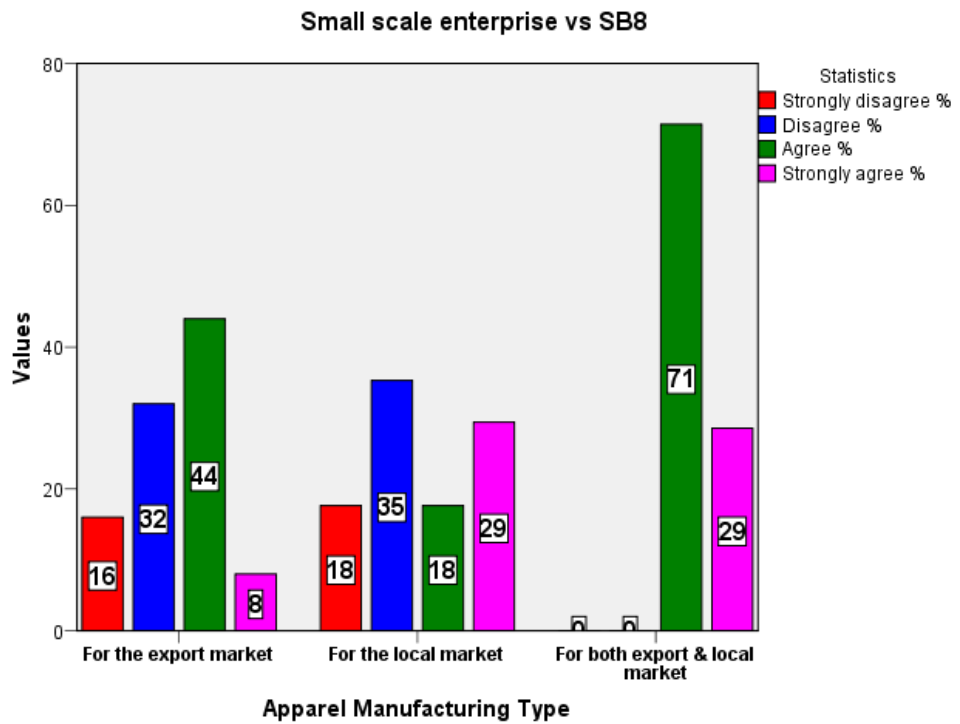


Figure 5.16. SB8 vs Small Scale Firm Type

5.1.2.2. Large Scale Enterprises vs SB Dimensions

Figure 5.17, 5.18, 5.19, 5.20, 5.21, 5.22, 5.23 and 5.24 depict that majorly (more than 50%) all the three types of large scale apparel manufacturers are practicing all the actions mentioned under social benefits provided to the society.

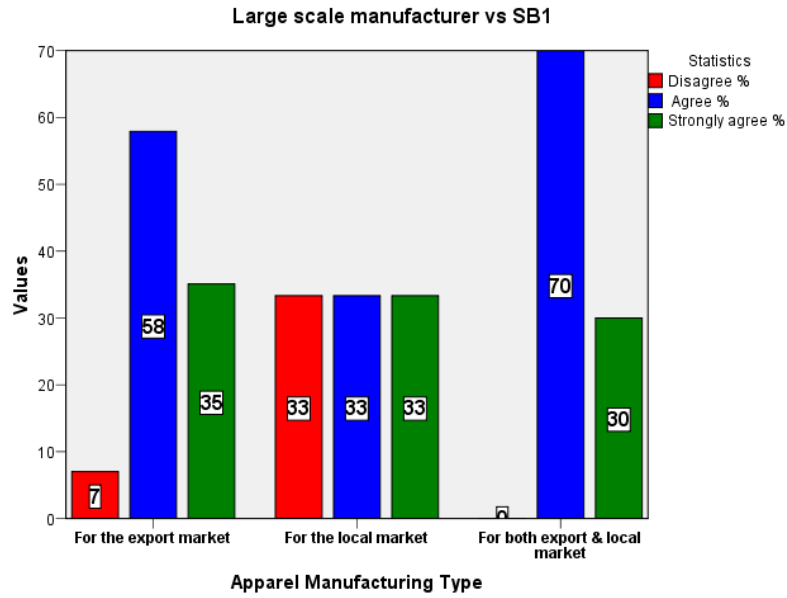


Figure 5.17. SB1 vs Large Scale Firm Type

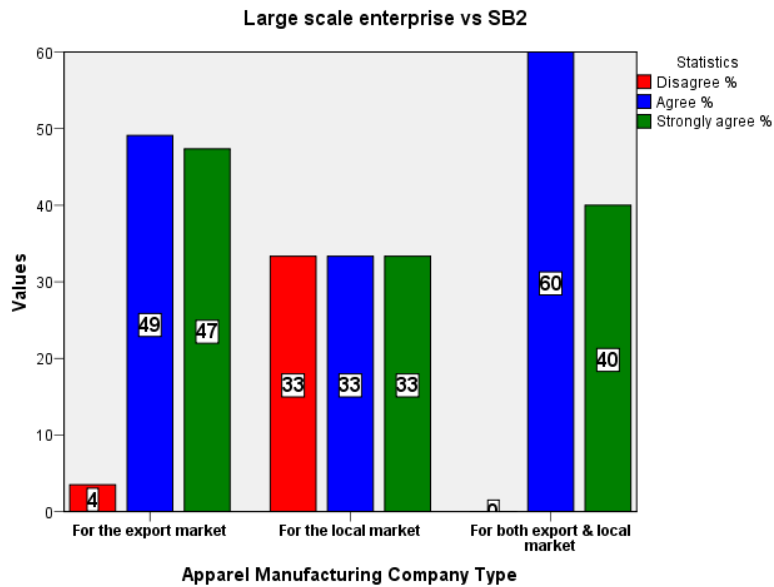


Figure 5.18. SB2 vs Large Scale Firm Type

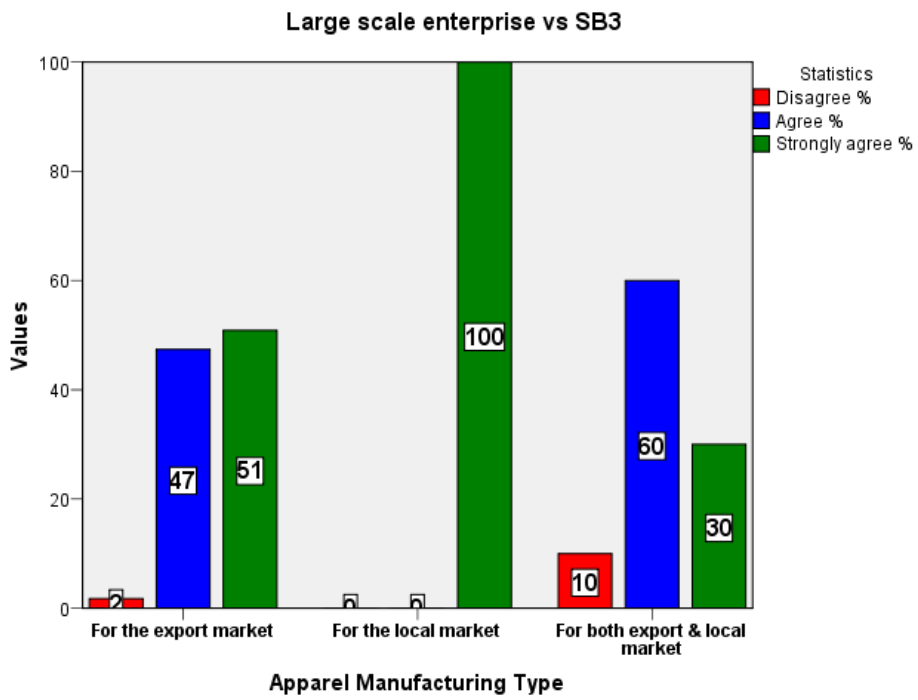


Figure 5.19. SB3 vs Large Scale Firm Type

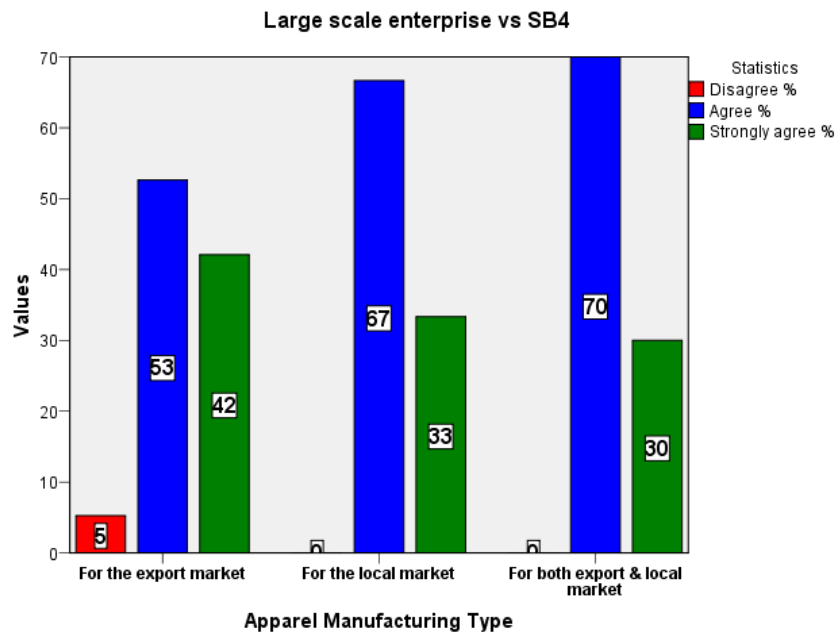


Figure 5.20. SB4 vs Large Scale Firm Type

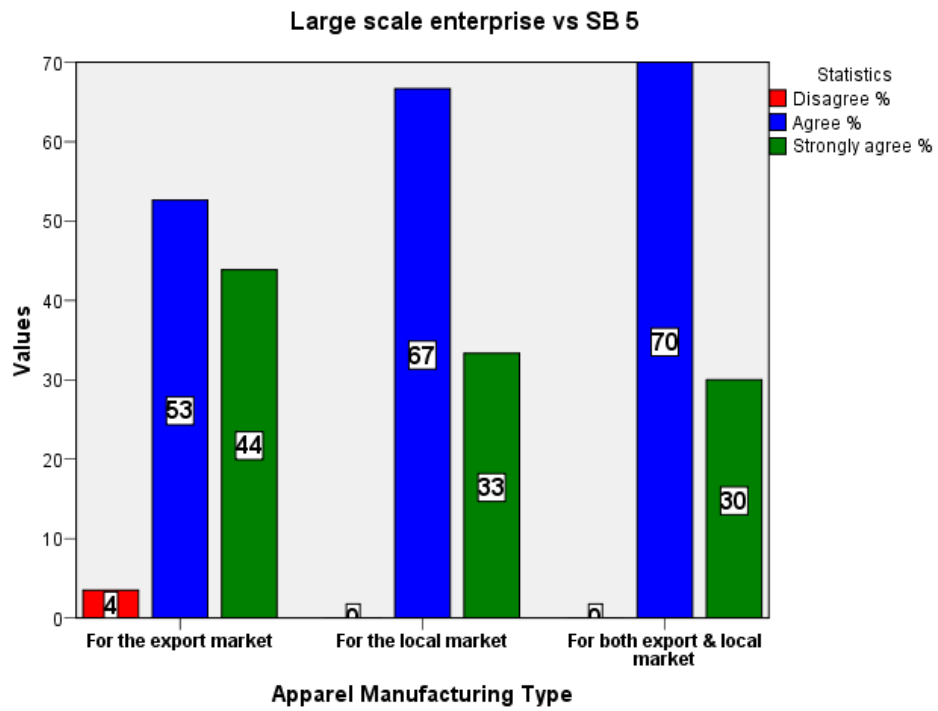


Figure 5.21. SB5 vs Large Scale Firm Type

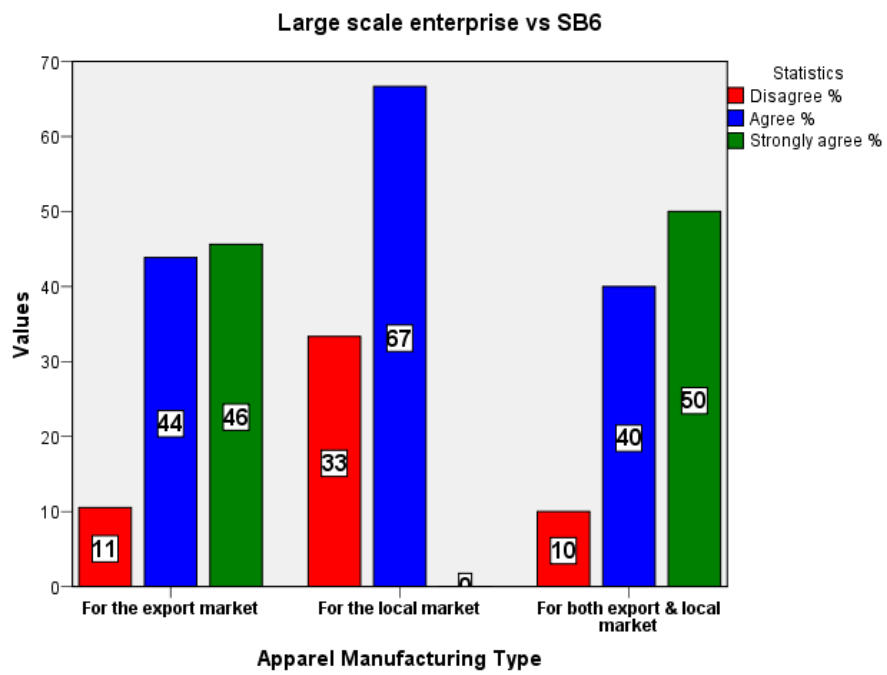


Figure 5.22. SB6 vs Large Scale Firm Type

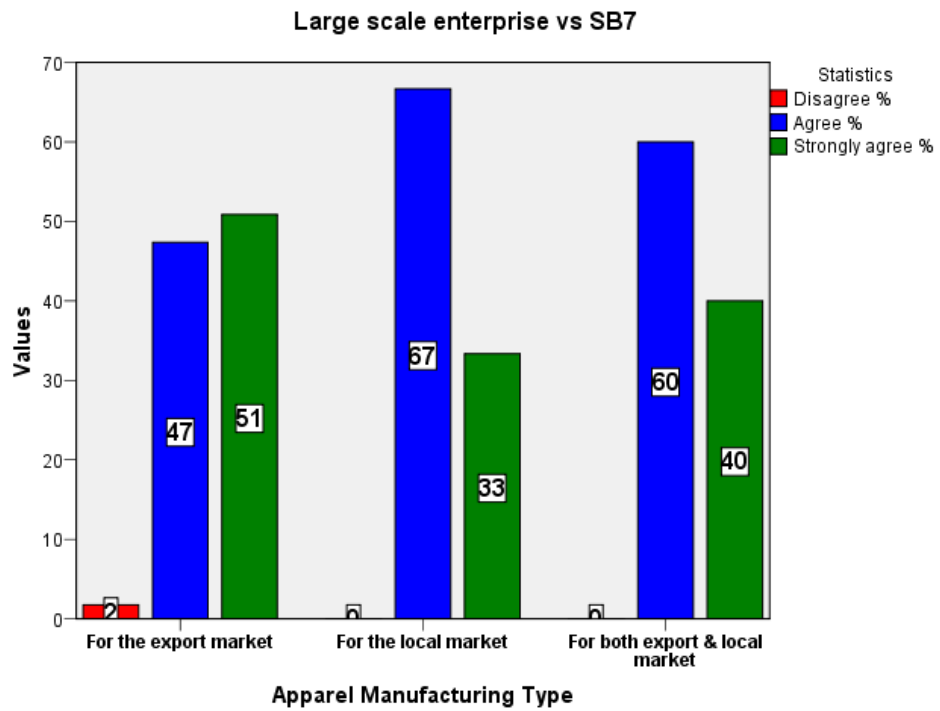


Figure 5.23. SB7 vs Large Scale Firm Type

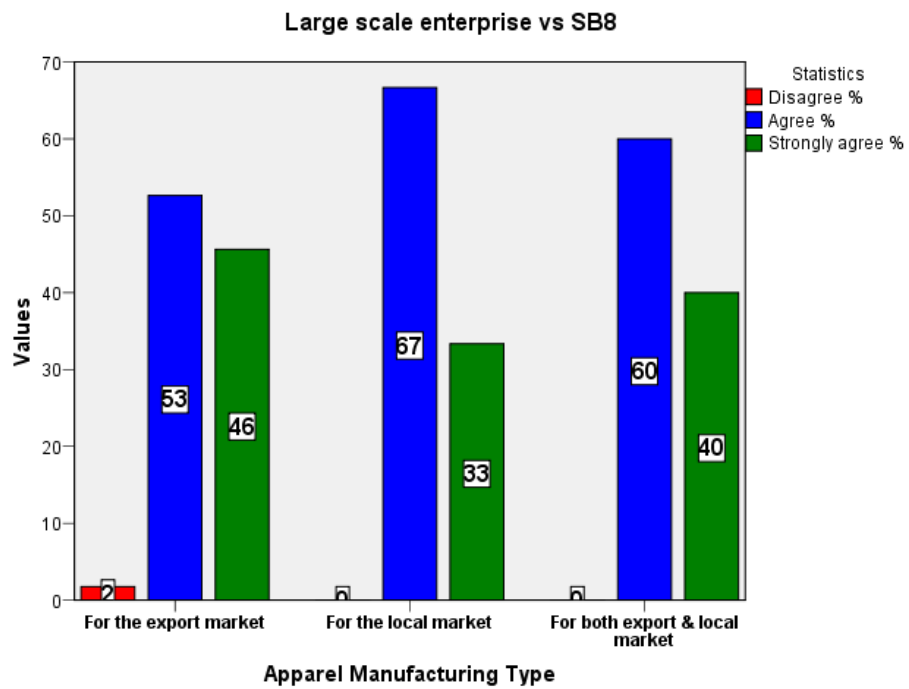


Figure 5.24. SB8 vs Large Scale Firm Type

5.1.3. Education Benefits (EB)

Figure 5.25 illustrates how providing education benefits differ between small and large-scale apparel companies where 54% of large scale apparel manufacturers are showing their positive attitude towards this practice.

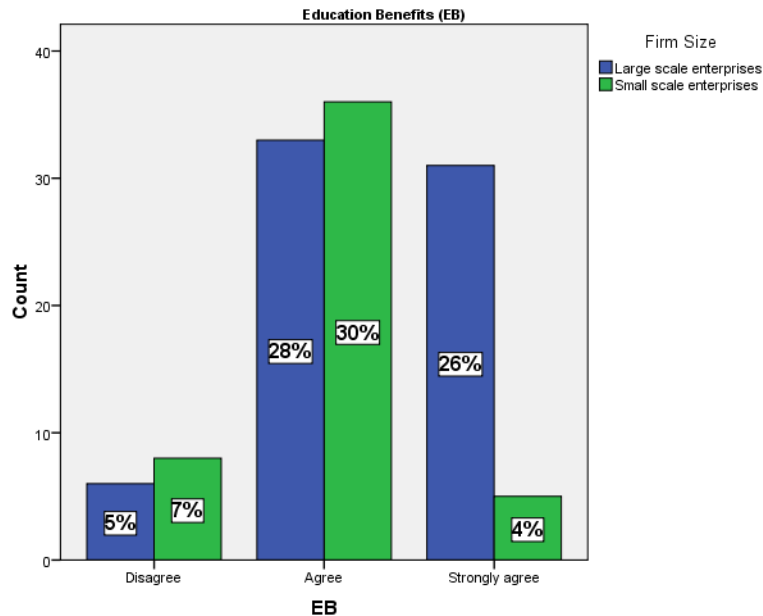


Figure 5.25. Education Benefits vs Firm Size

5.1.3.1. Small Scale Enterprises vs EB Dimensions

As per Figure 5.26 and 5.28, majority of the small-scale manufacturing companies from all the three types participated in the survey take actions to make sure the availability of skilled workforce and training and education to the employees under social sustainability practices in the supply chain. However, Figure 5.27 shows that other than a 71% of the small sized apparel manufacturing companies in the local market, the other two types of small scale manufacturing companies majorly implement capacity building practices within their supply chains under the social sustainability dimension.

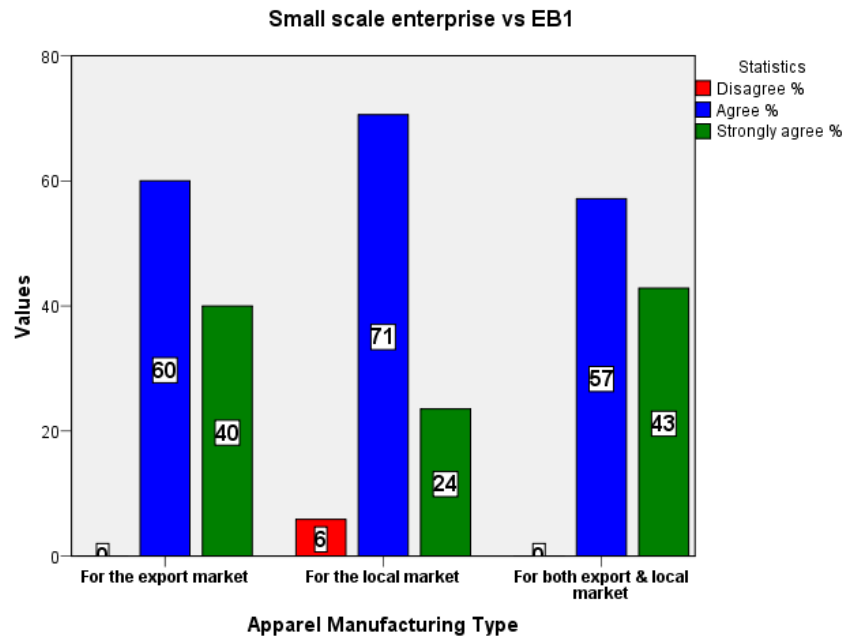


Figure 5.26. EB1 vs Small Scale Firm Type

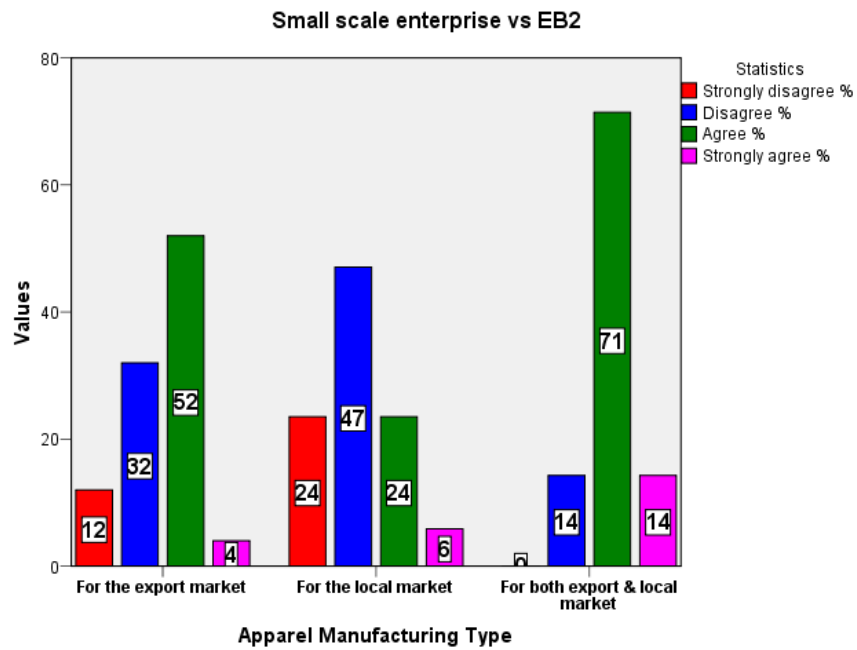


Figure 5.27. EB2 vs Small Scale Firm Type

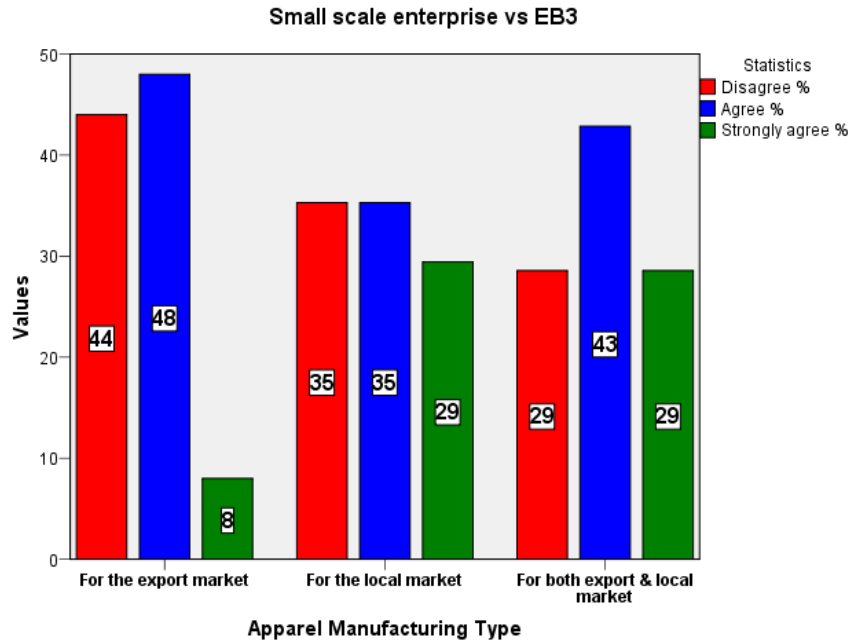


Figure 5.28. EB3 vs Small Scale Firm Type

5.1.3.2. Large Scale Enterprises vs EB Dimensions

Figure 5.29, 5.30 and 5.31 depict majority of the large-scale apparel manufacturing companies (more than 70%) catering to these three different markets also take actions to ensure the availability of skilled workforce under the social sustainability dimension.

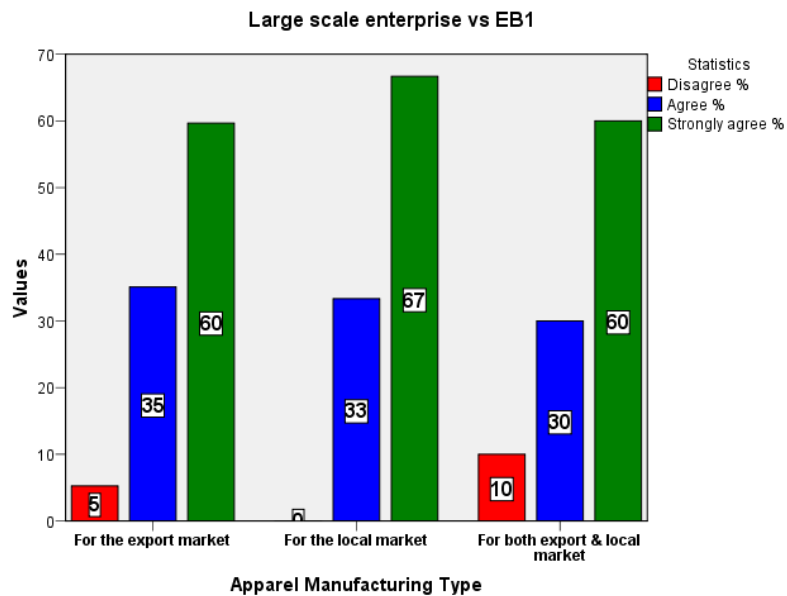


Figure 5.29. EB1 vs Large Scale Firm Type

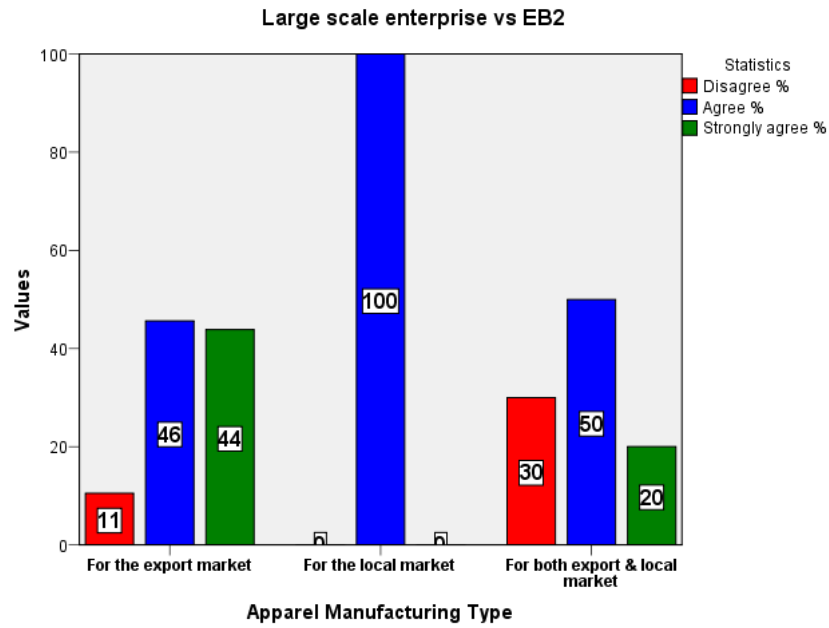


Figure 5.30. EB2 vs Large Scale Firm Type

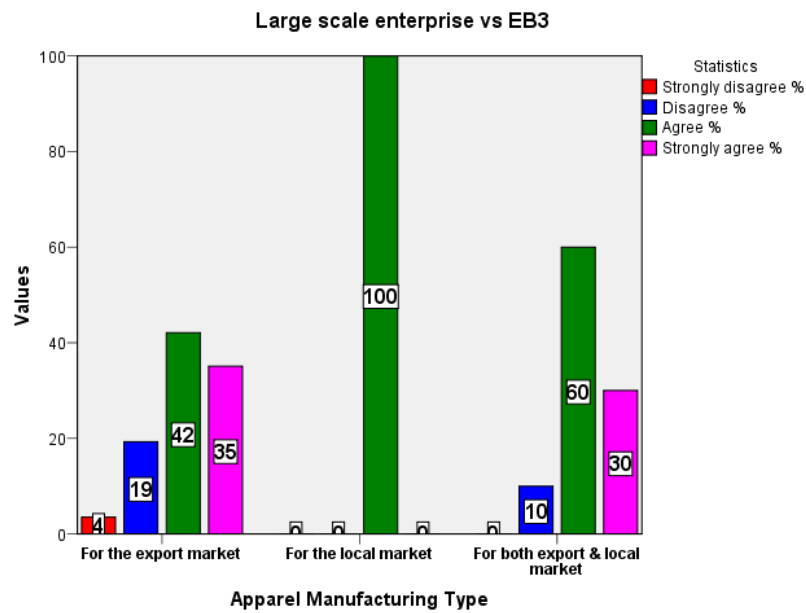


Figure 5.31. EB3 vs Large Scale Firm Type

5.1.4. Equity Improvement (EqIONE)

Figure 5.32 depicts that 89% of small and large-scale apparel companies are willing to follow socially sustainable practices to improve equity.

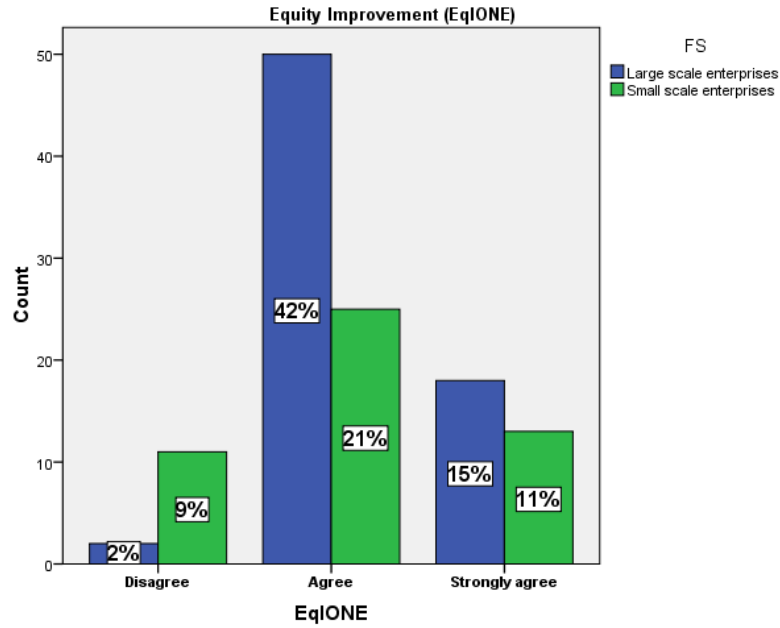


Figure 5.32. Equity Improvement vs Firm Size

5.1.4.1. Small Scale Enterprises vs EqIONE Dimensions

Figure 5.33, 5.34 and 5.35 illustrate that despite the catering market, majority of small scale manufacturers are working towards equity improvement within their organizations.

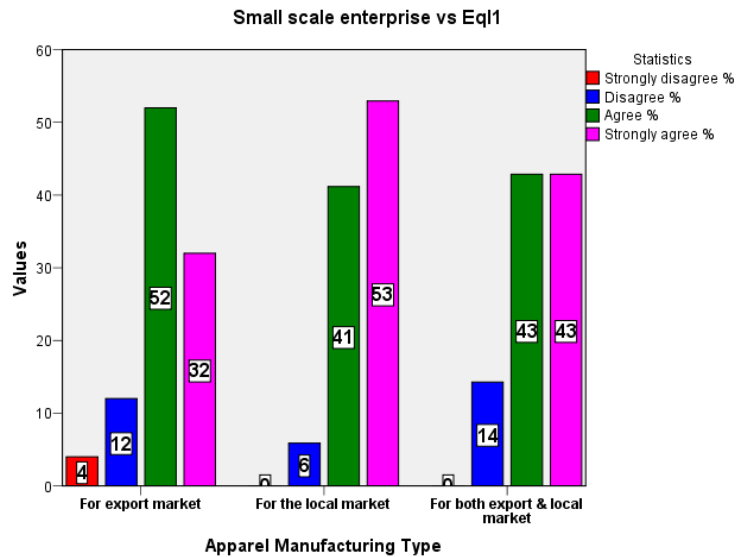


Figure 5.33. Eq11 vs Small Scale Firm Type

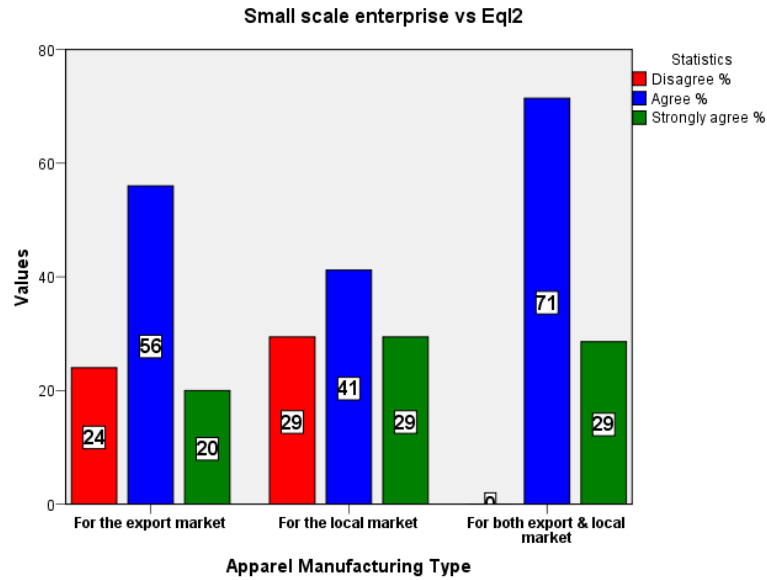


Figure 5.34. EqI2 vs Small Scale Firm Type

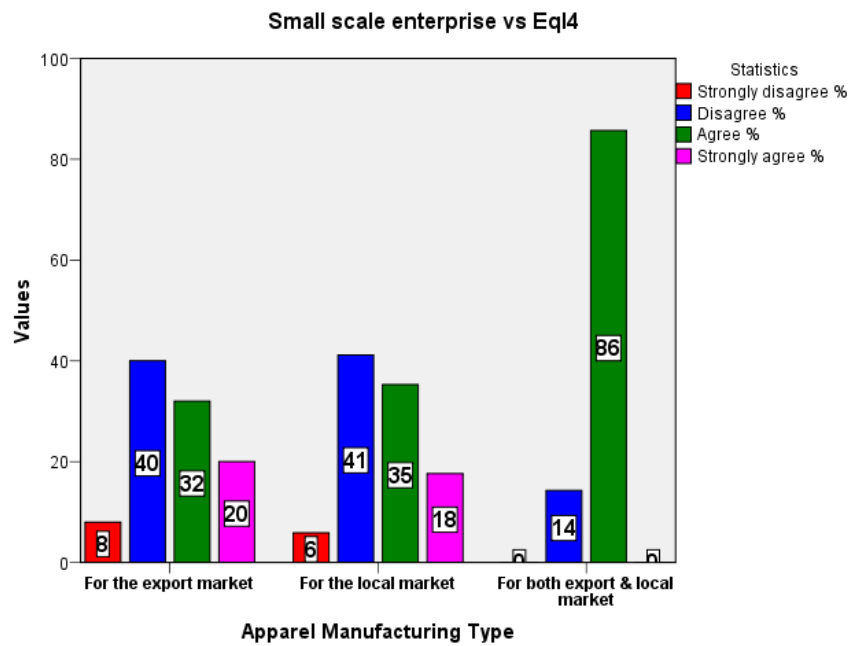


Figure 5.35. EqI4 vs Small Scale Firm Type

5.1.4.2. Large Scale Enterprises vs EqIONE Dimensions

Figure 5.36, 5.37 and 5.38 reveal that more than 80% of large scale manufacturers in 3 different market segments are practicing equity improvement actions.

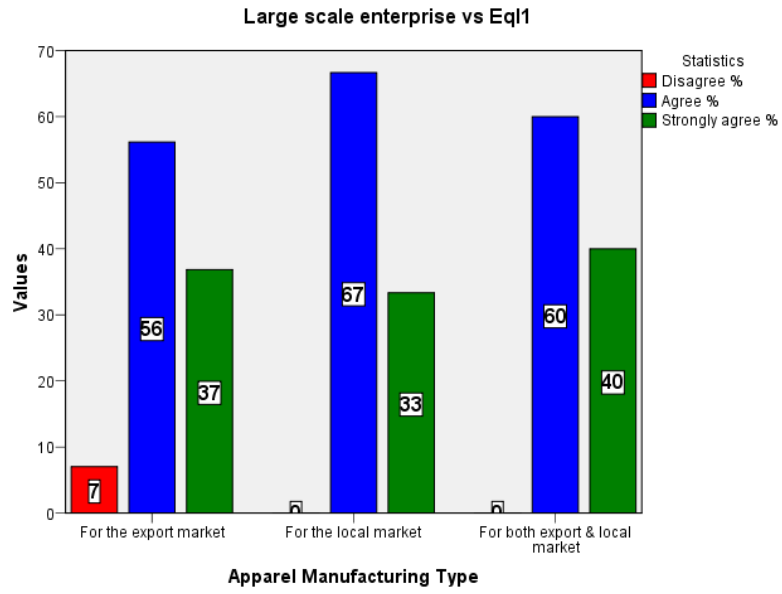


Figure 5.36. Eq11 vs Large Scale Firm Type

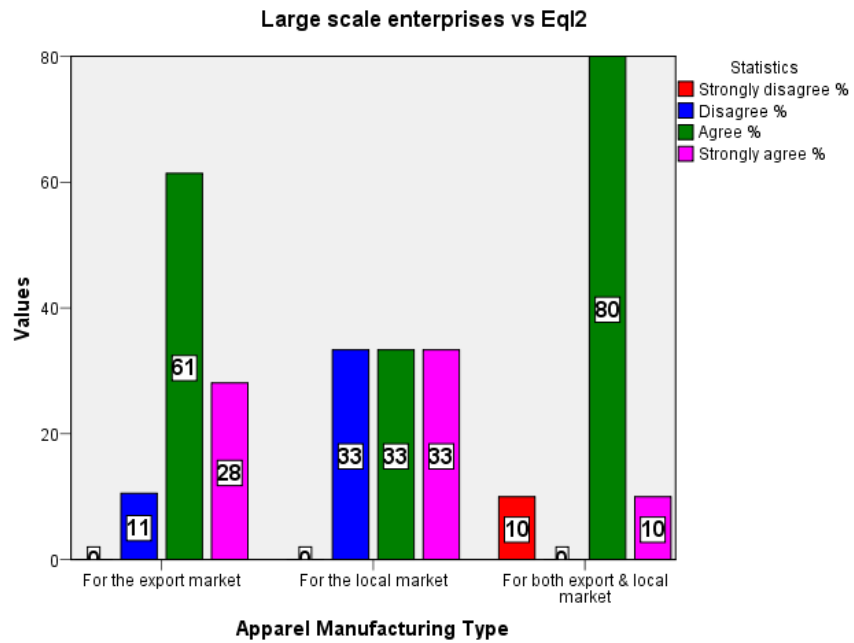


Figure 5.37. EqI2 vs Large Scale Firm Type

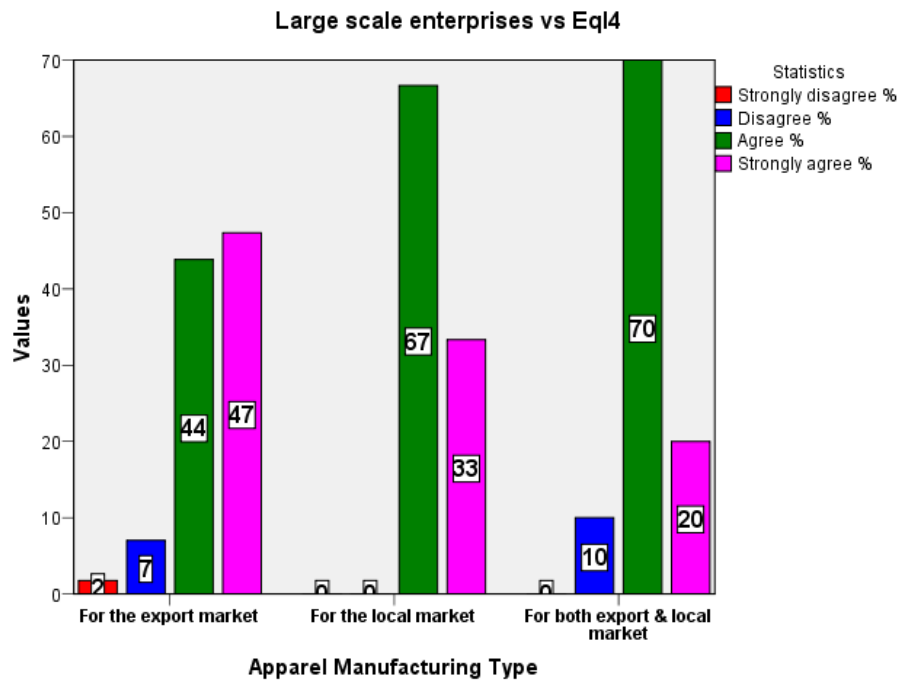


Figure 5.38. EqI4 vs Large Scale Firm Type

5.1.5. Gender Related Equity Improvement (EqIONE)

Figure 5.39 suggests that majority of the small and large-scale companies are paying attention to this theme.

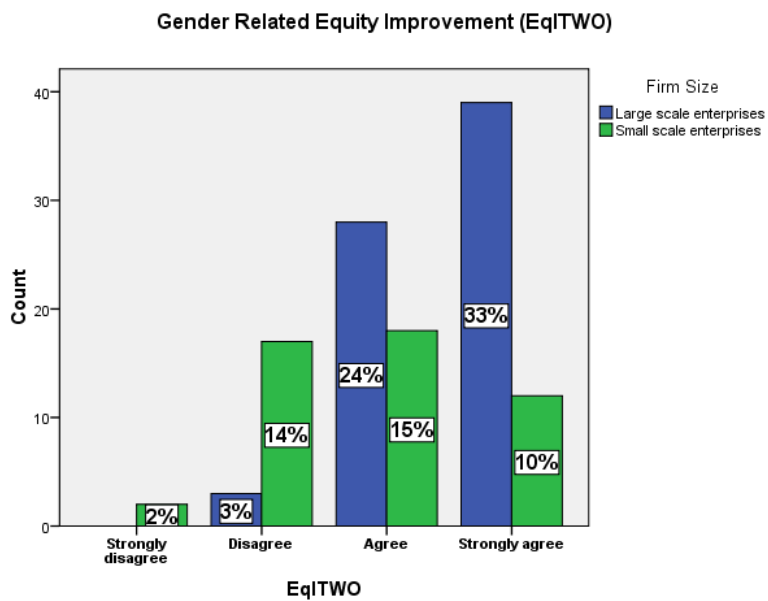


Figure 5.39 EqITWO vs Firm Size

5.1.5.1. Small Scale Enterprises vs EqITWO Dimensions

Figure 5.40 and 5.41 reflect that more than 50% of the respondent representing companies are providing opportunities for women to climb the career ladder and gender equality is promoted. In Figure 5.42, 56% of the small-scale apparel manufacturing companies in the export market and 65% of the respondents from small scale apparel manufacturing companies in the local market reflects that their companies are not providing enough opportunities for women to be empowered by technology.

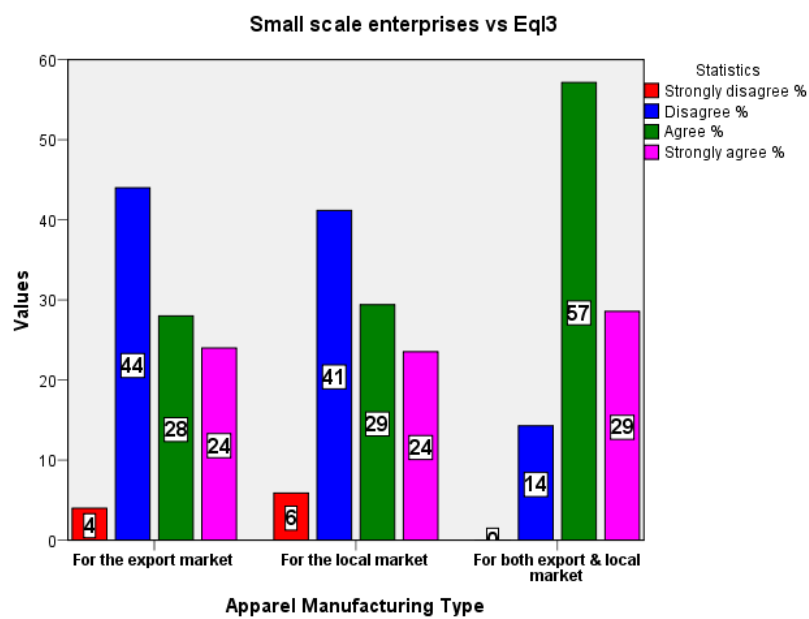


Figure 5.40. EqI3 vs Small Scale Firm Type

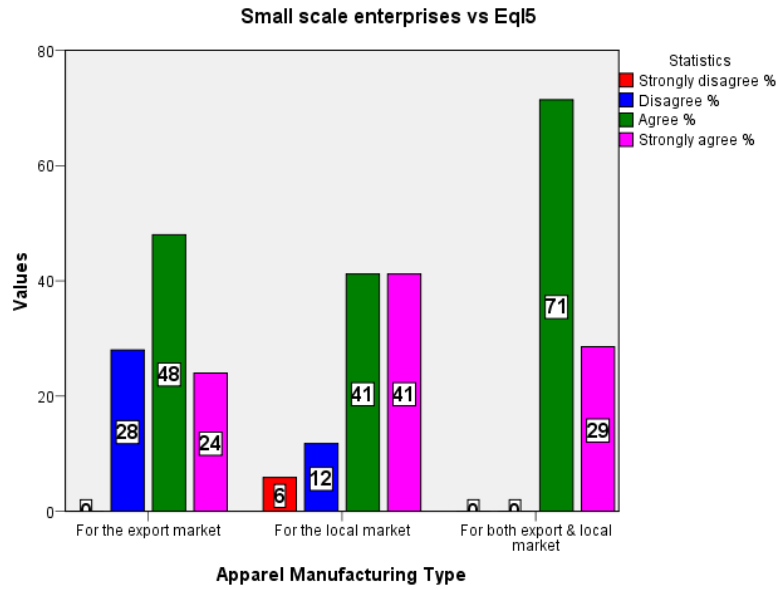


Figure 5.41. EqI5 vs Small Scale Firm Type

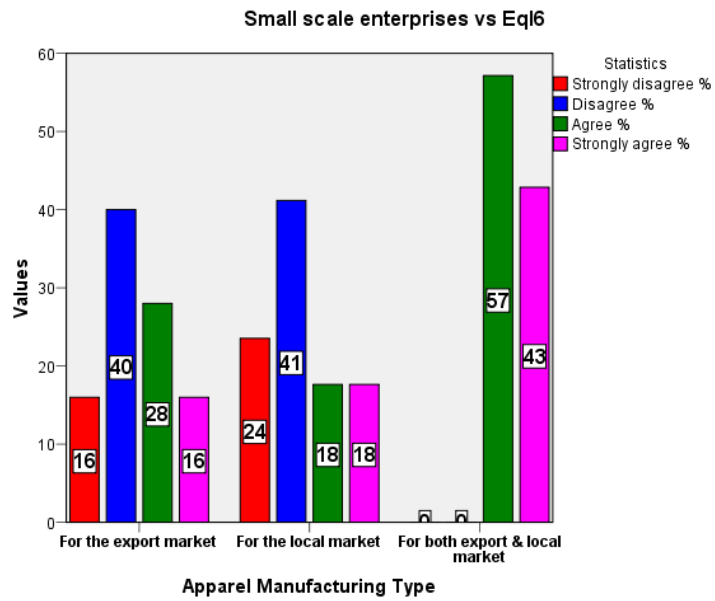


Figure 5.42. EqI6 vs Small Scale Firm Type

5.1.5.2. Large Scale Enterprises vs EqITWO Dimensions

More than 60% of large scale apparel manufacturers practice actions to ensure the gender related equity as in Figure 5.43, 5.44 and 5.45.

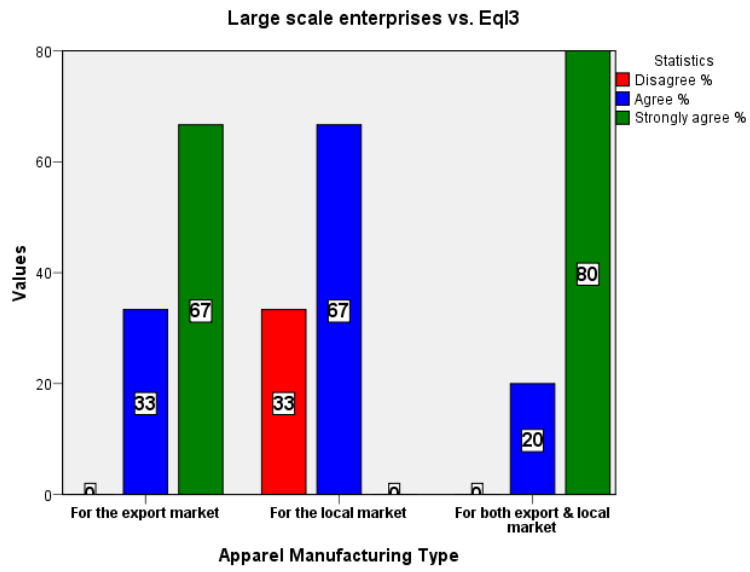


Figure 5.43. EqI3 vs Large Scale Firm Type

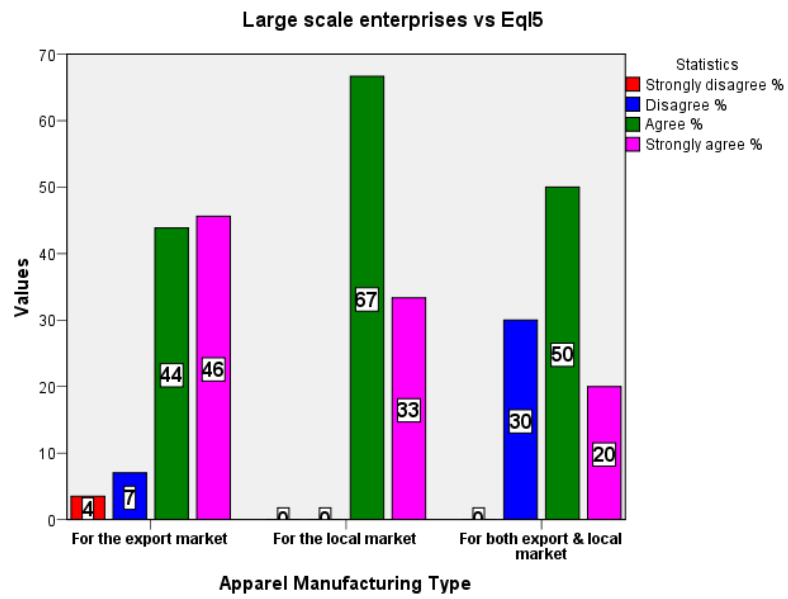


Figure 5.44. EqI5 vs Large Scale Firm Type

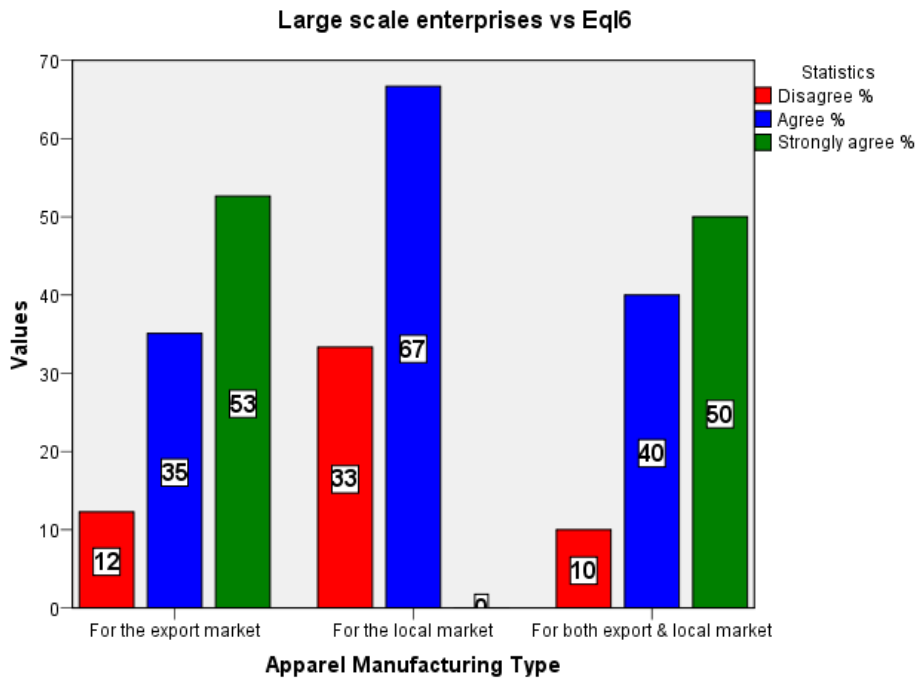


Figure 5.45. EqI6 vs Large Scale Firm Type

5.1.6. Ethical Improvement (EI)

Figure 5.46 suggests that both small and large-scale manufacturers are taking ethical improvement into serious consideration.

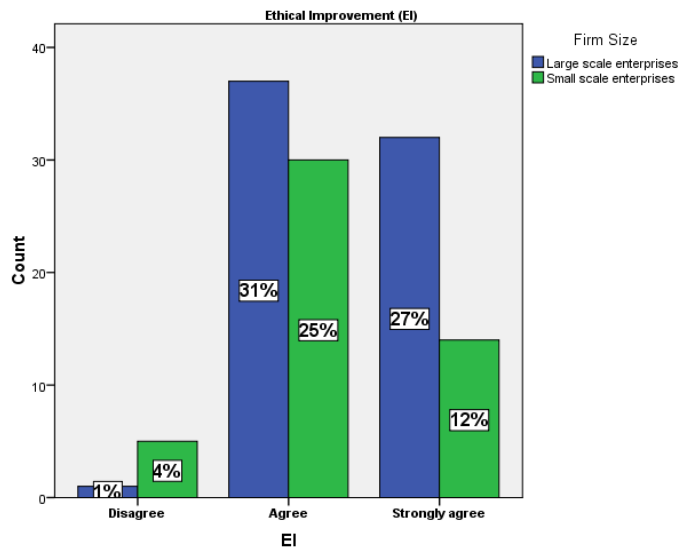


Figure 5.46 Ethical Improvement vs Firm Size

5.1.6.1. Small Scale Enterprises vs EI Dimensions

Figure 5.47 and 5.48 depict that more than 70% of the small-scale manufacturers are acting against corruption and practicing ethical and lawful behavior.

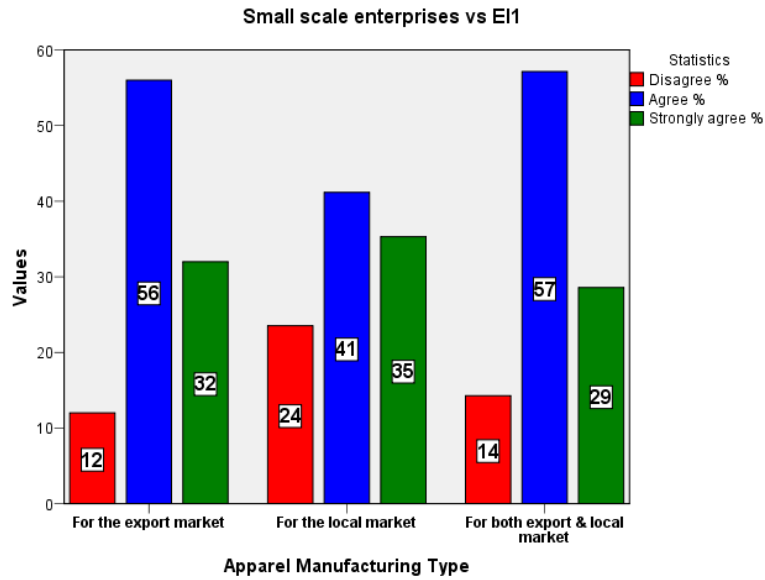


Figure 5.47. EI1 vs Small Scale Type

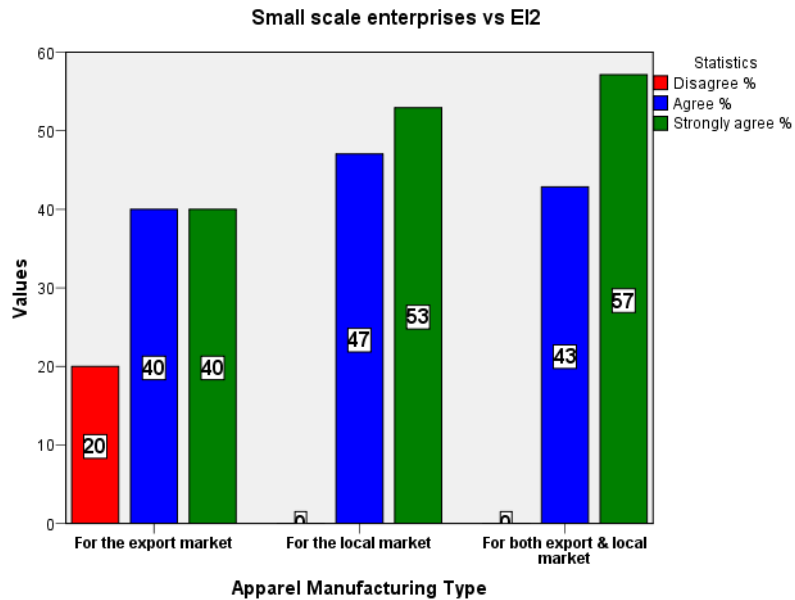


Figure 5.48. EI2 vs Small Scale Type

5.1.6.2. Large Scale Enterprises vs EI Dimensions

Figure 5.49 and 5.50 reflect that more than 90% of the large-scale manufacturers are also practicing their best to ensure ethical improvement despite the mere requirement of their catering market.

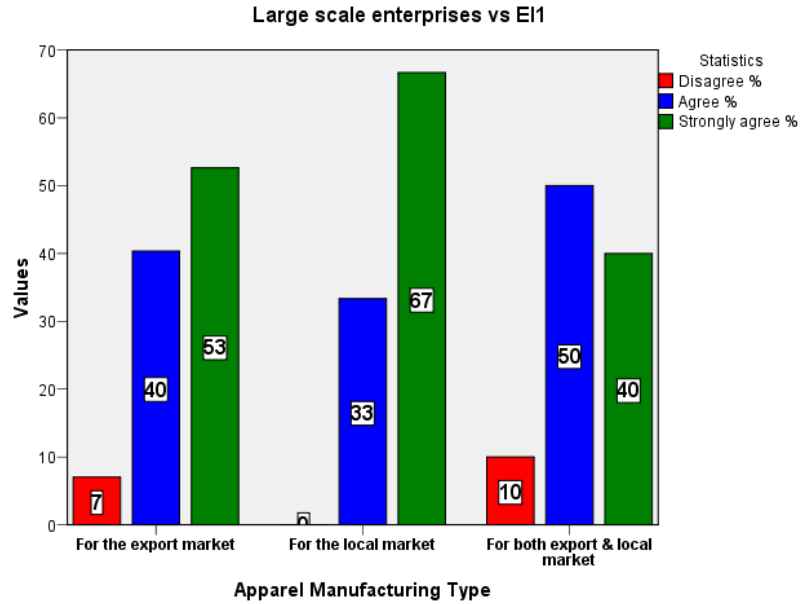


Figure 5.49. EI1 vs Large Scale Type

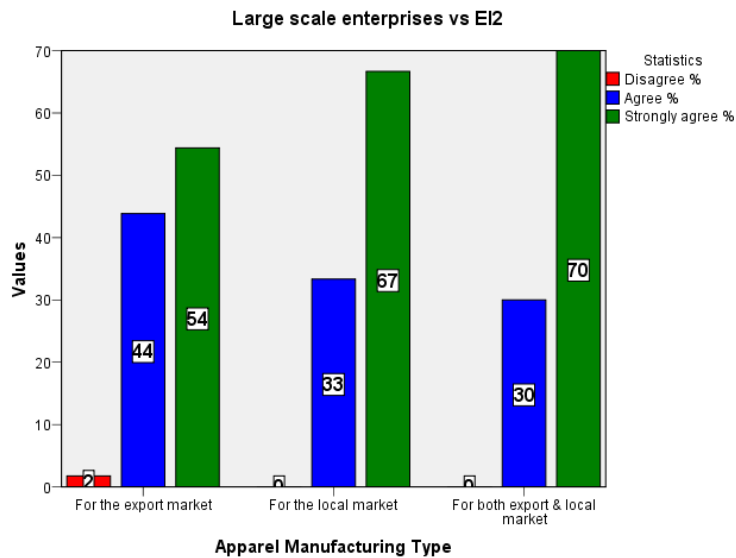


Figure 5.50. EI2 vs Large Scale Type

5.1.7. Health and Safety Improvement (HS)

Figure 5.51 shows that only 2% of the respondent representing companies reject practicing health and safety improvements.

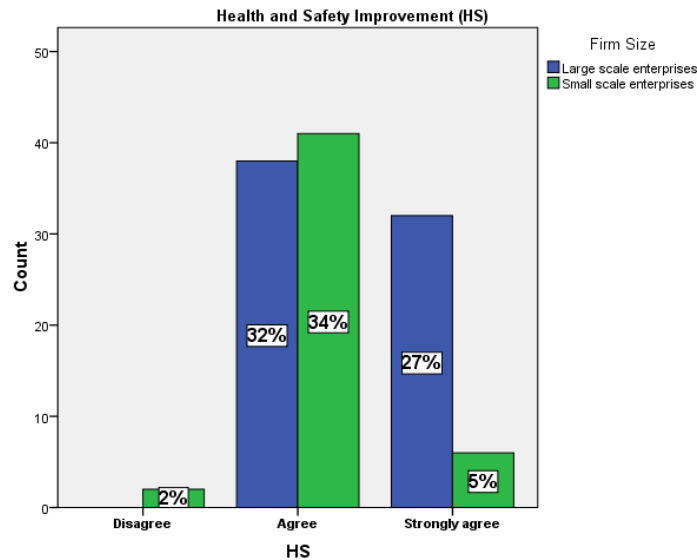


Figure 5.51 Health and Safety Improvement vs Firm Size

5.1.7.1. Small Scale Enterprises vs HS Dimensions

Figure 5.52 depicts that almost all the small-scale companies of the respondents provide healthy and affordable food to employees, while OHS practices are also very popular as per the description of Figure 5.53.

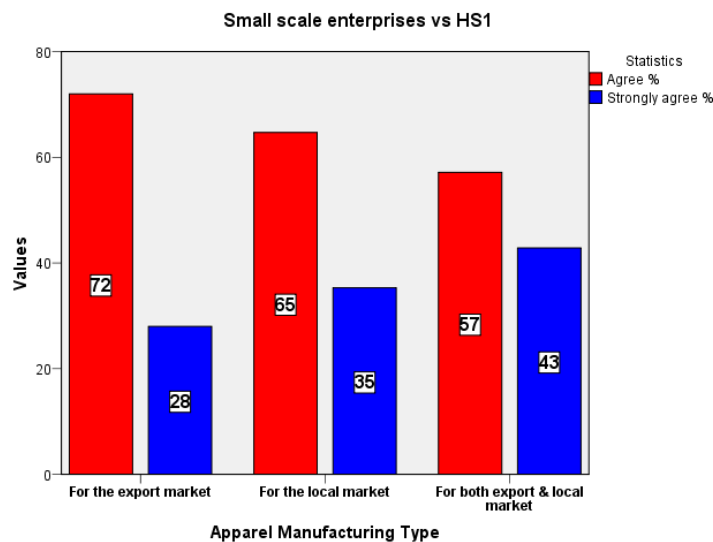


Figure 5.52. HS1 vs Small Scale Type

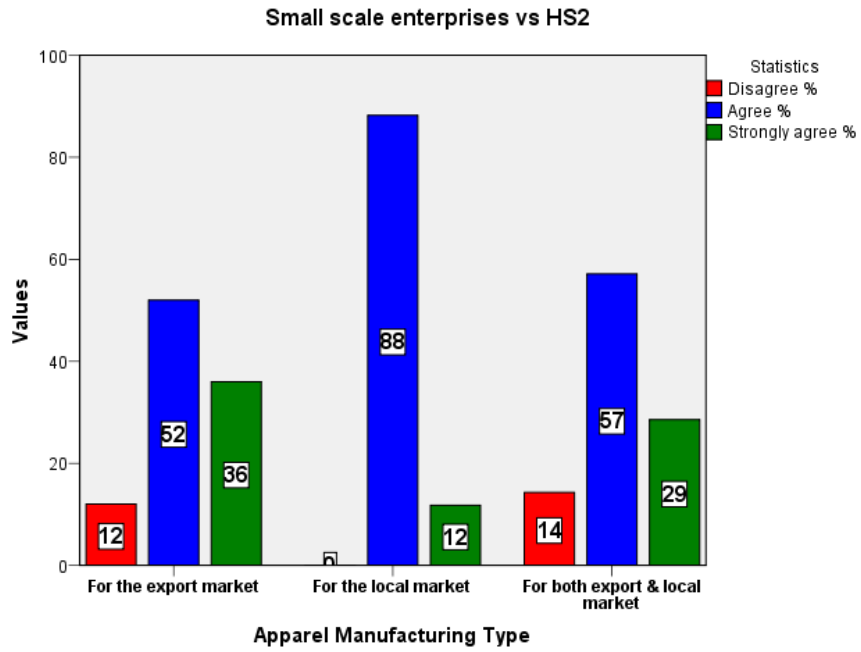


Figure 5.53. HS2 vs Small Scale Type

5.1.7.2. Large Scale Enterprises vs HS Dimensions

Figure 5.54 and 5.55 depict that health and safety improvement is taken into consideration very seriously by almost all the companies participated in this survey.

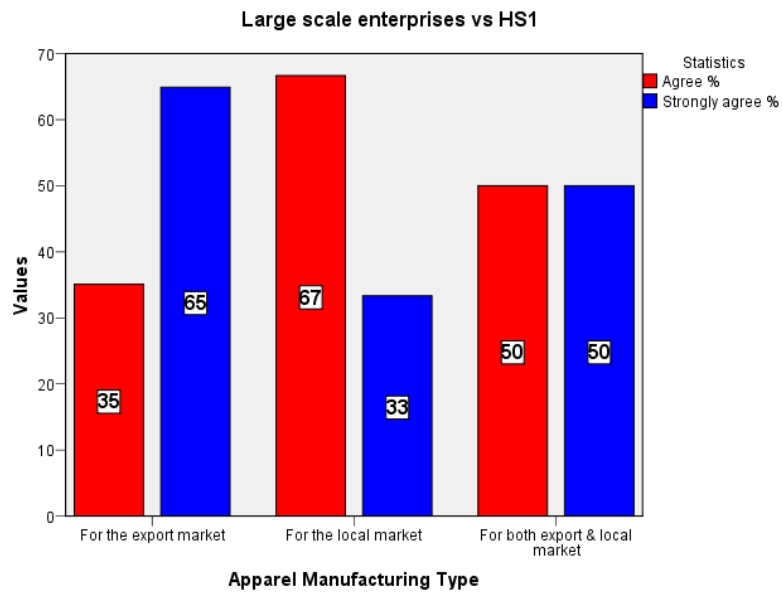


Figure 5.54. HS1 vs Large Scale Type

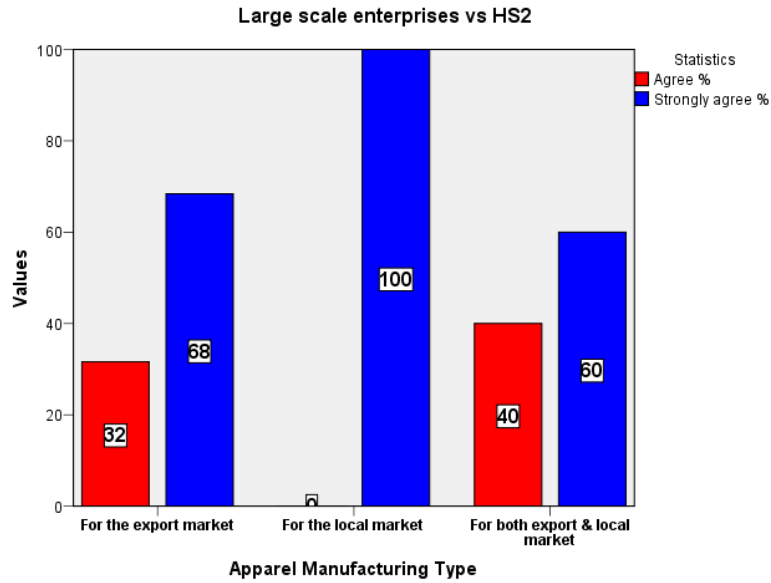


Figure 5.55. HS2 vs Large Scale Type

5.1.8. Improved Labor Conditions (R2)

Figure 5.56 suggests that the majority of the apparel companies are in agreement with taking actions to improve labor condition.

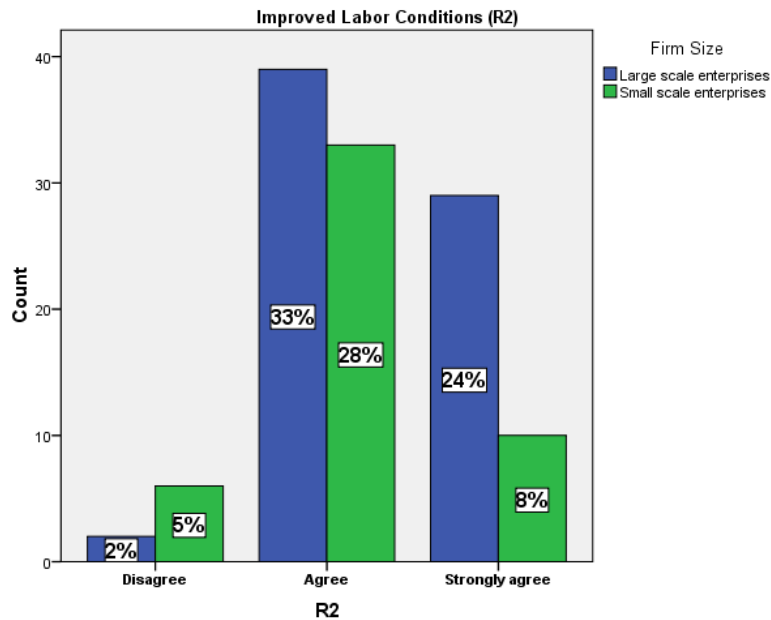


Figure 5.56 Improved Labor Condition vs Firm Size

5.1.8.1. Small Scale Enterprises vs R2 Dimensions

Figure 5.57, 5.58 and 5.59 depict that majority of the small-scale manufacturing companies participated in the survey are also working to ensure the improved labor conditions.

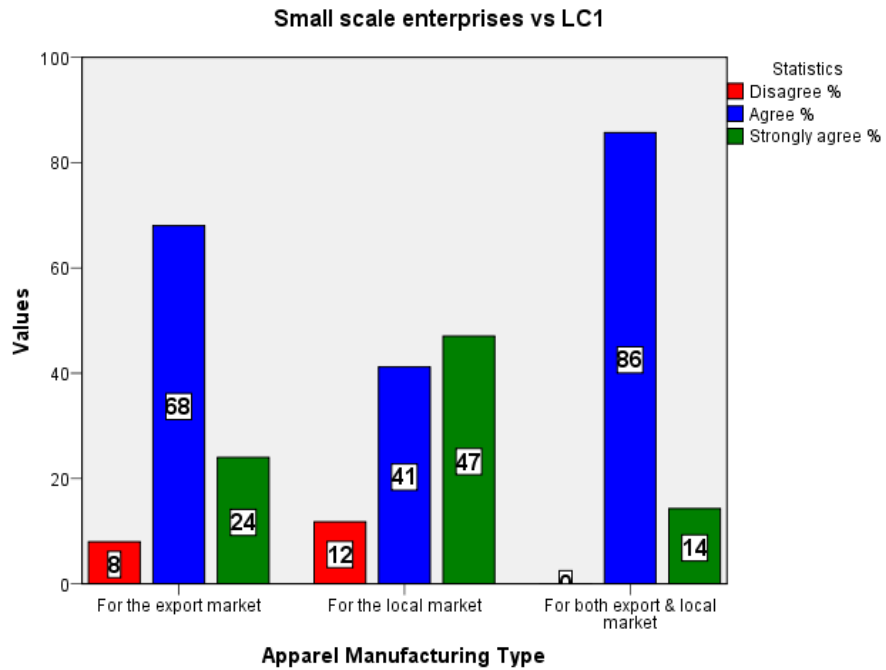


Figure 5.57. LC1 vs Small Scale Type

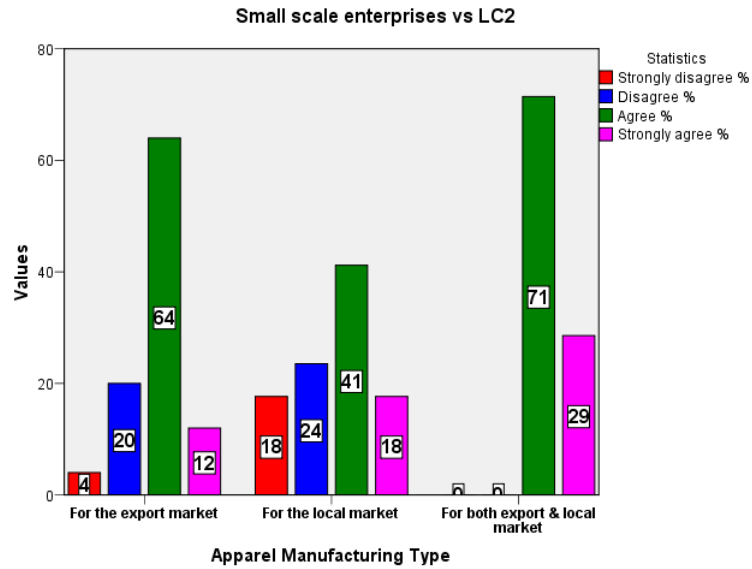


Figure 5.58. LC2 vs Small Scale Type

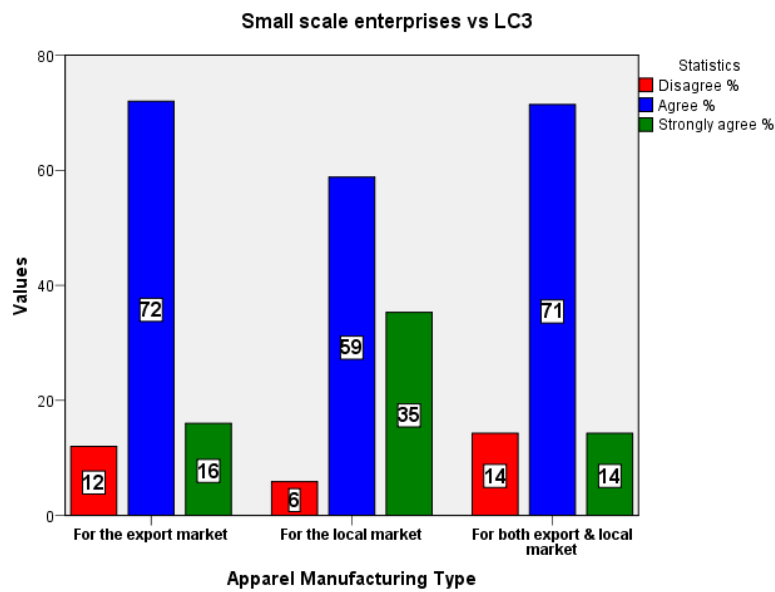


Figure 5.59. LC3 vs Small Scale Type

5.1.8.2. Large Scale Enterprises vs R2 Dimensions

Figure 5.60, 5.61 and 5.62 depict that more than 80% of the large-scale manufacturing companies are also paying their attention towards improving labor conditions vi their sustainable practices.

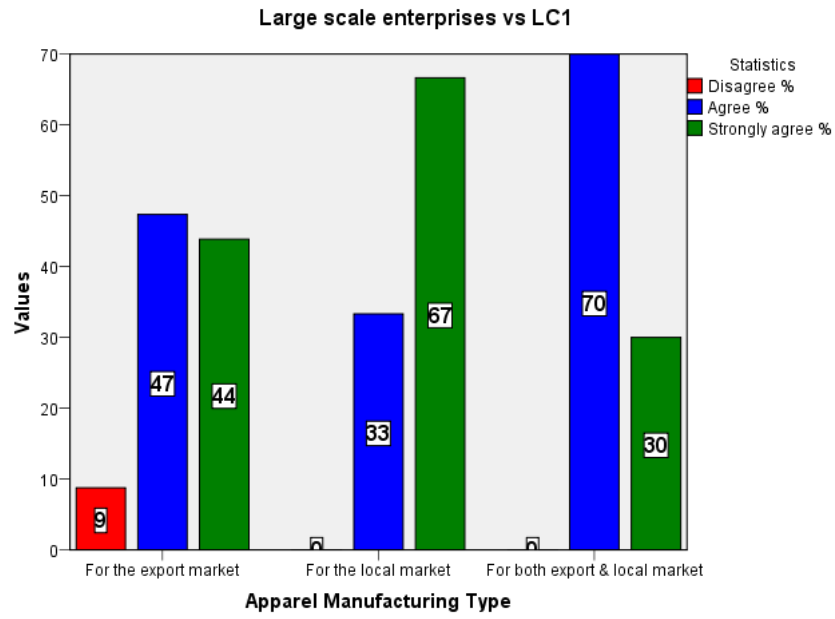


Figure 5.60. LC1 vs Large Scale Type

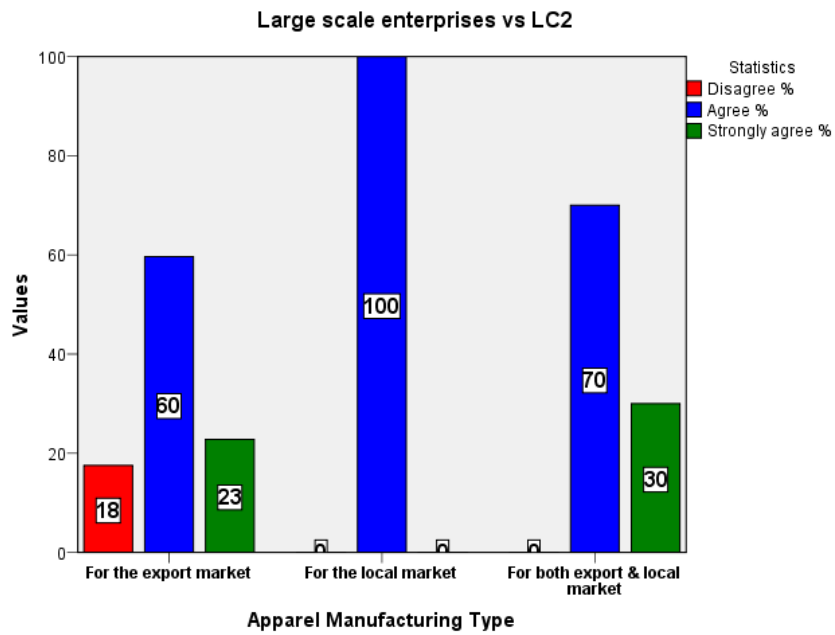


Figure 5.61. LC2 vs Large Scale Type

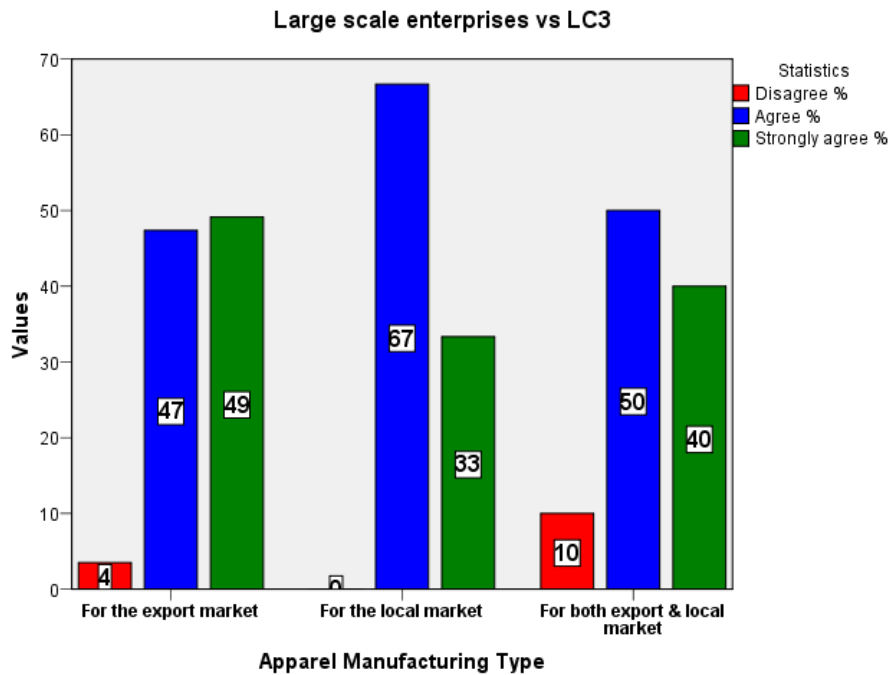


Figure 5.62. LC3 vs Large Scale Type

5.1.9. Child and Bonded Labor Conditions (R1)

Figure 5.63 depicts that nearly 98% of the apparel manufacturers are acting out to reduce the use of child and bonded labor.

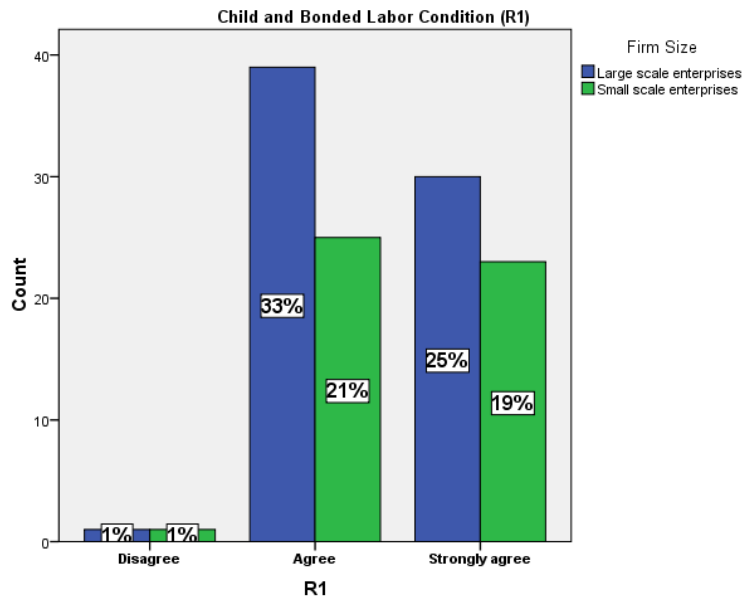


Figure 5.63 Child and Bonded Labor Condition vs Firm Size

5.1.9.1. Small Scale Enterprises vs R1 Dimensions

Figure 5.64 and 5.65 depict that no matter what the market catering to the majority of the small-scale apparel manufacturers are also conscious about the use of child and bonded labor.

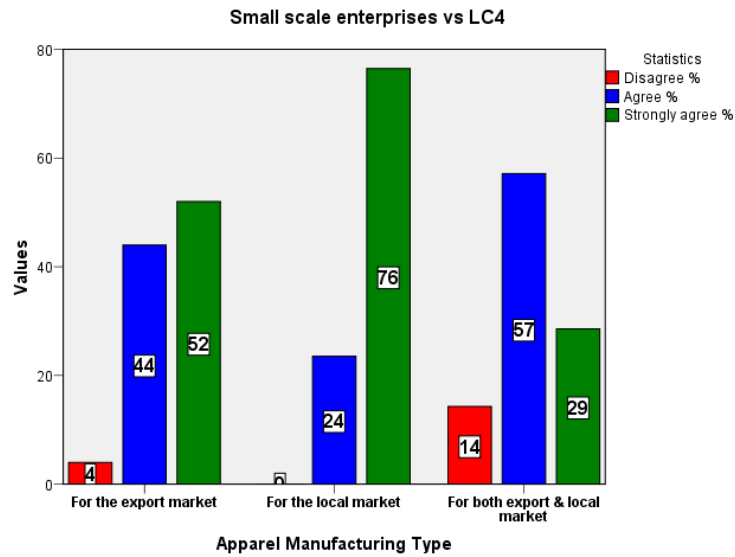


Figure 5.64. LC4 vs Small Scale Type

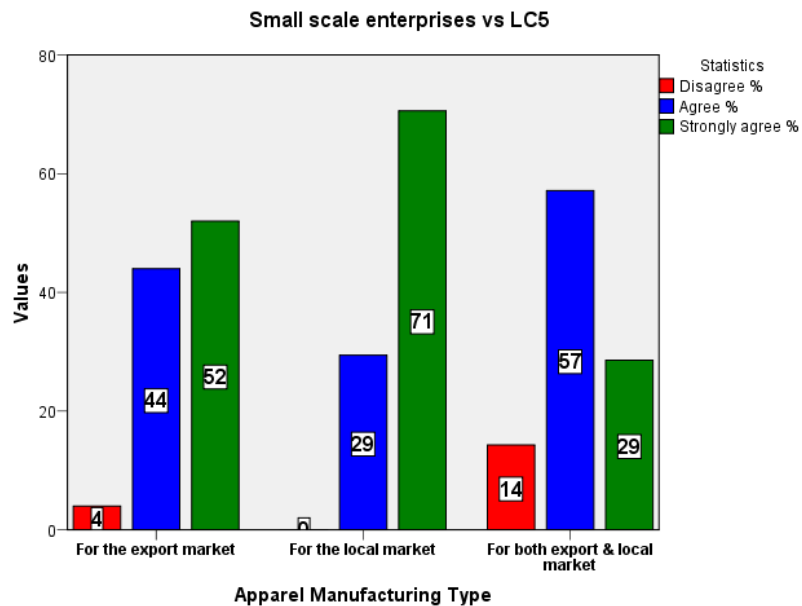


Figure 5.65. LC5 vs Small Scale Type

5.1.9.2. Large Scale Enterprises vs R1 Dimensions

As per Figure 5.66 and 5.67, majority of the large-scale apparel manufacturers are not using child labor or bonded labor.

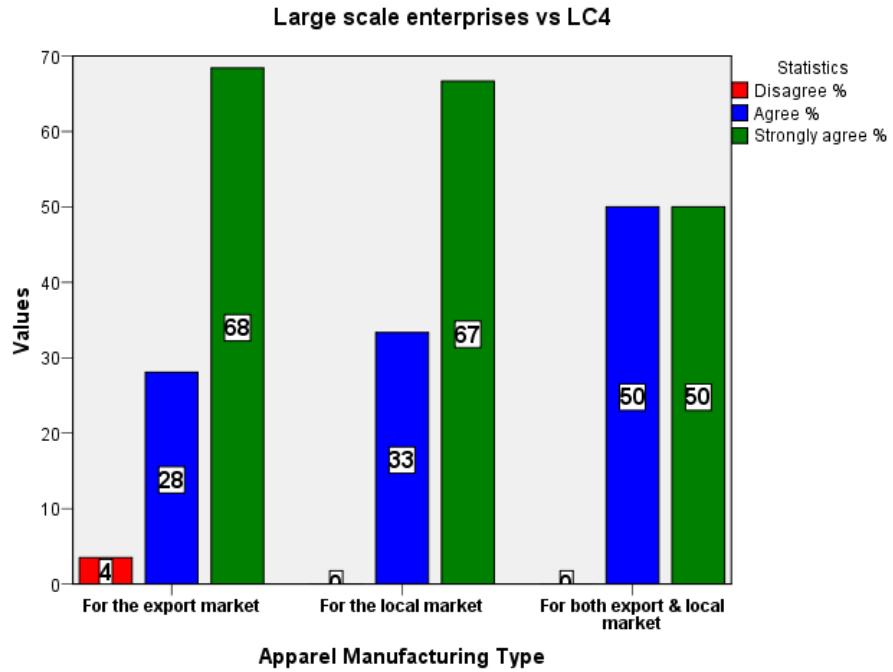


Figure 5.66. LC4 vs Large Scale Type

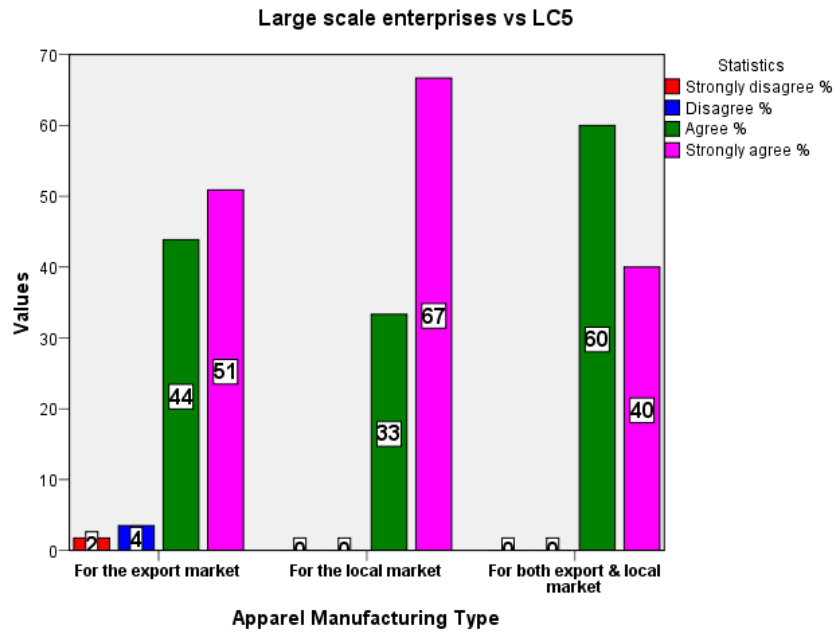


Figure 5.67. LC5 vs Large Scale Type

5.1.10. Regulatory Responsibility (RR)

Figure 5.68 depicts that majority of the apparel manufacturers have understood their regulatory responsibility.

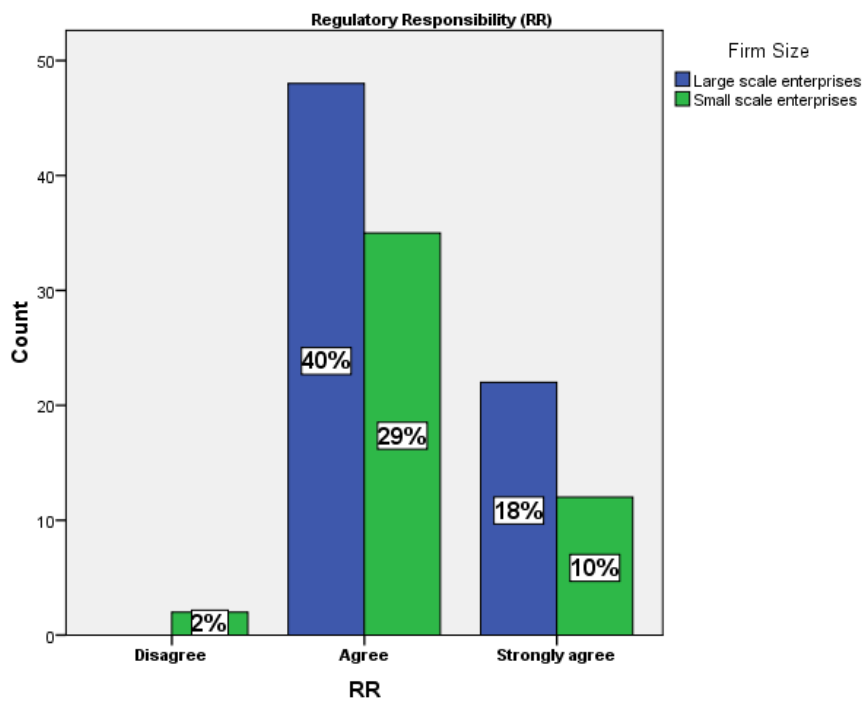


Figure 5.68 Regulatory Responsibility vs Firm Size

5.1.10.1. Small Scale Enterprises vs RR Dimensions

As per Figure 5.69 and 5.70, small scale companies follow responsible actions such as transparent governance and compliance with the law.

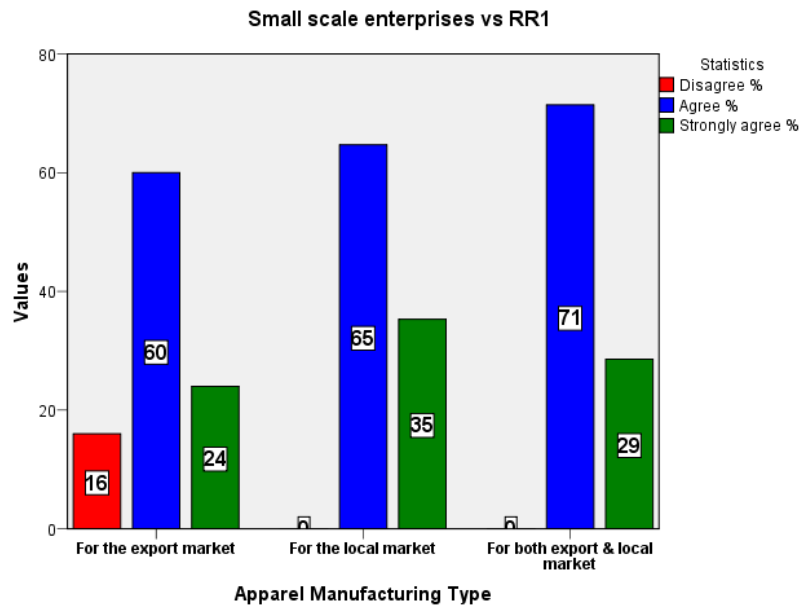


Figure 5.69. RR1 vs Small Scale Type

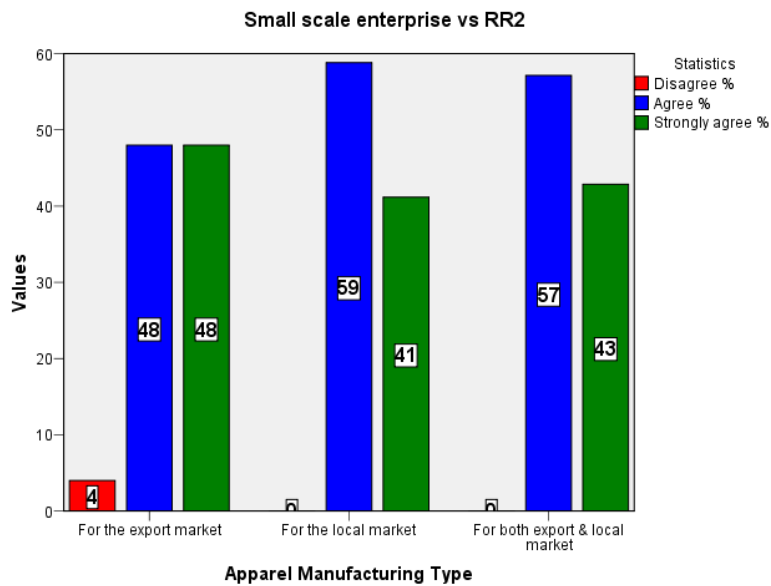


Figure 5.70. RR2 vs Small Scale Type

5.1.10.2. Large Scale Enterprises vs RR Dimensions

Figure 5.71 and 5.72 illustrate that large scale enterprises are also acting understanding their responsibilities.

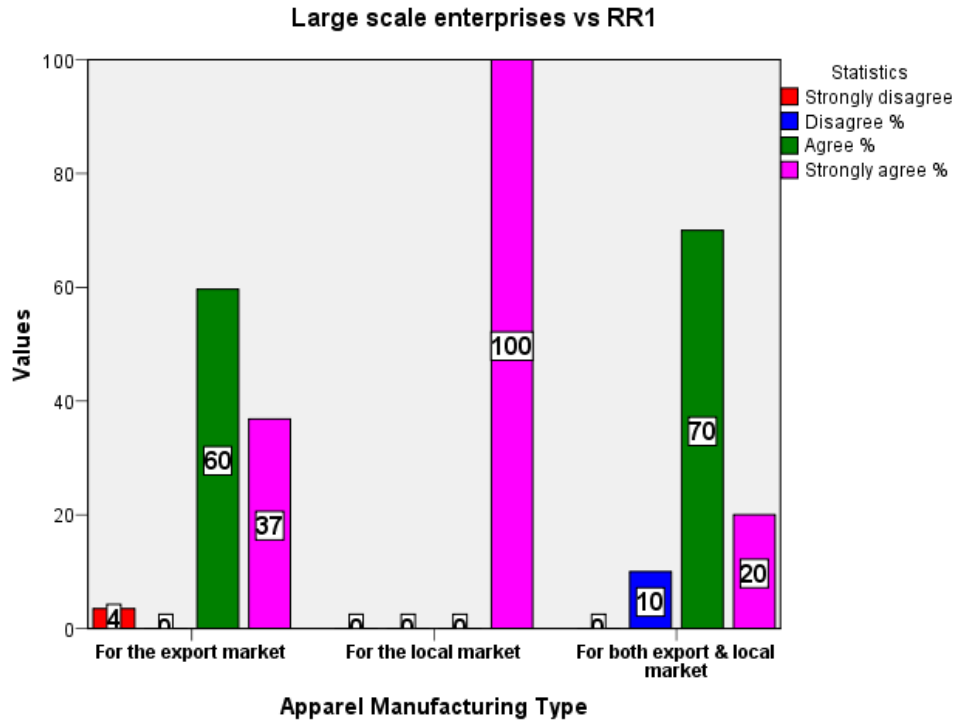


Figure 5.71. RR1 vs Large Scale Type

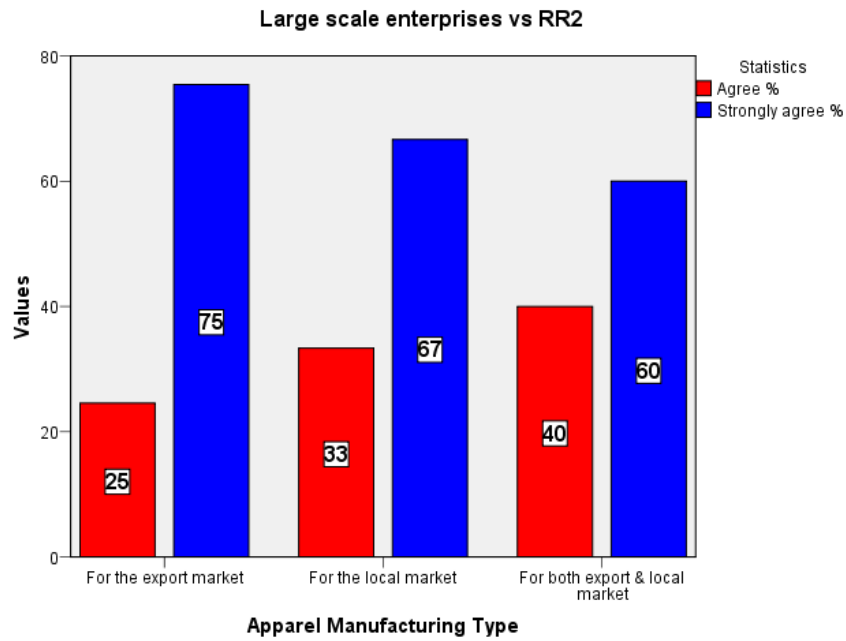


Figure 5.72. RR2 vs Large Scale Type

5.1.11. Improved Wage Conditions (WC)

Figure 5.73 describes that majority of the apparel manufacturers are paying attention towards improved wage conditions.

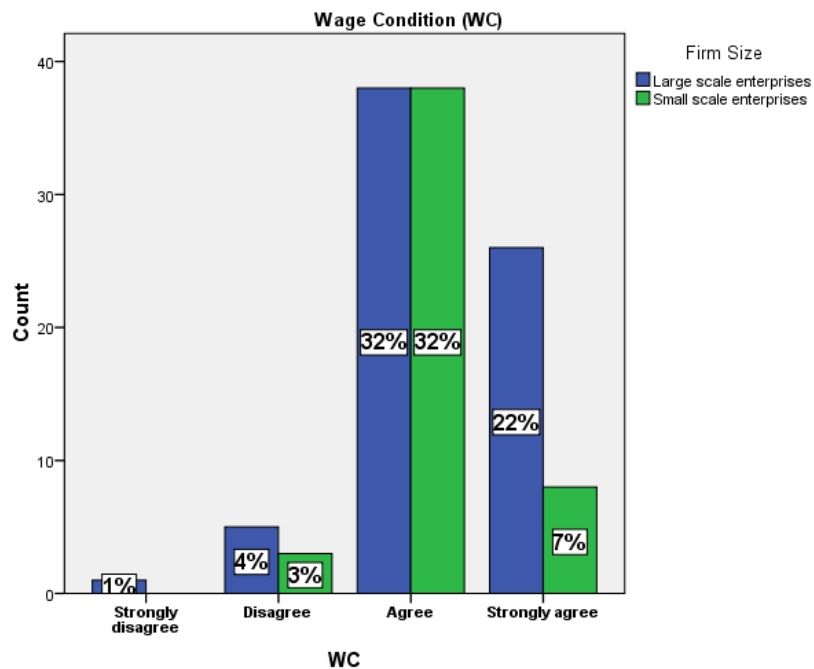


Figure 5.73 Wage Condition vs Firm Size

5.1.11.1. Small Scale Enterprises vs WC Dimensions

Figure 5.74, 5.75 and 5.76 depict that the majority of small scale manufacturers are taking actions to improve the wages and benefits provided to its employees and workers.

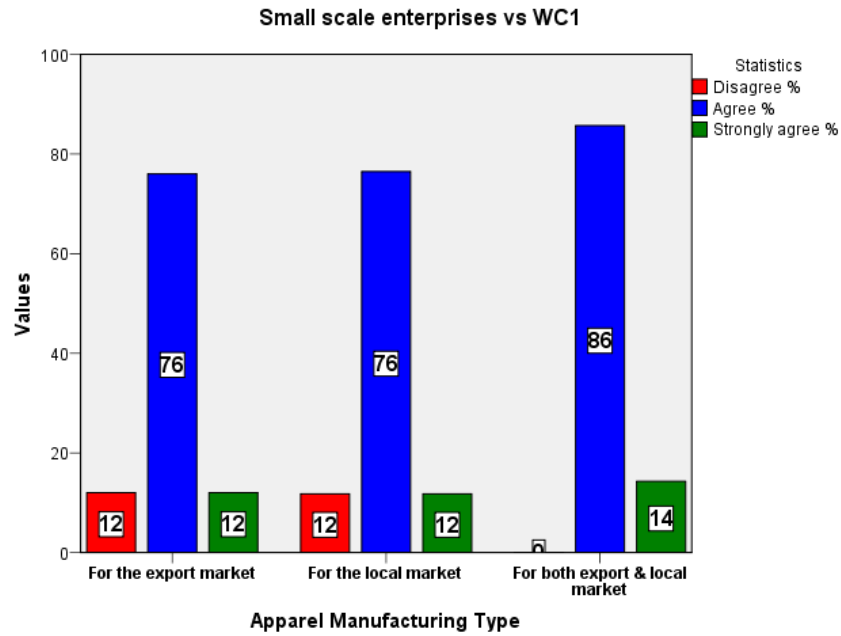


Figure 5.74. WC1 vs Small Scale Type

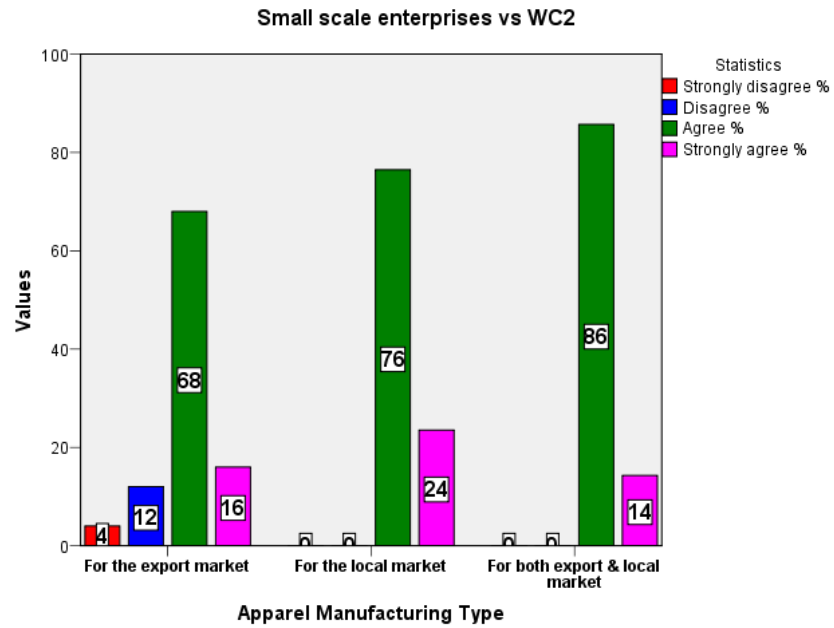


Figure 5.75. WC2 vs Small Scale Type

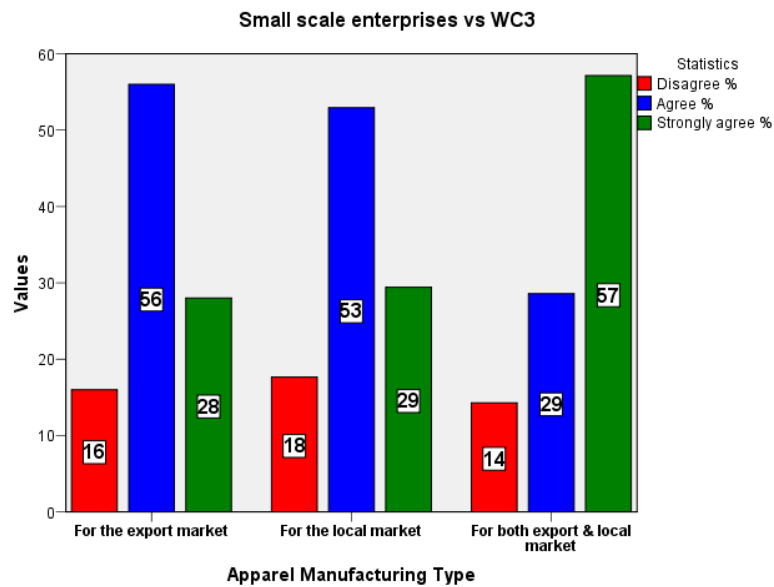


Figure 5.76. WC3 vs Small Scale Type

5.1.11.2. Large Scale Enterprises vs WC Dimensions

As Figure 5.77, 5.78 and 5.79 describe large scale apparel manufacturers are also considering improving wage condition of the employees and workers very seriously.

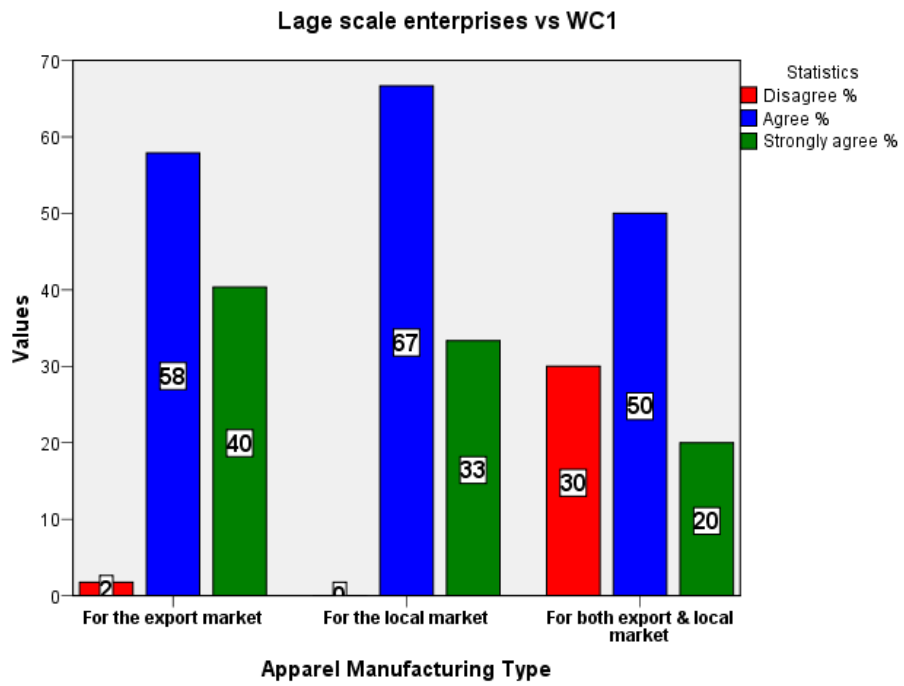


Figure 5.77. WC1 vs Large Scale Type

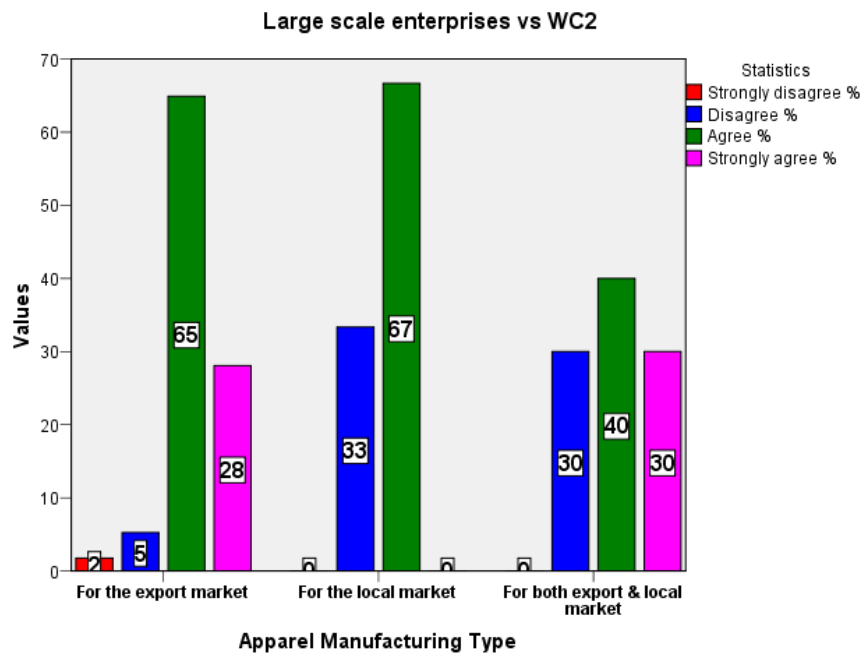


Figure 5.78. WC2 vs Large Scale Type

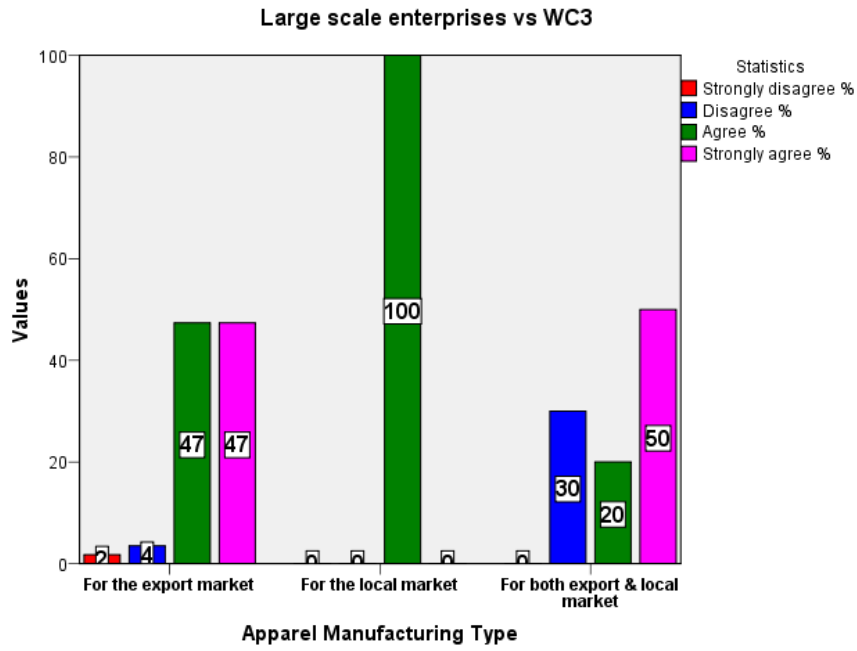


Figure 5.79. WC3 vs Large Scale Type

5.1.12. Workers' and Employees' Conditions (WEC)

Figure 5.80 illustrates that large scale employers are more conscious of working conditions than the small-scale manufacturers.

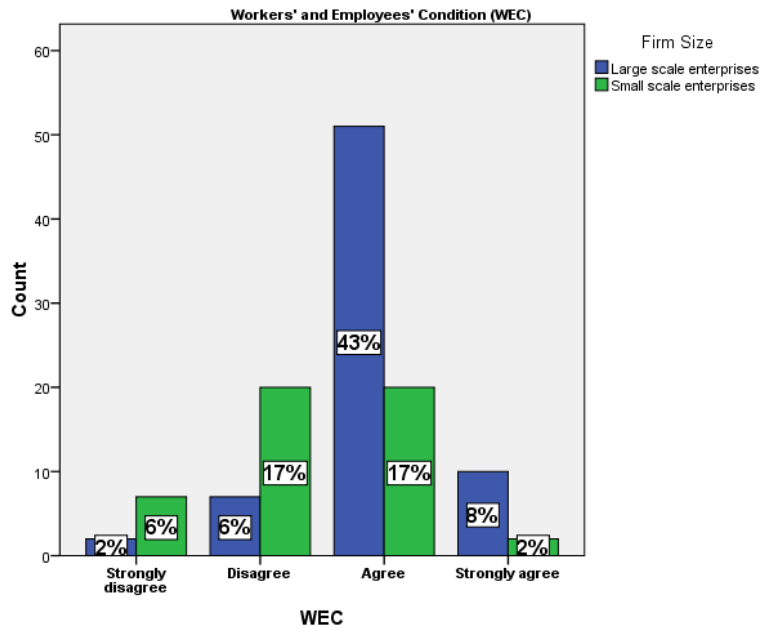


Figure 5.80 Workers' and Employees' Condition vs Firm Size

5.1.12.1. Small Scale Enterprises vs WEC Dimensions

Figure 5.81 depicts that 53% and 60% of the small-scale apparel companies manufacturing clothes respectively to the export and local markets do not practice WEC1 in their supply chains. Further, Figure 5.82 illustrates that 59% of the small-scale apparel companies manufacturing for the local market do not practice WEC2 while, the majority of the small-scale manufacturing companies in export, local and both markets respectively 56%, 88% and 57% do not practice WEC3 in their supply chains according to Figure 5.83.

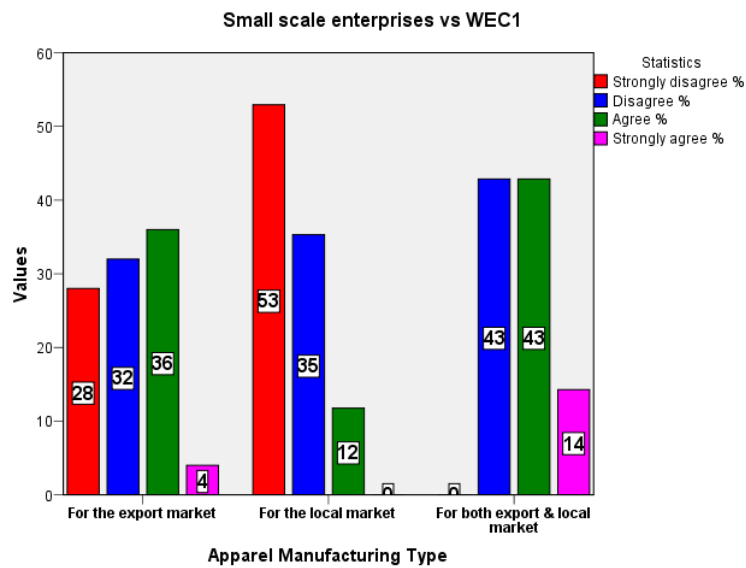


Figure 5.81. WEC1 vs Small Scale Type

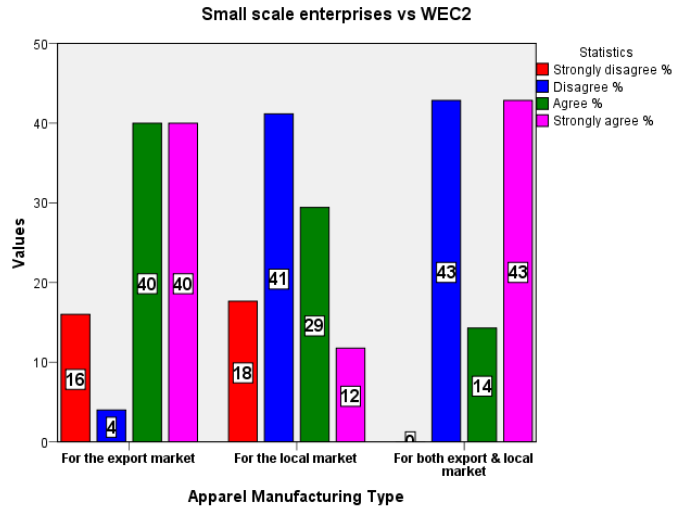


Figure 5.82. WEC2 vs Small Scale Type

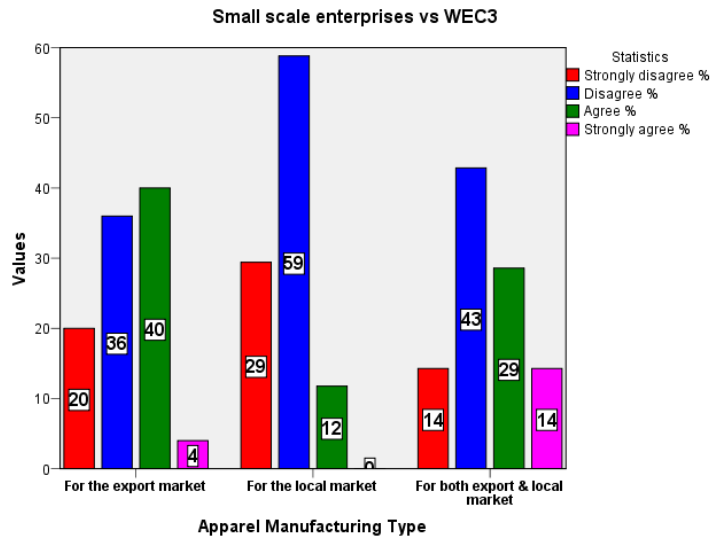


Figure 5.83. WEC3 vs Small Scale Type

5.1.12.2. Large Scale Enterprises vs WEC Dimensions

The large-scale apparel manufacturers are majorly conscious of the working environment of the employees and workers as per Figure 5.84, 5.85 and 5.86.

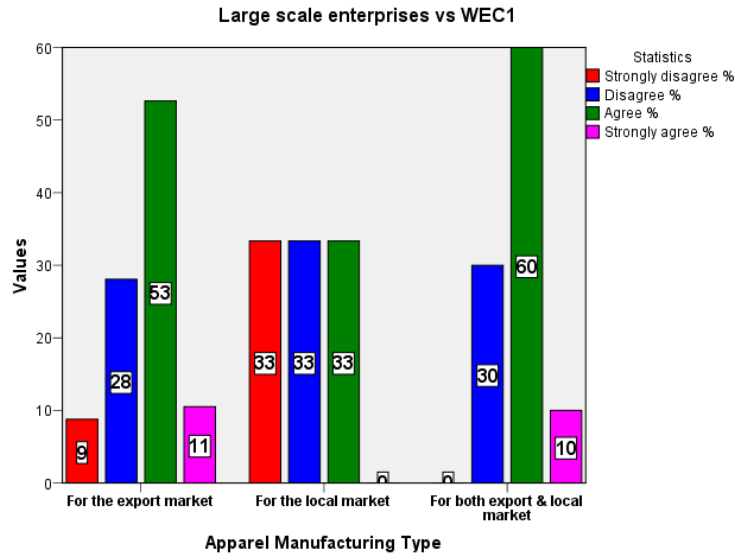


Figure 5.84. WEC1 vs Large Scale Type

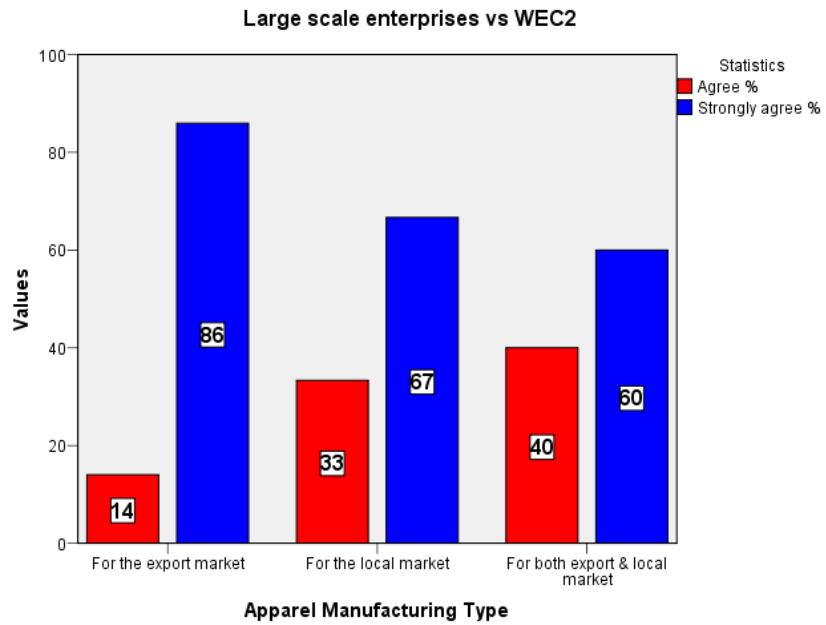


Figure 5.85. WEC2 vs Large Scale Type

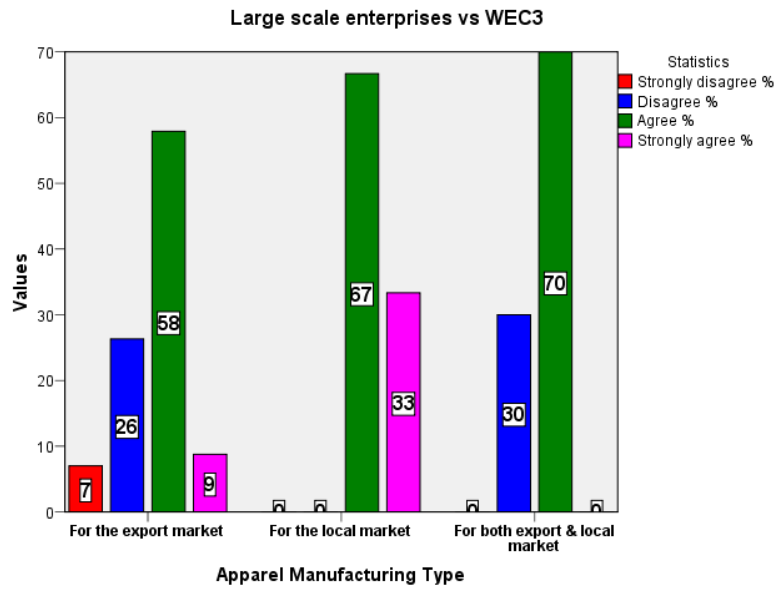


Figure 5.86. WEC3 vs Large Scale Type

5.1.13. Improved Economic Performance (EP)

Figure 5.87 reflects that almost all the large-scale apparel companies accept with the fact that economic performance is improved via social sustainability practices.

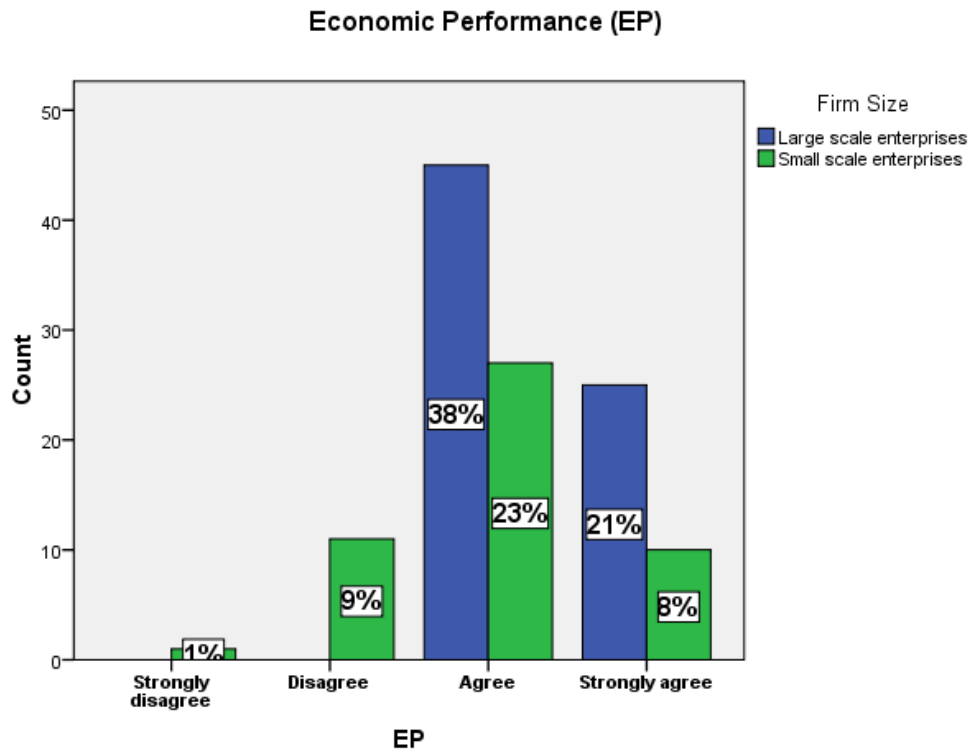


Figure 5.87 Economic Performance vs Firm Size

5.1.13.1. Small Scale Enterprises vs EP Dimensions

Figure 5.88, 5.90, 5.91, 5.92, 5.93 and 5.94 depict that majority of the small-scale apparel manufacturers agree that social sustainability practices encourage economic sustainability practices such as employee retention, improved image, new customer attraction, existing customer retention and increased investment. Meanwhile, Figure 5.89 shows that majority (57%) of the small-scale apparel manufacturers catering to both local and export markets do not agree that social sustainability activities are a reason for potential employee attraction. Further Figure 5.94 depicts that 53% of the small-scale apparel manufacturers catering the local market do not agree with the argument that their profits are increased because of the social sustainability practices.

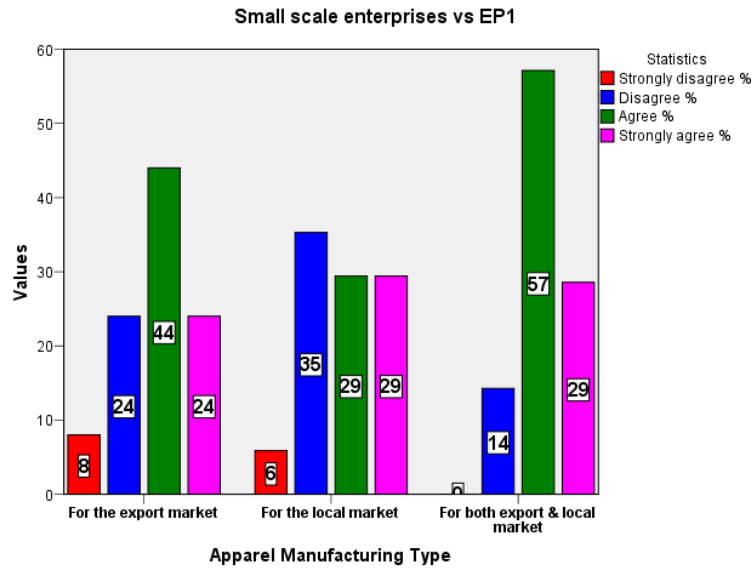


Figure 5.88. EP1 vs Small Scale Type

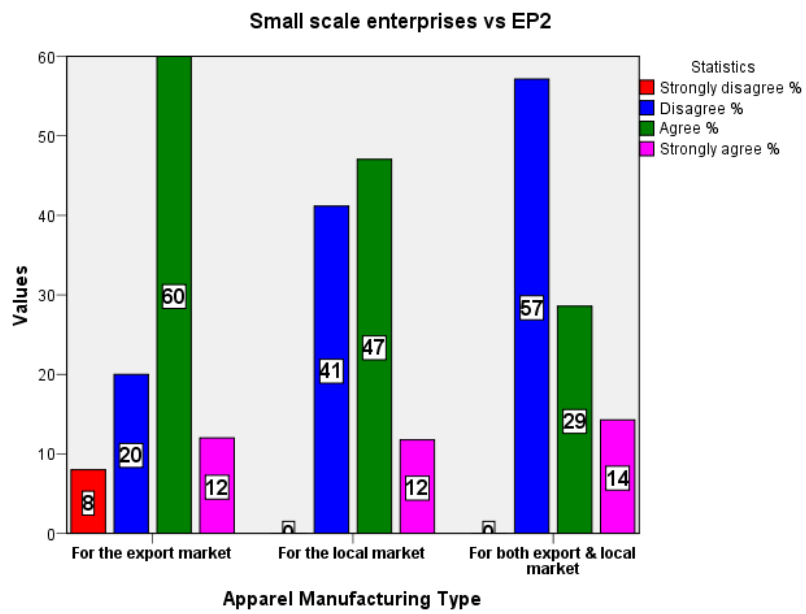


Figure 5.89. EP2 vs Small Scale Type

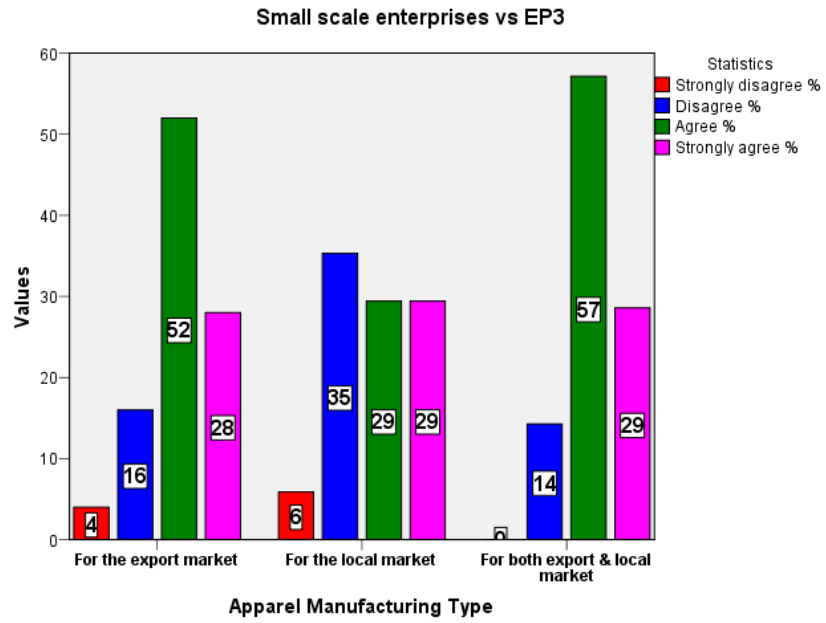


Figure 5.90. EP3 vs Small Scale Type

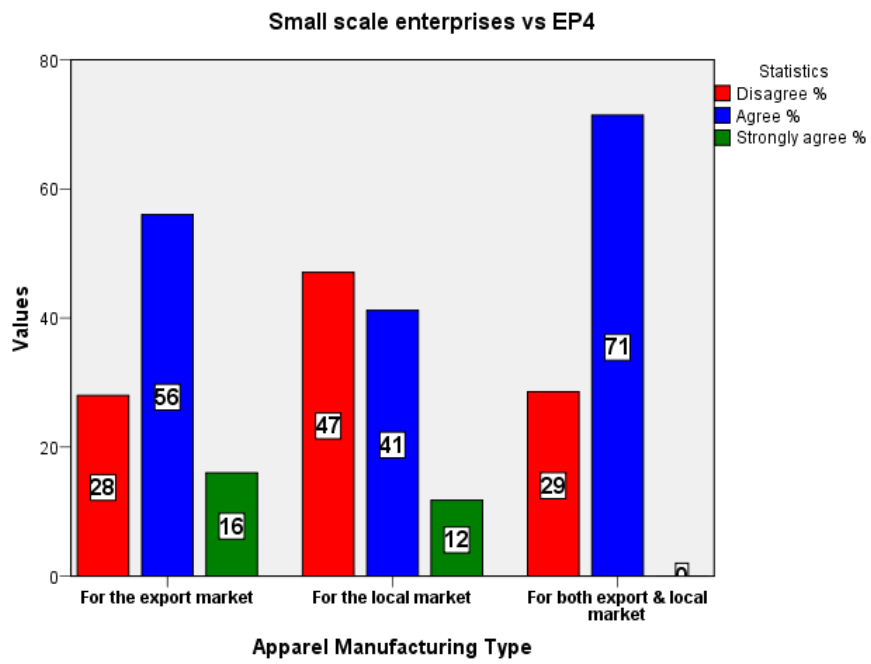


Figure 5.91. EP4 vs Small Scale Type

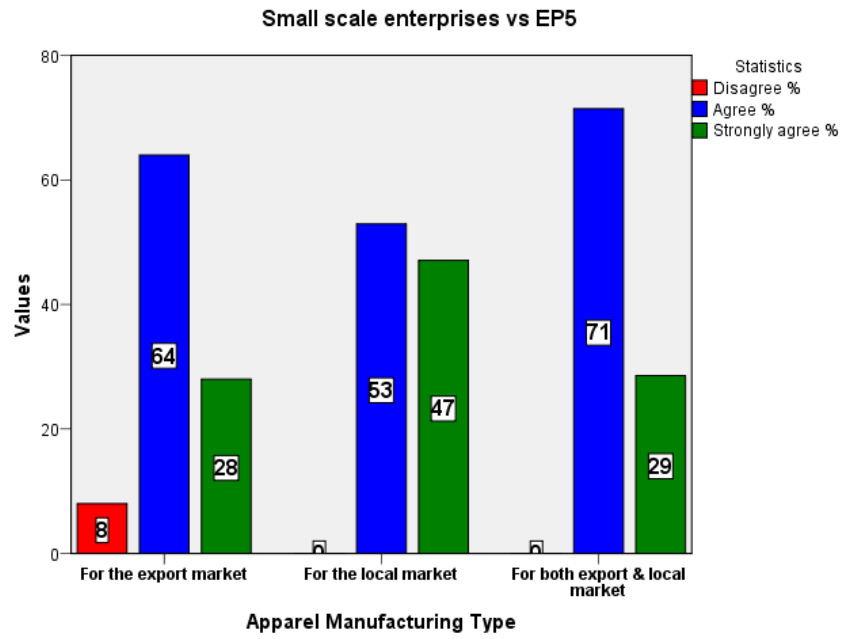


Figure 5.92. EP5 vs Small Scale Type

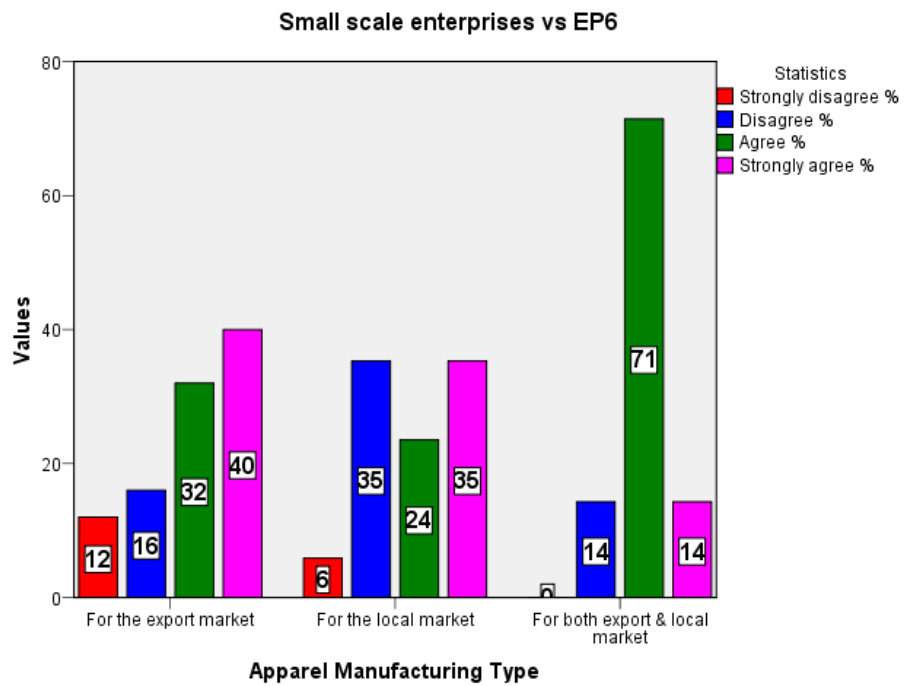


Figure 5.93. EP6 vs Small Scale Type

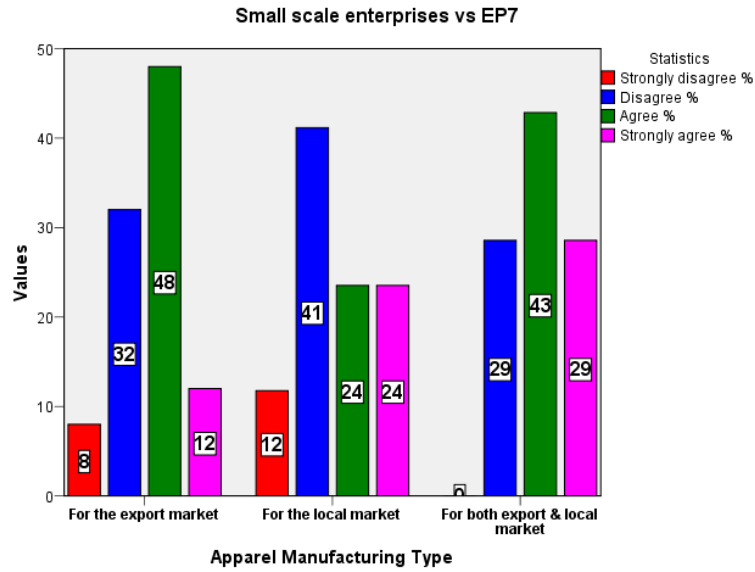


Figure 5.94. EP7 vs Small Scale Type

5.1.13.2. Large Scale Enterprises vs EP Dimensions

Figure 5.95, 5.96, 5.97, 5.98, 5.99, 5.100 and 5.101 reflect that majority (more than 60%) of the large-scale apparel manufacturers participated in the industry agree with the fact that economic performance is improved with social sustainability practices in the apparel supply chain, despite the market they are catering into.

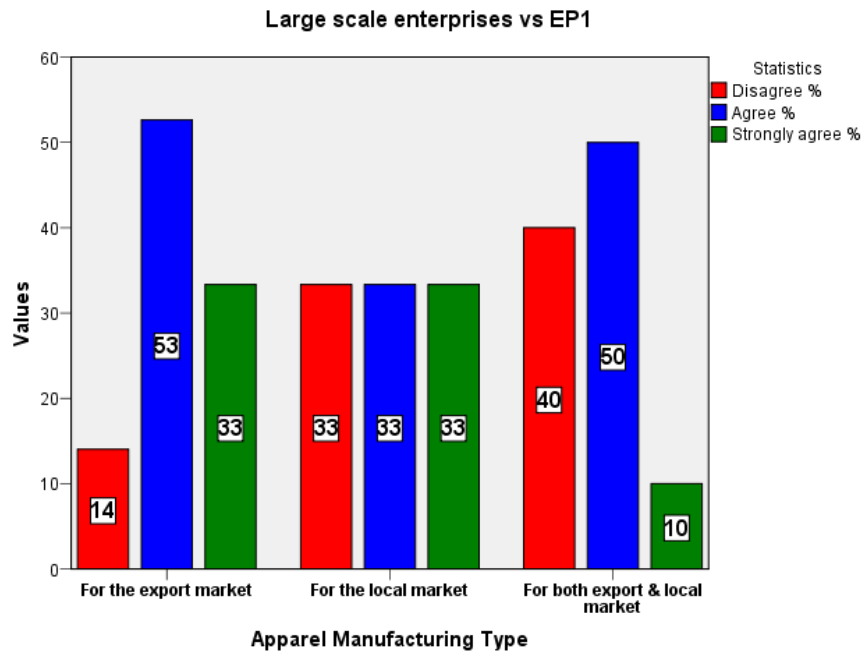


Figure 5.95. EP1 vs Large Scale Type

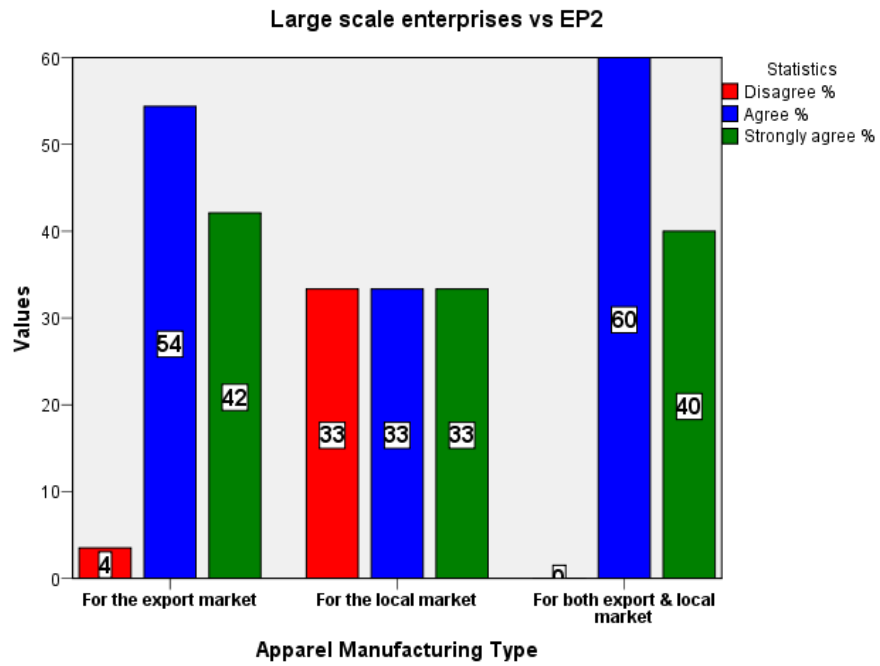


Figure 5.96. EP2 vs Large Scale Type

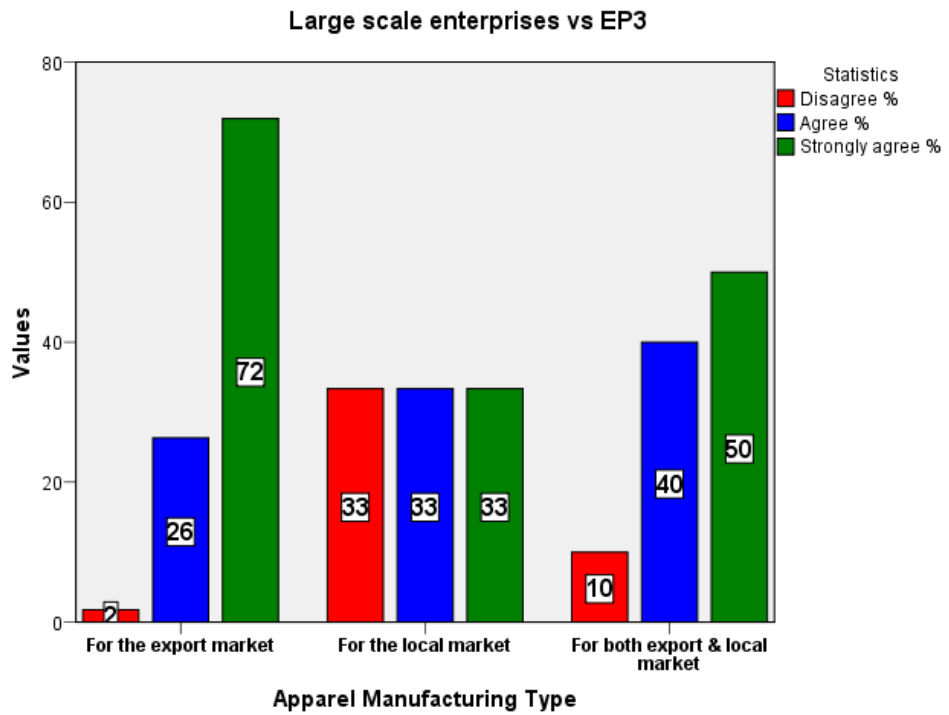


Figure 5.97. EP3 vs Large Scale Type

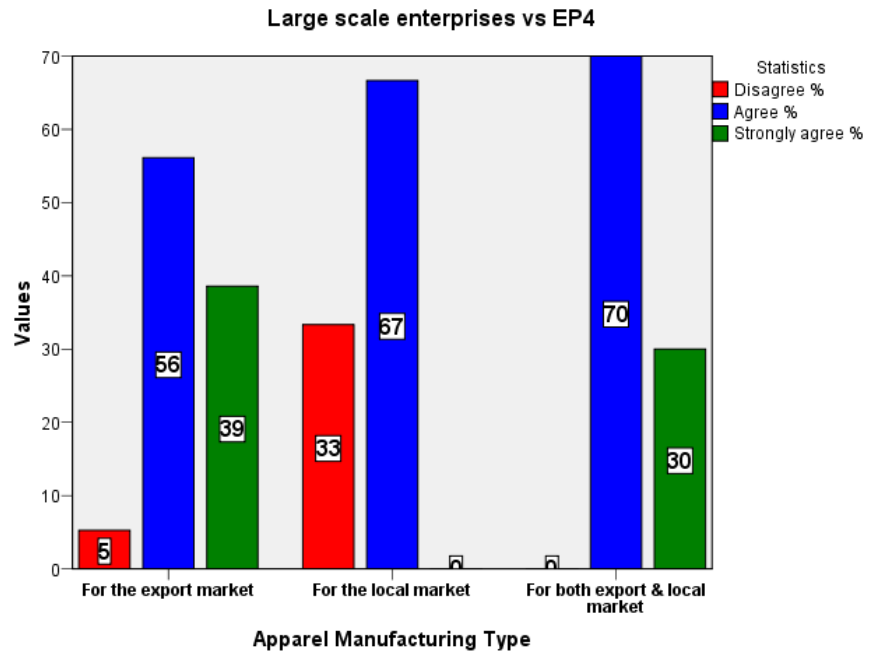


Figure 5.98. EP4 vs Large Scale Type

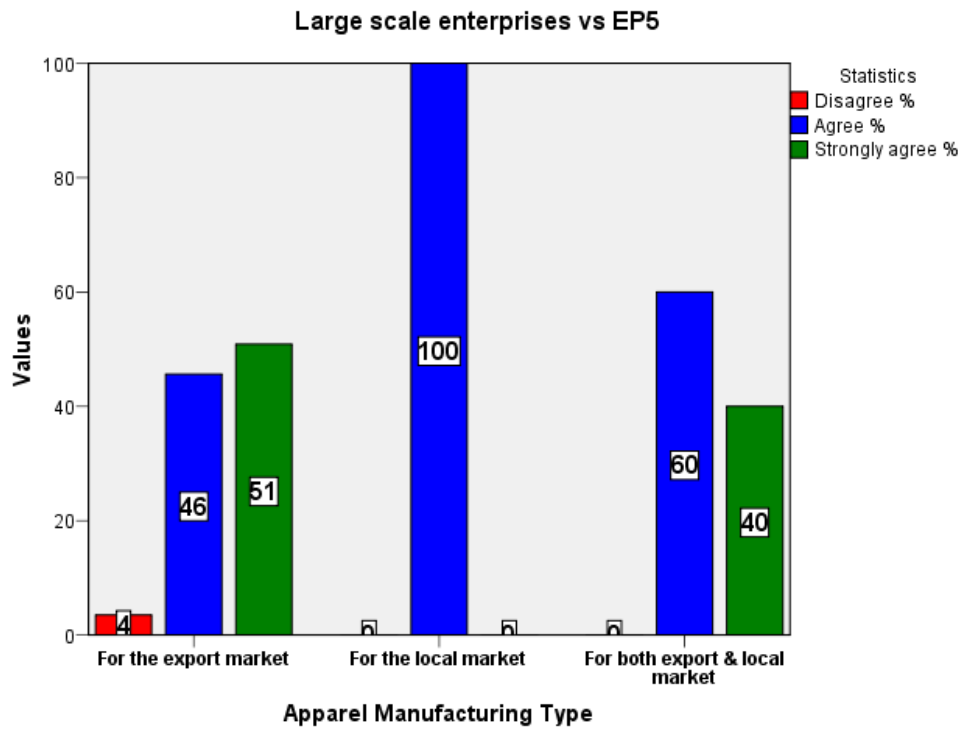


Figure 5.99. EP5 vs Large Scale Type

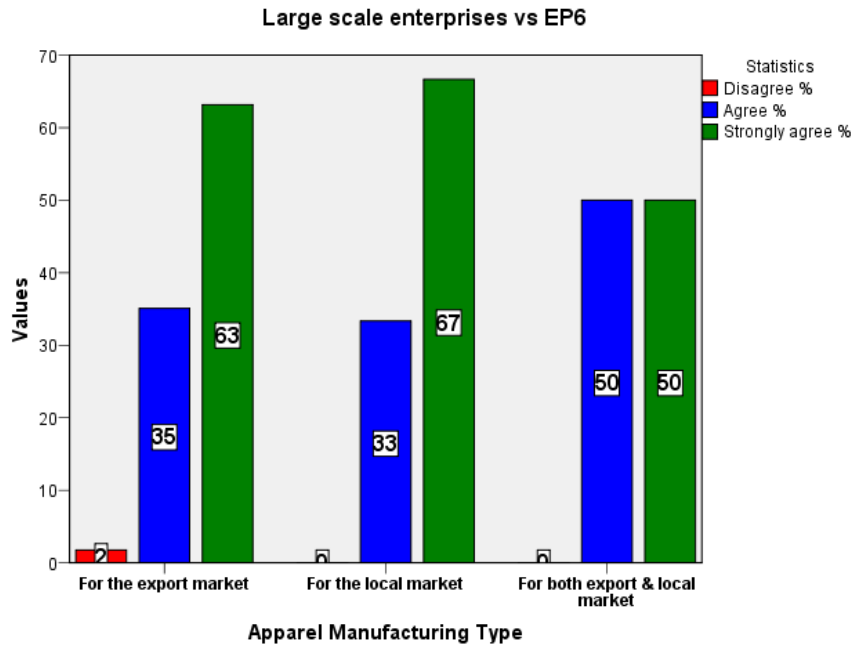


Figure 5.100. EP6 vs Large Scale Type

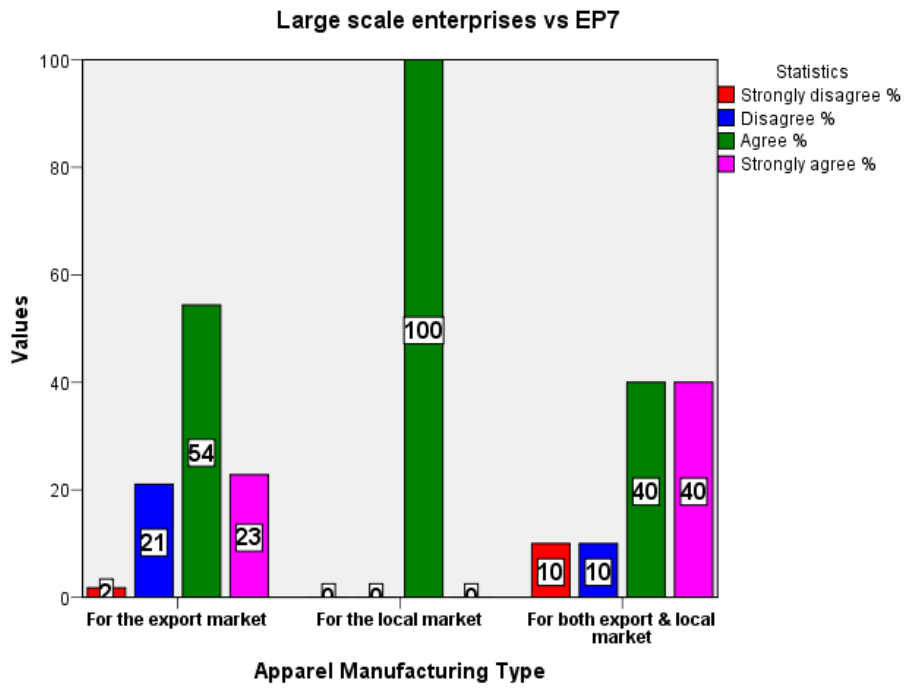


Figure 5.101. EP7 vs Large Scale Type

5.2.PLS Path Modelling

We explore the relationship between social and economic sustainability dimensions from the data gathered via survey instrument in Phase 2 using PLS SEM.

The identified 12 themes in Phase 1 were used to develop the PLS Path Model. These 12 themes were considered as the latent constructs and key areas coming under each theme were considered as observed variables which were measured via survey questionnaire (Refer [Section 4.2](#) to explore the sub themes). In order to reduce the number of relationships and the complexity of the models, HCM approach (refer [Section 3.4.3.2.1.2.1](#)) was followed when developing the PLS Path Model.

In this research, the outer model consisted of formative models as the study explains the key constructs (refer [Section 3.4.3.2.1.3.1](#)) and all the observed variables were causing the latent constructs. For instance, improved health and safety dimension was caused by providing healthy food and maintaining good OHS in the company. Therefore, formative measurement models were developed as LOCs. Therefore, there were 12 outer models.

Out of these 12 latent constructs, 10 constructs focused on the “in-house practices for social sustainability”. Therefore, while those 10 constructs were acted as LOCs, “in-hose social sustainability” construct acted as the HOC. Since we were looking into how these 10 themes contributed to the in -house social sustainability dimension, the relationship between LOCs and HOC is also formative. Hence, we used a “formative-formative HCM (Type 4)” relating to the “in-house practices for social sustainability” dimension as shown in Figure 5.102. Since the requirement mentioned in [Section 3.4.3.2.1.2.2](#) were fulfilled in this HCM (LOCs in HCM has almost similar number of indicators), repeated indicator approach was applied to assess the measurement model of HOC.

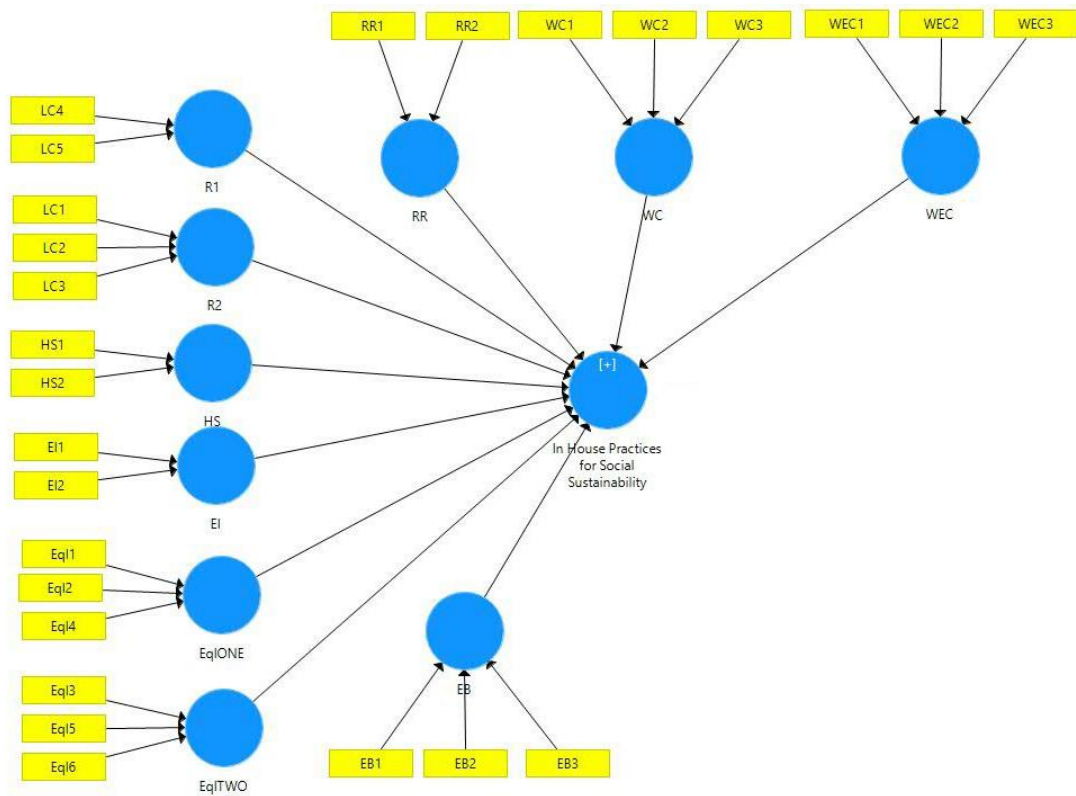


Figure 5.102 Formative- Formative HCM

With the aim of testing the following two hypotheses, the rest of the PLS Path Model was developed as shown in Figure 5.103.

H1: In house Social Sustainability Practices positively impact on the economic sustainability dimension of the apparel supply chain.

H2: Social Sustainability Practices towards Society positively impact on the economic sustainability dimension of the apparel supply chain.

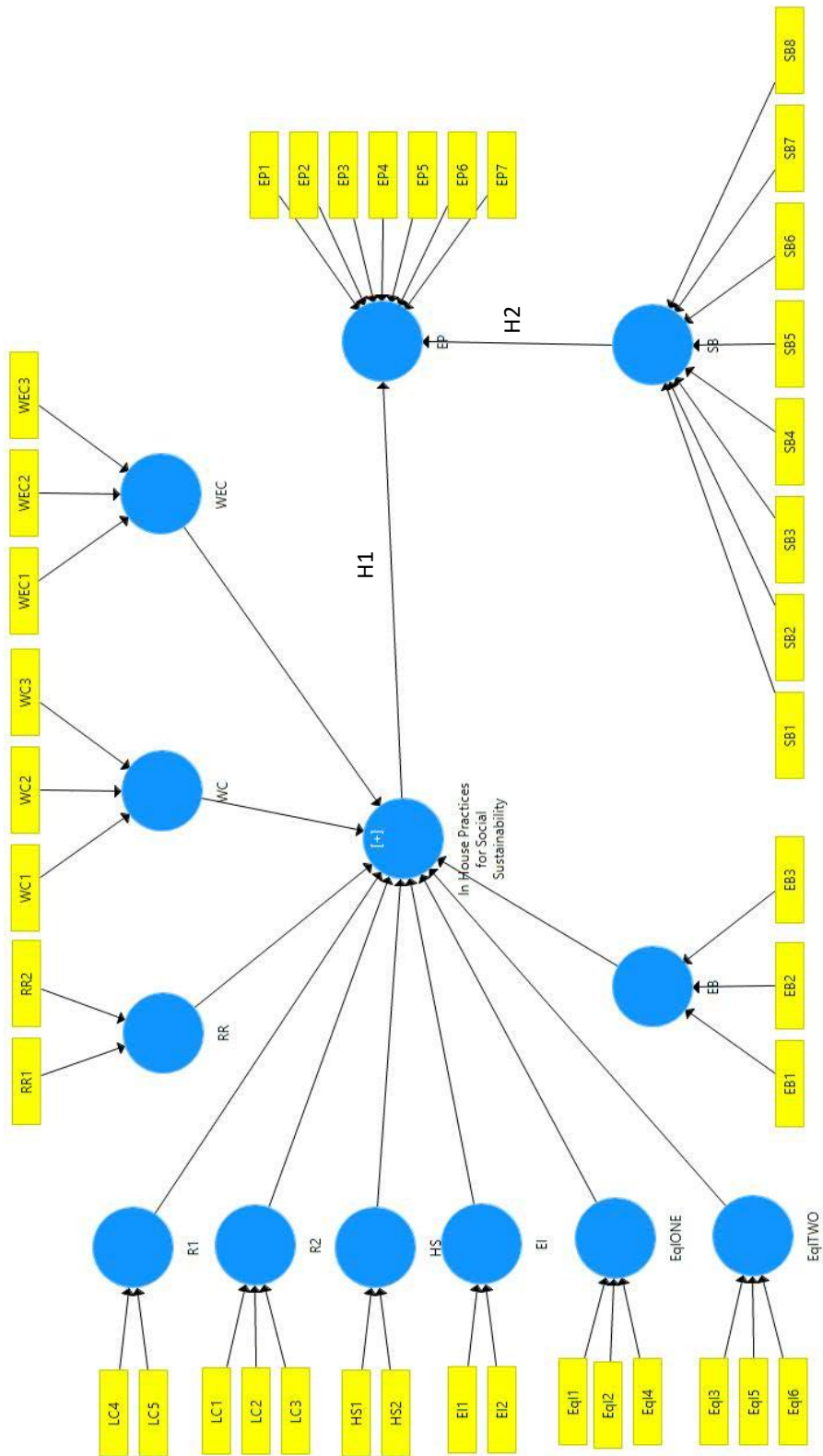


Figure 5.103. Path Model of the Framework

5.2.1. Assessment of Formative Measurement Model for LOCs

The following steps are conducted to assess the formative measurement model as in Section 3.4.3.2.1.3.1.1.

5.2.1.1. Content Validity Testing

The content validity was tested through the literature review and interviews with the industry experts where a thorough analysis was conducted in the social and economic sustainability dimensions of the apparel supply chains during Phase 1.

5.2.1.2. Convergent Validity Testing

Table 5.1 depicts the convergent validity testing and as all the path coefficients are above the threshold of 0.8, they have sufficient degrees of convergent validity. Therefore, the formative indicators relating to each construct is validated and no need to add or remove indicators.

Table 5.1. Convergent Validity Testing

Formative construct	Path coefficient between formative construct and global construct	Convergent Validity Test
EP	0.856	> threshold of 0.8
SB	0.898	> threshold of 0.8
EB	0.889	> threshold of 0.8
EqIONE	0.884	> threshold of 0.8
EqITWO	0.942	> threshold of 0.8
EI	0.884	> threshold of 0.8
HS	0.864	> threshold of 0.8
R1	0.878	> threshold of 0.8
R2	0.909	> threshold of 0.8
RR	0.843	> threshold of 0.8
WC	0.909	> threshold of 0.8
WEC	0.878	> threshold of 0.8

5.2.1.3. Test for Collinearity

Each indicator's Variance Inflation Factor (VIF) should be lower than 5 (Joseph F Hair et al., 2011). Table 5.2 and 5.3 depict the VIF values in this model and they all are below 5. Hence, there is no critical level of collinearity and we can move to the next step in assessing the formative measurement model.

Table 5.2. VIF Values of Indicators in the Measurement Model of LOCs

SB		EB		EqIONE		EqITWO		EI		HS	
Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF
SB1	2.26	EB1	1.49	EqI1	1.29	EqI3	3.51	EI1	1.33	HS1	1.07
SB2	2.59	EB2	1.26	EqI2	1.31	EqI5	2.97	EI2	1.33	HS2	1.07
SB3	1.14	EB3	1.31	EqI4	1.08	EqI6	3.77				
SB4	1.75										
SB5	2.41										
SB6	2.55										
SB7	1.58										
SB8	3.05										

Table 5.3. VIF Values for Indicators in the Measurement Model of LOCs

R1		R2		RR		WC		WEC		EP	
Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF	Indicator	VIF
LC4	1.25	LC1	3.07	RR1	1.12	WC1	1.43	WEC1	1.31	EP1	1.39
LC5	1.25	LC2	1.92	RR2	1.12	WC2	1.48	WEC2	1.25	EP2	1.55
		LC3	2.44			WC3	1.57	WEC3	1.22	EP3	1.79
										EP4	2.03
										EP5	1.57
										EP6	1.54
										EP7	1.73

5.2.1.4. Examining the Significance and Relevance of Indicators in the Formative Construct

Here, the Critical Value for bootstrapping are as follows.

- Two-tailed
- Significance Level – 5%
- Critical t value – 1.96

Table 5.4 depicts which indicators are to be included and excluded.

Table 5.4. Inclusion and Exclusion of Indicators in the Formative Construct

Formative Construct	Formative Indicators	Outer Weights	Outer Loadings (>0.5)	t value	p value	Significance (based on p value)	Include/ Exclude
SB	SB1	0.02	0.58	0.14	0.89	NS	INCLUDE
	SB2	0.45		2.83	0	***	INCLUDE
	SB3	0.4		3.62	0	***	INCLUDE
	SB4	0.14	0.66	1.14	0.25	NS	INCLUDE
	SB5	0.25		1.65	0.1	*	INCLUDE
	SB6	0.05	0.66	0.33	0.74	NS	INCLUDE
	SB7	0.03	0.56	0.28	0.78	NS	INCLUDE
	SB8	0.06	0.77	0.34	0.74	NS	INCLUDE
EB	EB1	0.37		2.43	0.02	**	INCLUDE
	EB2	0.58		3.85	0	***	INCLUDE
	EB3	0.33		2.2	0.03	**	INCLUDE
EqIONE	EqI1	0.16	0.53	1.04	0.3	NS	INCLUDE
	EqI2	0.46		3.46	0	***	INCLUDE
	EqI4	0.7		6.61	0	***	INCLUDE
EqITWO	EqI3	0.55		3.91	0	***	INCLUDE
	EqI5	0.28		1.99	0.05	**	INCLUDE
	EqI6	0.35		2.02	0.04	**	INCLUDE
EI	EI1	0.57		4.01	0	***	INCLUDE
	EI2	0.59		4.03	0	***	INCLUDE
HS	HS1	0.5		3.96	0	***	INCLUDE
	HS2	0.75		7.5	0	***	INCLUDE
R2	LC1	0.3		2.44	0.01	**	INCLUDE
	LC2	0.43		2.85	0	***	INCLUDE
	LC3	0.59		4.7	0	***	INCLUDE
R1	LC4	0.57		2.12	0.03	**	INCLUDE
	LC5	0.6		2.03	0.04	**	INCLUDE
RR	RR1	0.36		2.96	0	***	INCLUDE
	RR2	0.82		10.07	0	***	INCLUDE
WC	WC1	0.63		4.43	0	***	INCLUDE
	WC2	0.14		0.89	0.38	NS	INCLUDE
	WC3	0.42		2.65	0.01	***	INCLUDE
WEC	WEC1	0.13	0.69	0.52	0.6	NS	INCLUDE
	WEC2	0.73		3.64	0	***	INCLUDE
	WEC3	0.39		1.81	0.07	*	INCLUDE
EP	EP1	0.13	0.6	1.42	0.15	NS	INCLUDE
	EP2	0.21		1.75	0.08	*	INCLUDE
	EP3	0.4		2.94	0	***	INCLUDE
	EP4	0.29		1.8	0.07	*	INCLUDE

Formative Construct	Formative Indicators	Outer Weights	Outer Loadings (>0.5)	t value	p value	Significance (based on p value)	Include/ Exclude
	EP5	0.09	0.56	0.51	0.61	NS	INCLUDE
	EP6	0.14	0.62	0.97	0.33	NS	INCLUDE
	EP7	0.15	0.66	1.29	0.2	NS	INCLUDE

p<0.1 - *, p<0.05 - **, p<0.01 - ***, NS - Not Significant

If the p value is less than 0.1, then the indicator is considered to be significant. Their significance is reflected from the number of stars in table 5.4. However, even if the p value is above 0.1 and the outer loading is equal or greater than 0.5, the indicator is included in the model. All the outer loadings given in table 5.4 are above 0.5, therefore none of the indicators are excluded from the PLS path model.

5.2.2. Assessment of Formative Measurement Model for HOC

The following steps are followed as explained under Section 3.4.3.2.1.3.1.2.

5.2.2.1. Test for Collinearity

Table 5.5 depicts the VIF values.

Table 5.5. VIF Values of Indicators in the Measurement Model of HOC

In House SS	
Construct	VIF
EB	2.28
EI	2.46
EqIONE	2.11
EqITWO	2.46
HS	1.76
R1	1.56
R2	2.65
RR	2.8
WC	2.41
WEC	1.74

As per Table 5.5, all the VIF values are below the threshold of 5. Hence, we concluded that collinearity does not reach critical levels in the formative HOC and is not an issue for the estimation of the measurement models of the HOC.

5.2.2.2. Examining the Significance and Relevance of Indicators in the Formative HOC

The weights (path coefficients) of the themes were analyzed for their significance and relevance as given in Table 5.6.

Table 5.6. Significance and Relevance of HOC

	Path Coefficients (weights)	T Statistics (O/STDEV)	P Values	Significance Level	Correlation
EB -> In House Practices for Social Sustainability	0.28	2.01	0.04	**	0.77
EI -> In House Practices for Social Sustainability	-0.01	0.04	0.96	NS	0.689
EqIONE -> In House Practices for Social Sustainability	0.17	1.27	0.2	NS	0.804
EqITWO -> In House Practices for Social Sustainability	0.14	1.1	0.27	NS	0.8
HS -> In House Practices for Social Sustainability	0.21	1.84	0.07	*	0.714
R1 -> In House Practices for Social Sustainability	-0.01	0.08	0.94	NS	0.353
R2 -> In House Practices for Social Sustainability	0.09	0.77	0.44	NS	0.771
RR -> In House Practices for Social Sustainability	0.2	1.24	0.21	NS	0.783
WC -> In House Practices for Social Sustainability	0.18	1.2	0.23	NS	0.762
WEC -> In House Practices for Social Sustainability	0.02	0.15	0.88	NS	0.507

p<0.1 - *, p<0.05 - **, p<0.01 - ***, NS - Not Significant

Educational benefits and health & safety improvements have a significant relation to the in-house social sustainability practices. However, the other practices, other than R1 have correlations above 0.5. Therefore, this depicts that other than R1 (abolition of child labor and forced labor), all the other LOCs contribute to the in-house social sustainability practices.

5.2.3. Assessment of Structural Model

The following steps are followed to assess the structural model as discussed in Section 3.4.3.2.1.3.2.

5.2.3.1. Collinearity Assessment

Table 5.7 shows the VIF values to assess the collinearity among the constructs.

Table 5.7. VIF Values

Economic Performance	
Construct	VIF
SB	2.84
In House SS	2.84

Since all the VIF values are below 5 and above 0.2, the structural model results will not be affected by the collinearity.

5.2.3.2. Significance and Relevance of Structural Model Relationships

Table 5.8 shows the t values and p values in the structural model relationships.

Here, the Critical Value for bootstrapping is as follows.

- Two-tailed
- Significance Level – 5%
- Critical t value – 1.96

Table 5.8. Significance of the structural model relationships

	Structural Model Relationship	Path Coefficients	T Statistics (O/STDEV)	P Values	Significance Level
H1	In House Practices for Social Sustainability -> EP	0.53	4.91	0	***
H2	SB -> EP	0.34	3.21	0	***

p<0.1 - *, p<0.05 - **, p<0.01 - ***, NS - Not Significant

Since the path coefficients are significant, H1 and H2 are accepted. Therefore, we can predict that In-house social sustainability practices and society related social sustainability practices create a positive impact on the economic sustainability dimension of the apparel supply chain. However, the path coefficient of H1 is greater than H2 which reflects that the effect of “In house Practices for Social Sustainability” on “Economic performance” is greater compared to the “Social Sustainability of the Benefits”.

5.2.3.3. R²

The coefficient of determination (R²) in our study is 0.687 for the economic sustainability dimension. From this result we can conclude a substantial explanatory power of our model because R² values of 0.66, 0.33 and 0.19 can be interpreted respectively as substantial, moderate and weak relationships in PLS path models (Chin, 1998).

5.2.3.4. f²

Table 5.9 shows the f² values.

Table 5.9. Effect Sizes (f²)

Excluded exogenous construct (independent)	Economic Performance
SB	0.089
In house social sustainability	0.239

This shows that the in house social sustainability practices create a large impact on the economic performance while, the impact is small with the social sustainability benefits to the society.

6. DISCUSSION

The contribution of this research is threefold. First, it explores the social and economic sustainability dimension of the sustainable supply chain from the perspective of an emerging concept called “global goals” aimed at achieving sustainable development around the globe. Secondly how socially and economically sustainable practices are linked to the apparel supply chain is studied, mainly focusing on the performance of the suppliers in the both global and local apparel supply chains. Lastly, how these socially sustainable practices have affected on the economic sustainability dimension of the apparel supply chain is explored.

6.1.Global Goals and Supply Chain Sustainability

Since the themes in SDG Compass are indistinctly defined, the scope of each theme is assumed to be limited to the area covered by sample performance indicators. Therefore, the rejected themes in this research are either related to environmental sustainability dimension or any other specific industry where sufficient proof was not found to link with apparel supply chain. However, this may have restricted the opportunity for apparel supply chain to be more sustainable by applying best practices in other industries. This barrier can be overcome with the increased use of the performance indicators and the evolution of the UN SDGs in the future.

6.2.Social and Economic Sustainability Dimensions in Apparel Supply Chain

Evidence to prove that certain themes discussed in this study are actually used in the apparel supply chain is restricted due to the limited number of research conducted on social and economic sustainability dimensions of the apparel industry in developing countries (Köksal, Strähle, Müller, & Freise, 2017). However, these themes are verified against the practices in the real world through the interviews with industry experts. For example, although the industry provides evidence that they are taking the theme “healthy and affordable food” into consideration, we could not find enough evidence to prove this practice being reported in the SSCM literature. Hence, this study has stimulated the exploration on social and economic sustainability dimensions in the global apparel supply chain.

In SSCM literature, categorizing performance indicators under themes is challenging as there is an inconsistency in the way of defining themes using a “common terminology” (Ahi & Searcy, 2015b). Therefore, when the key themes were coded during the content analysis, it was difficult to find certain themes in the literature by their specific name mentioned in SDG Compass. For example, identifying the theme “Access to quality essential healthcare services” was easier compared to finding “Access to sexual and reproductive health-care services” because the latter theme was addressed as a part of the prior theme in the literature. However, in an industry where the number of female employees is comparably higher and, in a country, where sex education is restricted, the importance of themes such as “Access to sexual and reproductive health-care services” was emphasized during the discussions with the experts, even though it was not separately mentioned in the literature. Therefore, as a solution to build up a ‘common terminology’, the themes introduced by SDG Compass can be used and promoted among the companies under the guidance of standardized metrics introduced by renowned frameworks GRI.

6.3.Social Sustainability in Apparel Supply Chain

This study looks into the social sustainability dimension deeply from the perspective of a supplier in a developing country adding light to the literature where many research slightly touch upon the social sustainability dimension (Seuring, 2013). Even though it is mentioned that majority of the research studies conducted in the social sustainability dimension are focusing the performance of the manufacturing firm, this study addresses the role of an apparel manufacturing company in a developing country mainly from the perspective of a supplier in the global apparel supply chain. Hence, this research discusses how the apparel manufacturing companies in developing countries play their role towards a sustainable supply chain as a supplier in the global apparel supply chain and a focal company in the local apparel supply chain.

Further Sri Lanka currently being considered as “the World’s No.1 Ethical Sourcing Destination”, the following new avenues were introduced into the social sustainability dimension of the SSCM literature.

1. Companies having a rationale for explaining their philanthropic actions, rather than saying “just because” – This ability of a company to justify why they do what they do will clearly indicate the underlying intention of the company. Hence this intention will reflect whether the company’s aim of being sustainable is genuine or fake which directly affects the betterment of the society.
2. Making everyone aware of sustainability – The efforts of a single company is not sufficient to ensure the sustainable development of a particular country or the world in the long run. Hence this company can help others also to learn and live by the concepts of sustainability. This step can be started by school children who are the future of the country which is already practiced by certain apparel manufacturers in Sri Lanka.
3. Information sharing of best practices relating to sustainability – the companies are sharing their sustainability practices via sustainability reporting which is helpful for other companies to learn. Although still certain Sri Lankan companies are not willing to share their best practices with the world because of the threat from rivalries. However, they are on the way of understanding the importance of information sharing in order to keep up with the world.
4. Providing sexual and reproductive health care services – Because of the larger portion of women working in the apparel industry, looking into their sexual health is important. Sri Lanka is a country where sex education is still considered to be a taboo, hence the awareness among the workers tends to be low and full of myths. Hence, this is a major area to be discussed under the social sustainability dimension, especially in the working cultures of developing countries such as Sri Lanka, India, Bangladesh and etc. which will make sure healthy social relationships leading to the betterment of the society.
5. Disaster or emergency planning responses – Since apparel industry is labor intensive, they have more than enough useful human resources to assist the affected during a disaster. Hence, committing labor hours for the betterment of the society during a disaster is an upcoming avenue in the social sustainability dimension. Especially in a country such as Sri Lanka, where generosity is a

number 1 aspect, this kind of practices can be easily implemented and set examples for other players in the supply chains as well.

6. Women empowerment through technology – the need for women empowerment have been addressed in the social sustainability dimension over the years. However, specifically focusing on opening doors to a newer world by introducing latest technologies to women is novel in the context of apparel industry where most of the female workers have a general education level. The actions taken by apparel manufacturers to encourage women to learn these modern technologies set examples for other industries as well.
7. Availability of healthy and affordable foods to employees – considering the health of the employees, the export apparel manufacturers in Sri Lanka provide a healthy and affordable meal to its employees. This is one of the good initiatives to make sure the social sustainability dimension is achieved across the supply chains.

However, the 5 least practiced socially sustainable practices are as follows.

1. Providing affordable and safe childcare services and benefits
2. Access to affordable housing
3. Research and development for social sustainability
4. Women empowerment through technology
5. Access to quality essential healthcare services

On the other hand, following are the most popular sustainable practices in the apparel supply chains.

1. Providing healthy and affordable food
2. Compliance with laws and regulations
3. Occupational health and safety
4. Abolition of child labor
5. Youth employment
6. Availability of a skilled workforce
7. Elimination of forced or compulsory labor

Following are the summary of social sustainability themes discussed in this study.

6.3.1. Social Sustainability Practices Benefiting towards Society (SB)

From an overall perspective, both the large scale and small-scale apparel companies have understood the importance of conducting social sustainability practices benefitting the society along the supply chain. However, no matter what the catering market is, large scale apparel manufacturers are conducting the following practices for the betterment of the society in their supply chains.

1. Providing access to quality essential health care services
2. Providing education for sustainable development
3. Providing more employment opportunities to the youth
4. Providing access to Sanitation and Hygiene
5. Philanthropic activities to support economic development and human wellbeing
6. Encouraging research and innovation
7. Providing emergency relief during disasters
8. Building partnerships to improve social sustainability

However, only a few of these socially sustainable practices are carried out by the small-scale apparel manufacturers in their supply chains due to many reasons. Quality and essential healthcare facilities are provided only by a handful of small manufacturers because SMEs in developing countries are lacking effective institutional structures and socio economic environment to implement these health and safety aspects (KHENI, GIBB, & DAINTY, 2010). Moreover, since the small scale manufacturers need help in building infrastructure to support their survival from third parties (Obokoh & Goldman, 2016), they do not have the capacity to develop infrastructure for the betterment of the society. Therefore, the infrastructure development for social sustainability is lacking among the small-scale apparel manufacturers. Further, these small scale apparel manufacturers do not conduct research and innovations due to many reasons such as funding constraints, lacking skill in research and innovation and weak connections between institutes to conduct research (Pachouri & Sharma, 2016). Meanwhile, these small scale manufacturers manage to assist the society in a disaster condition because of the generosity of Sri Lankan people which was reflected via the CAF World Giving Index 2016 (Daily

News, 2016b) . However, small scale manufactures catering to the local markets are being exposed to opportunities very recently to build partnerships for sustainable performance despite the fact that they are being pushed to partner with other organizations to achieve economies of scale and make investment decisions (Hartman, Hofman, & Stafford, 1999).

6.3.2. Education Benefits

Despite the size of the manufacturing facility, apparel manufacturers conduct the following practices along the supply chain to ensure providing educational benefits to the employees in the company.

1. Organizing programs and implementing processes to ensure the availability of a skilled work force
2. Capacity building for career development via skill development
3. Providing training and education to the employees

However, one of the reasons for lacking capacity building programs within the local small scale manufacturers is due to the lacking managerial capabilities of the owners and managers of the SMEs (Pansiri & Temtime, 2008). On the other hand, one of the major reasons for Sri Lankan apparel manufacturers to maintain social sustainability with regard to education and training at a higher standard is the free education provided for 13 years at schools. Therefore, since the employees in Sri Lanka are educated compared to the ones in other developing countries, teaching within the process is a success and a motivation for the growth of the industry.

6.3.3. Equity Improvement (EqIONE)

The following equity improvement actions are conducted in the local and global apparel supply chains pioneered by Sri Lankan apparel manufacturers.

1. Non-discriminatory action and taking corrective measures to resolve discriminatory actions within the supply chain
2. Diversity and equal opportunities within the supply chains – since apparel is a labor-intensive supply chain, different types of actors are connected. Therefore, equity is maintained to ensure the efficiency and effectiveness of

the supply chains by ensuring the freedom of the workers along the supply chain.

3. Arranging inclusive decision making where both employees and other stakeholders become a part of the decision-making process.

However, small scale manufacturers have a room for improvement in improving equity compared to the large-scale manufacturers. SMEs are still facing the issues relating to inequity (Madurawala, 2014). These issues can be resolved with the efforts of other stakeholders such as Asian Economic Development Bank who are already engaging in activities to ensure and promote equity (Daily News, 2016a). On the one hand, the role of the corporate sector to promote non-discrimination in the developing countries such as Sri Lanka is restricted due to the limited support given by the other responsible governing bodies such as governments. On the other hand, the initiatives by these private companies to promote non-discrimination and equal opportunity will put pressure on the governments and other responsible bodies to support their cause. As a result, these equity aspects will be taken into consideration in these developing countries at least to a certain extent because of the constant requests flooding from the society. Further, with the equal opportunities entering the premises of apparel supply chain actors, the apparel manufacturing companies have gained the opportunity of retaining their old staff members with immense experience.

6.3.4. Gender Related Equity Improvement (EqITWO)

Following three practices are common in the apparel supply chains.

1. Leadership opportunities for women are promoted
2. Gender equality is promoted
3. Women are empowered through technology

Women being the majority of the workforce in apparel supply chains, they play a major role to ensure the success of the supply chain. However, small scale apparel manufacturers are still at very early stages of women empowerment by offering the opportunity to climb the career ladder and equip themselves with technology. Few of the barriers for women empowerment in the SMEs are restricted mobility, limited opportunity for women to network and communicate and no maternity protection

(Madurawala, 2014). Even the large-scale manufacturers have very recently only made these opportunities available to women in the working environment by setting targets to be achieved in the very near future.

6.3.5. Ethical Improvement

Following are the socially sustainable practices followed in the apparel supply chains to improve the ethical environment.

1. Acting against corruption
2. Ethical and lawful behavior

However, in a country where corruption is improving (Daily Mirror, 2017), it is highly doubtful that ethical practices are majorly common in the supply chains of Sri Lanka. Even though the actions of the players are reported as ethical, the situation may differ in reality. The best example rises with the Rana Plaza incident in Bangladesh. Until the thousands of lives were buried under the ruins of the building (Reuters in Dhaka, 2016), the ethical aspect of the Bangladeshi apparel supply chain was not discussed. Therefore, the brand owners who are subcontracting to these apparel manufacturers in the developing countries should go beyond inspection and auditing limited to a piece of paper when looking into the ethical performance of the apparel manufacturers.

6.3.6. Health and Safety improvement

Following actions are practiced in the apparel supply chain of Sri Lanka as health and safety related improvement.

1. Providing healthy and affordable food to the employees
2. Occupational health and safety policies and procedures complying with the highest industry standards

Providing with the food has become mandatory as a legal requirement in the apparel industry of Sri Lanka and the quality of that service needs to be measured under the social sustainability dimension. The attention paid towards the healthiness and the affordability of the foods provided in the canteens reflect the attitude of the employer towards the health of the employees. Hence this is an area which needs to be studied

further to ensure the health and safety of the employees along the apparel supply chains.

Other than following the safety protocols established, making employees a part of the safety compliance will definitely improve the performance and reach the target of an accident free environment (WARNER, 2013). This can be achieved by making the worker a member of the safety committees. On the other hand, in order to evaluate the occupational health and safety aspect of the players in the supply chain, the focal company should inspect and audit strategically making sure these practices are followed every day in the working environment. Hence, safety consciousness should be implemented within the culture of the organization to ensure the social sustainability dimension.

6.3.7. Improved Labor Conditions

Following labor related actions were found to be categorized under the social sustainability dimension of the apparel supply chain.

1. Actions against workplace violence and harassment
2. Freedom of association and bargaining power
3. Improving labor and management relations

Sri Lankan apparel suppliers in the global apparel supply chains have won the title for “World’s No. 1 Ethical Apparel Destination” because of the quality of the labor conditions including the working environment of the employees. Meanwhile, horrific situations such as Rana Plaza incident (Reuters in Dhaka, 2016) provide enough evidence to prove that suppliers from other developing countries have not yet reached this standard. Moreover, there are networking approaches such as “Stand Up Movement Lanka” in Sri Lankan apparel supply chain in order to make the workers aware of their freedom and empower them (Abraham, 2017).

Further, the freedom of bargaining and association is extended over the global apparel supply chains in different levels. On the one hand, the supplier-buyer relationship discusses this power where the supplier is negotiating over the compliance as suitable to the socioeconomic status and cultural aspects of the factory located country. On the

other hand, manufacturer- employee relationship discusses the bargaining power where the employee is allowed for collective bargaining while joining different unions and committees in an apparel manufacturing company. Both of these relationships manage the labor condition improvement across the apparel supply chain.

6.3.8. Child and Bonded Labor Conditions

Child and bonded labor conditions are not an issue in the practices of apparel manufacturers of Sri Lanka under the concept “Garments Without Guilt” followed by the Sri Lankan apparel industry. Meanwhile, the suppliers in the other developing countries such as Bangladesh, Vietnam and India are still facing the issue of both child labor and bonded labor due to the poverty in the country (Salmon, 2005).

6.3.9. Regulatory Responsibilities

Being apparel manufacturers catering to the local and global market, they become the suppliers in the apparel supply chain. Ultimately it has become their duty to assist the regulatory entity (i.e. the focal firm) to ensure that sustainability is met with up to standards in the industry. Therefore, the following practices are taken into consideration by the suppliers.

1. Effective, accountable and transparent governance
2. Compliance with the laws and regulations

This responsible behavior of the apparel manufacturers catering to the export market has added much value to the industry, especially via the concessions granted many years back. On the one hand, by complying with the requirement of the buying company of the global apparel supply chain, the employee retention has been improved. On the other hand, suppliers are improving their sustainability standards having understood that the existing standard set by the compliance is merely a benchmark for being sustainable, however there is a long way to improve the practices.

6.3.10. Improved Wage Condition

Improved wages and other benefits create the social sustainability improvement. Hence the following socially sustainable practices are implemented.

1. Negotiating wage and benefits standards throughout the apparel supply chain
2. Providing satisfactory benefits to all types of employees
3. Equal remuneration for men and women

Wage and benefit standards imposed by law relating to any particular industry differs from the requirement raising from the players in the supply chain. If the industry norm is higher than the legal requirement, they tend to follow the industry standards. Meanwhile, in the global apparel supply chain, the buyer may be asking for complying with their standards which are not realistic in this socio-economic environment. In such cases, these apparel manufacturers negotiate with the buyers and work along to offer better opportunities for the workers, ultimately leading to the betterment of the workers and employees. Moreover, both men and women are paid equally for their job role rather than considering their gender.

6.3.11. Workers' and Employees' Condition

Other than paying wages and benefits to the workers and employees, following support is extended to facilitate them with a friendly working environment under the social sustainability practices of the apparel supply chain.

1. Providing with the safe and affordable child care services and benefits
2. Providing sustainable transportation facilities to the employees
3. Providing opportunities for affordable housing

Providing safe and affordable child care services for the employees and workers is essential in order to keep their minds at ease regarding their young ones because the issue of taking care of their children mainly lies with the workers in the apparel industry where they can barely afford for child care facilities outside. However, taking the concerns of the workers, mainly the bigger apparel companies in Sri Lanka are coming up with their own solutions by establishing child care facilities, while the other small manufacturing companies are out of solutions where the workers and employees would have to come up with their own solutions (e.g. neighbor looking after the kid) (Morgan, 2015) to ensure the safety of the children once they start their day at work. Meantime, the large apparel manufacturers in Sri Lanka are providing staff transportation for the employees and workers of the company with the main aim of

improving the productivity of the processes. On the one hand, this approach makes transportation function safer and more affordable in their daily lives. On the other hand, companies are providing this sustainable transport solution while helping the country to reduce the congestion leading to environmental, social and economic imbalance. However, since the majority of the workers in the small-scale manufacturers are located nearby the factory, they can easily access the work place either by walking or using public transport. Hence less attention is paid to their transportation issue.

In order to improve the living conditions of the workers and employees, large scale apparel manufacturers are providing opportunities to build affordable housing by offering loan schemes and helping them via other financial assistance. Because of the limited financial capacity of the small-scale apparel manufacturers, they are not providing this type of facilities to their employees.

6.4.Economic Sustainability in Apparel Supply Chain

This study reveals the importance of the economic sustainability of the apparel supply chain. Economic sustainability measurement criteria have improved over the years. However, access to financial figures relating to economic performance is restricted due to the sensitivity of the information. Further, majority of the apparel manufacturer being private owners, they are reluctant to share the financial figures of their business. Hence, the new performance measurements have been developed based on the perceptions of the experts rather than empirically. Therefore, on the one hand, these measurements have a very limited scope. On the other hand, this situation has resulted in conducting research based on conventional economic performance measurement, especially in developing countries such as Sri Lanka.

As per the interviews with the industry experts, it was evident that most of them are concerned about their economic performance despite understanding how social sustainability is creating an impact on the financial figures. Even the economic aspects discussed under UN SDGs is very limited to typical economic aspects such as employee retention, customer attraction and etc. Therefore, the following economic

aspects are identified as the impacts of social sustainability practices of the apparel companies in the supply chains.

1. Employee retention is higher compared to other competitors.
2. Potential employee attraction is higher compared to other competitors.
3. Improved image through social sustainability practices
4. New customer attraction is higher compared to other competitors.
5. Existing customer retention is higher compared to other competitors.
6. Company is planning to increase investment or volumes of trade.
7. Improved profits through social sustainability practices

Practicing socially sustainable activities is accepted as a reason for employees to retain in their job positions. Further, these socially sustainable approaches also attract the potential employees to the companies. Additionally, the brand image is improved while attracting new customers to the company and retaining the existing ones for a longer period. Despite the catering market and the size of the manufacturing companies, the majority of them are looking forward to growth through market expansions, especially with the increase in the export percentage with the regaining of GSP+ (Moulds, 2017). However, small scale local manufacturers barely accept that socially sustainable practices are bringing them profits, whereas large scale apparel manufacturers are confident on their return with these practices.

6.5. Relationship between Social and Economic Sustainability Dimensions in the Apparel Supply Chain

The discussions with the industry experts reflect that they do not have a proper understanding of the relationship between social and economic sustainability dimensions and they rarely pursue to understand the existence of that relationship. However, the large scale and exporting apparel manufacturers have the gut feeling that their social sustainability practices are ultimately bringing them economic benefits, although they do not measure or study this relationship because they have clearly understood their role as a supplier catering to the sustainability conscious consumers and the buyers in the global apparel supply chain.

As per the PLS SEM analysis, it was identified that social sustainability practices both in the in-house operations and outside operations create a positive impact on the economic performance of the company. However, the impact created by the socially sustainable practices in the in-house operations of the supply chain is higher compared to the practices towards benefits of the society. This finding was further proved by a research conducted in exploring the relationship between economic success and CSR activities. U. Hansen & Schrader (2005) found that economic success is caused by CSR activities, however CSR is not a strong component.

7. CONCLUSION AND RECOMMENDATIONS

7.1. Conclusion of the Research

UN SDGs play a prominent role in the business world with the assistance of SDG Compass which directs supply chains to be more sustainable under its guidance. However, the necessity of industry practice based on SDG Compass is emphasized with the difference between what is reported in research studies and what is actually happening in the supply chains.

The key themes categorized under the social and economic sustainability dimensions look deep into each dimension. Certain themes identified in this research have not even been addressed in the SSCM literature, even though they are already in the practice. Therefore, SDG Compass can be used as a clear guidance to explore other sustainable supply chains broadly while setting up a common terminology to standardize the core areas in SSCM.

When a particular supply chain is taken into consideration, it is important to understand sustainability themes related to that specific supply chain. Therefore, the guidance provided by this research in Figure 7.1 relating to social sustainability dimension can be taken into consideration to study sustainability in an apparel supply chain.

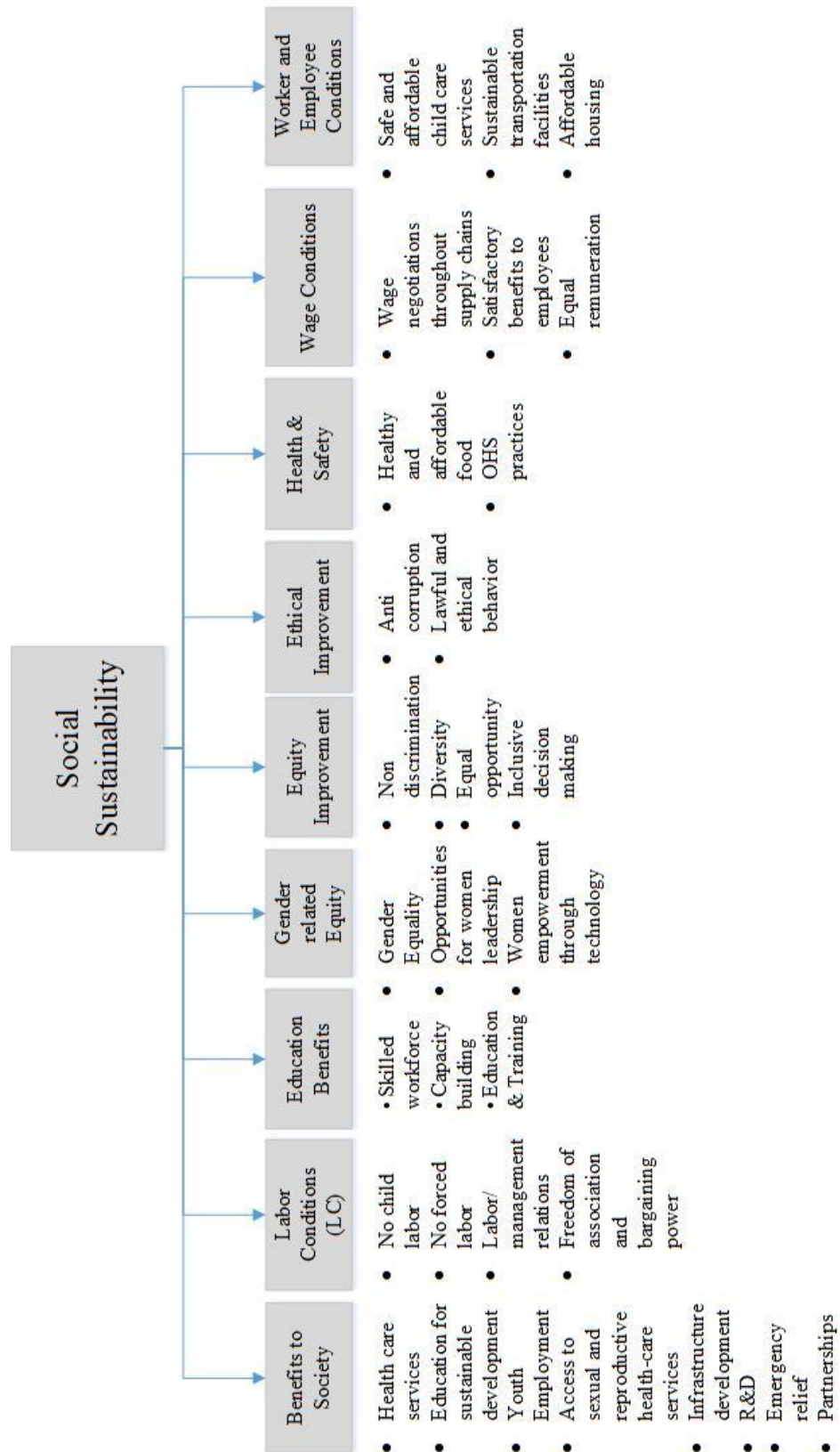


Figure 7.1 Social Sustainability Dimension

Compared to other industries in Sri Lanka, the apparel industry has positioned itself strategically understanding the requirement of the global apparel supply chains. Hence the current and trending sustainability requirement of the focal companies (i.e. brand companies) is met easily under the concepts agreed upon by the export apparel manufacturers of the country along with the large-scale apparel manufacturers catering the local market. Further justifying the title won by Sri Lankan suppliers in the global apparel supply chain, enough evidence is provided to ensure the good sustainable practices in areas such as health and safety of the employees, friendly working environment within the garment factories, ethical behavior of these organizations, and women empowerment etc.

Recently, SMEs in Sri Lanka are granting the opportunity to partner with different organizations to improve their performance mainly via providing funding opportunities. However, small scale manufacturers catering to the local market have very small opportunity to partner with other organizations to improve the sustainability of the supply chains. In this process, first the small-scale manufacturer should be made aware of the importance of building partnerships with third parties (multi stakeholder engagement) for this exact purpose. Especially NGOs can get together with these small companies and develop sustainable practices across their supply chains, ultimately improving the consumption patterns of the end consumers as well. Further, this partnering can be extended towards working with research organizations and make sure the sustainable development of the apparel manufacturing SMEs.

There are certain facilities that can be provided by the apparel manufacturers to its employees and workers based on the financial capacity. Hence the suppliers in the global apparel supply chains offer better opportunities to their workers despite the fact that they are physically or mentally retarded or not. For the rest of the physically or mentally handicapped people in the society willing to commit themselves in this industry to earn a living, the reality is a nightmare since their opportunities have already been limited due to the limited support extended for their survival. Hence, this is where the government should get together with these large-scale apparel manufacturers and other organizations such as NGOs to ensure a sustainable future for the workers. The development raised with this collaboration is not limited to the

apparel workers, but to the entire nation. For example, if public transport is facilitated with the special care offered to the differently able people, the easy access to the work place of the workers and employees are improved. Therefore, the productivity and the opportunity provided despite the discrimination ensures the sustainability of the supply chain practices, which will ultimately lead Sri Lanka to be one of the most sustainable nations in the developing countries.

Finally, this research integrates social and economic sustainability dimensions in the sustainable supply chains fulfilling a major gap in the literature as highlighted by Seuring (2013). The empirical aspect of this research looks into how the economic performance of the apparel companies is impacted by the social sustainability practices in the sustainable supply chains. Even though the discussions with the industry experts depict mixed feelings regarding the implementation of social sustainability practices to achieve economic sustainability practices, this research depicts that there is a clear positive impact imposed by social sustainability practices on the economic performance of the company. Moreover, this research clarifies the impact of social sustainability dimension separately as “impacts on the employees” and “impacts on the society”. The research conducted so far on the “Corporate Social Responsibility impact on the supply chains” have mainly covered this impact on the society aspect. Hence, adding a value to the literature, this research study empirically proves that even the socially sustainable in-house practices make a difference in the economic sustainability of the supply chains.

In conclusion, sustainable development can be achieved globally under the guidance provided by the UN SDGs. Therefore, with this guidance a universal approach can be initiated in order to understand a customized, yet suitable social and economic sustainability dimensions for any particular supply chain and monitor the performance from a company or industry perspective. Social sustainability must be a motivation in the global supply chains, since it leads to the good economic performance of the company. Ultimately, all the companies would be working towards achieving the UN SDGs in order to build a sustainable future, understanding their role in the supply chain.

7.2. Recommendations

The following recommendations are suggested from this research to develop the social and economic dimensions in the apparel supply chain.

- UN SDGs, SDG Compass and other renowned reporting frameworks such as GRI have an opportunity to improve their economic sustainability dimension, mainly taking new supply chain related dimensions into consideration.
- The newly introduced themes of UN SDGs can be used to improve the social sustainability dimensions of the companies.
- As an industry, apparel companies should get together and work together for the social sustainability of the companies.
- The apparel manufacturers should be made aware the ultimate motive of their social sustainability actions which should be going beyond merely improving economic performance. Further, not only the top and middle level management, but also the operational level management also must be made aware of their role and company's effort.
- Sustainability reporting should be improved to help supply chains to learn from each other and grow.
- Partnerships should be encouraged and nurtured among small scale apparel manufacturers and other NGOs and other third-party organizations who can assist in improving the sustainability dimension across the local apparel supply chains, while improving the research and innovation aspect of these companies
- Empowering NGOs and other individual efforts such as “Stand Up Movement Lanka” should be done to make the garment workers aware of their rights and the duty towards the company for a win-win situation via networking events.

7.3. Limitations and Future Research

Due to the sensitivity of the information and private ownership, certain aspects such as financial status of the companies, customer privacy protection relating to the social and economic sustainability dimensions could not be further discussed with the interviewed companies.

Due to the complexity of the apparel supply chain and the time limitations, this study mainly focused on the in-house activities of the apparel manufacturers' supply chain where the focus is on production in order to understand the common sustainable practices in the Sri Lankan apparel supply chain despite the fact that majority of the apparel manufacturers in this study are suppliers in the global apparel supply chain. Therefore, future research can be conducted focused on the whole apparel supply chain including the suppliers of these apparel manufacturing companies and explore how sustainable practices are extending towards the 2nd and 3rd tier suppliers as well in the global apparel supply chain.

Majority of the apparel manufacturers in Sri Lanka are privately owned companies. Therefore, the disclosure of financial performance is very restricted. As a result, we were unable to reach the figures of the financial performance. Further, “most frameworks attempt to address economic performance but they are still using traditional economic indicators that are not true measures of sustainability (e.g., market share, sales, stock price, profitability)” (Veleva & Ellenbecker, 2001). As the themes defined under economic dimension of SDG Compass consider the areas limited only to the macro picture and conventional financial indicators such as “value added or contribution to GDP” (Azapagic & Perdan, 2000), there is an opportunity to add new economic aspects such as “supply chain cost” and “service level” (Varsei et al., 2014) to the list of SSCM performance indicators. Due to the necessity to “widen the economic performance criteria” in SSCM (Seuring, 2013), there is a room for improvement in the address of economic sustainability dimension of UN SDGs.

How the practices of sustainable activities vary based on the company type (e.g. company size) can be studied with PLS SEM methodology. However, due to the limited number of respondents from the small-scale apparel manufacturing companies, we could not conduct this analysis. Hence, there is an opportunity to study how sustainable practices differ among the players within the same industry. Further the reasons for this type of behavior and steps to motivate a positive behavior among the companies can also be identified and developed in a future research.

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9. APPENDIX

9.1. Appendix 1 - Social Sustainability Practices Benefiting towards Society (SB)

9.1.1. Theme 4 - Access to Quality Essential Health Care Services

This theme was addressed by Goal 3 focusing on health. SDG compass pointed out the following sample indicators (GRI et al., 2015).

- “Proportion of workers (m/w) who have access to health services for work-related accidents or diseases made available or paid for by the Company system”
- “Proportion of workers (m/w) who have access to health services for other personal health issues (not related to or caused by work) made available or paid for by the Company system”
- “If the Company has set up health services for workers, are the services available to family and community members? If yes, how many people have benefited from this service (m/w)”

Healthcare came under the “societal commitment” of the social sustainability dimension of the supply chain (Chardine-baumann & Botta-genoulaz, 2014). Ruwanpura (2014) also addressed the need for healthcare facilities for the workers in the apparel industry. Hence, this theme was considered under the social sustainability dimension. The interviewee #5 further supported this argument.

“In the garment industry, you have to look after the health of the employees. So, you have to make sure enough facilities for that are provided.”

The comments of Interviewee #1 further supported this finding by showing how they were providing healthcare facilities to employees along with the expansion of their business;

“We went and set up plants in various areas, what we realized was the health infrastructure and the education infrastructure was very poor in those areas, and the government itself was not doing anything very much to improve that. So, we initiated.”

Further interviewee #1 explained their actions with examples.

“Breast cancer is a very taboo subject. in Sri Lanka, for women breast cancer is the highest mortalities through cancer. but you know because of the subject matter, especially in rural areas, people do not want to talk about it. So, for us also we started this in 2014 end, and it was very challenging because we had to do promotion with posters in the canteens, people were bit shy in the beginning. But the awareness was created. Then people will come and say "even my mother and her sister had this". So, there was a big dialogue that was created among them. and like for me, the most important thing is that through this program in the last year, how many people have detected Lumos through self-exams and visited hospitals. Actually, two of these people who visited hospitals, they realized that it was cancer, then they because if Brest cancer if you get it in the early stages you can cure it. so now they are undergoing treatments. so, for me through this program, this number of people faced the examinations, 18,500 number is not very important. The fact is that we through this program, we were able to may be save the lives of two of our colleagues, that's the most important.”

These interviewee comments catered enough evidence to ensure how apparel manufacturers in Sri Lanka are committed to ensuring the health aspect of its employees and their society.

9.1.2. Theme 44 - Health Financing

This theme was associated with Goal 3 and a specific industry of medicine. However, the following indicators can be applied to other industries as well to understand the rationalization behind financing for CSR activities based on the comments of the interviewees. Therefore, the following indicators were taken into consideration (GRI et al., 2015).

- “The company commits to and explains its rationale for investing in health infrastructure-related philanthropic projects (outside of the standard value chain) in the Index countries and their relevance to long-term sustainable access to medicine in Index countries”
- “There is evidence that the company’s philanthropic activities (excluding drug donation programs) are aligned with and support implementation of national

health system development plans and stated health priorities in the Index countries.”

It was considered under the theme “access to quality essential health care services” when developing the conceptual framework. This justification was further verified through the comment of the interviewee #1.

“So, when somebody gets sick, for instance say in Area A, our plant there has 4500 people. 1% of that get sick means it is a huge number for us. So, based on needs like that we started doing investment in infrastructure in health. Then people used to bring us letters saying, "can you please build our clinic?", "we don't have A/C in our surgery" and so on. So, we started doing that kind of things long before this CSR, sustainability”.

Further, this comment reflected that companies are developing health infrastructure not “just because” but with a rationale. Therefore, this intention leads to understanding the real motive behind their social sustainability actions. Hence, this theme was considered under the social sustainability dimension. Moreover, this comment depicted that there is a relationship between health infrastructure and economic gain in return for the company.

9.1.3. Theme 11 - Education for Sustainable Development

This theme was classified under the Goal 4 on Education. The example indicators pointed out were; “Measures taken to develop and enhance the highest governance body’s collective knowledge of economic, environmental and social topics” and “Number, type and impact of sustainability initiatives designed to raise awareness, share knowledge and impact behavior change, and results achieved” (GRI et al., 2015). As Institute of Supply Management pointed out one of their Sustainability and Social Responsibility Objectives was to “increase supply management professionals’ awareness of sustainability and social responsibility” and “educate the supply chain community and others on sustainability and social responsibility subjects” in order to develop the education on sustainability (ISM, 2012, p. 5). Therefore, this theme was considered under the social sustainability dimension leading to the betterment of the society. Further, interviewee #1 added enough evidence on how this theme was

addressed under the social sustainability dimension in the apparel supply chain practically.

“School children planted 7,000 of trees. This amount of grass. They collected so many kilo grams of plastic. When it comes to organic gardening, harvest generated from nutritious cultivation. no pesticides. When we are teaching sustainability in schools, this is some of the activities that we do, students come, and they do by themselves, which is aligned to the SDGs. So, we do these works to raise awareness on sustainable development and to create an active behavioral change in the youth.”

9.1.4. Theme 32 - Public Access to Information

This theme belonged to Goal 16. The indicator discussing this theme was “nature and extent of knowledge transfer of best practice, and lessons learned” (GRI et al., 2015).

Individuals getting access to social sustainability information has a similar importance as to environmental information (Khurana & Ricchetti, 2016). Therefore, we considered “public access to information” under the theme “education for sustainability development” because of the awareness developed via information sharing on the best practices done by the companies. Further the interviewee #4 discussed how they report their sustainable practices to the public to make them aware.

“Currently we are doing reporting publicly. But we don’t need to do that since we are a private company. But still we do that since we can make a change in the society by even through such a reporting.”

This comment depicted that companies are opening to other companies because the world is moving towards an information sharing era. Therefore, good information is no more a secret, it is out there (Bernstein, 2018). As a result, even other companies can implement these practices to make their business operations successful and more sustainable.

9.1.5. Theme 88 - Product and Service Information and Labeling

This theme was linked to the Goal 12. “Type of product and service information required by the organization’s procedures for product and service information and

labeling, and percentage of significant product and service categories subject to such information requirements” was the sample indicator derived from GRI G4 Sustainability Reporting Guidelines (GRI et al., 2015).

Eco labelling is one such way to share environmental sustainability initiatives with the consumers (Claudia Colicchia, Marco Melacini, 2011; Narayanamurthy & John, 2015; Rakesh Kumar Malviya & Kant, 2015). Labelling is mentioned under supply chain which can also help companies to communicate the codes of conduct to the consumers (Sadaat Ali Yawar & Stefan Seuring, 2015). Further this campaign of “Who Made My Clothes??” in the Fashion Revolution made people aware about the use of the label attached to their clothes and the actual country which have sewn the garment (Fashion Revolution, 2017). Further, the Sri Lankan campaign was conducted by one of the upcycling artists in Sri Lanka (Surendraraj, 2017). The least involvement of big players in the apparel industry depicts they are not that much interested in this kind of awareness programs. Since by sharing product information and labeling the public can be made aware of the sustainability aspect. Therefore, we are considering this theme as a sub theme of 32 on “public access to information”.

9.1.6. Theme 15 - Youth Employment

This theme was categorized under Goal 8. The sample indicator was “Total number and rates of new employee hires and employee turnover by age group, gender, and region” (GRI et al., 2015).

Giving more employment opportunities to “eligible youth” is important in a socially responsible supply chain (Venkatesh Mani et al., 2016a). Further, Lopez-Acevedo & Robertson (2016) stressed the importance of employing more youth in the high labor intensive apparel industry in South Asia. Therefore, we considered this theme under the social sustainability dimension.

However, in Sri Lankan context there is a difficulty in attracting youth to the apparel industry because of the other lucrative opportunities available in the market such as tourism and retail, for the highly increasing number of educated youth (Madurawala, 2017). With this existing condition, all the interviewees encouraged the idea of giving youth employment for the betterment of the future of the company, where interviewee #1 provided evidence that they are working towards improving the professionalism in

the working culture and giving the proper recognition as a motivation to, especially, the young employees.

“We have repositioned the machine operators. now for us at our company, we don't call the machine operator, machine operator. we call them team members.”

Hence, the apparel manufacturers offer a solution to the unemployed youth in the society and cause a social benefit by providing job opportunities to the youth under the improved working environment.

9.1.7. Theme 18 - Access to Sexual and Reproductive Health-Care Services

This theme was addressed under Goal 5 on gender equality. The suggested indicator was “Women’s access to reproductive health services in surveyed communities. If access for women workers or smallholders is believed to be different, include data” (GRI et al., 2015).

The female workers in apparel manufacturing countries like Cambodia are tending to illegal abortion since their employers are not willing to extend their contracts (Kale, 2016). However, the interviewee #1 discussed the pregnancy issues faced by the women workers in the apparel industries. However, they were discussing about taking care of the health of their employees from a positive view point.

“Pregnancy is related with the young girls in the factories. They are lacking knowledge on sexual health and topics such as birth control and teen pregnancy. So, we are taking steps to educate these employees”

Since this theme investigates the health and sanitation of the employees, this was considered under the health and sanitation of the employees in social sustainability dimension.

9.1.8. Theme 5 - Access to WASH (Water, Sanitation and Hygiene)

This theme came under Goal 1 on poverty. And the following were the sample indicators (GRI et al., 2015);

- “Number of employees receiving hygiene training and awareness raising”
- “Number of toilets/urinals provided (on the basis of a rate of 2 toilet seats and 2 urinal facilities per 45 male-workers and 3 toilet seats per 50 females)”

- “Percent of facilities with fully functioning WASH services for all workers”

Ruwanpura (2014) discussed the importance of providing sanitation and hygiene facilities such as “toilet and water-drinking breaks” to the workers in the apparel industry. Providing pure drinking water facilities and necessary number of toilets for the workers are few of the many facilities provided to the workers, when the garment industries moved out from busy town areas to the industrial zones (Akter, 2016). Understanding the impact created on the employees and the society of the company by providing facilities to be hygienic, we considered this theme under the social sustainability dimension.

When conducting the interviews with the responsible personnel in the apparel industry, we learnt that one of the leading apparel manufacturer in Sri Lanka is focusing on “water” as one of their major concerns in the social sustainability dimension. Following comments of the interviewee #2 offered evidence to this argument.

“In social, we take care of our society, as a social responsibility so that we mainly work in our water pillar. And also under CSR we wanted to give safe drinking water for all our employees and the related society”

Further interviewee #3 explained how this theme is a practice in their company.

“Providing drinking water to maintain their health. And we guide them on how to wash their hands.”

Proving the condition otherwise, interviewee #6 commented that in a medium sized apparel company, the workers are not getting enough sanitary facilities. Further interviewee mentioned that the toilets are not clean and maintained regularly. However, considering the impact created by this theme on the society, we decided to consider this theme under the social benefits.

9.1.9. Theme 25 - Infrastructure Investments

Goal 7, 9 and 11 discussed this theme. SDG Compass described this theme as “investing in new, resilient infrastructure in developing countries or retrofit existing infrastructure to make it more sustainable” (GRI et al., 2015).

Infrastructure investments happen mainly under Corporate Social Responsibility (CSR) activities with the development of “schools, parks, charities and habitats” (Tate et al., 2010). “Community investments” are done to interact with the community (Roca & Searcy, 2012).

Interviewee #4 provided enough evidence how the apparel companies are changing themselves to be more socially sustainable through infrastructure investments.

“Things like disability access, the toilets, the corridors, the ramps, so we are now going to implement them. Some of our plants already have them. Mainly the newer plants already have those. The older plants we are slowly changing.”

Since the apparel manufacturers are also looking into converting their infrastructure to be more sustainable, we considered this theme under the social sustainability dimension. Further since infrastructure investment is considered under the philanthropic activities leading to the benefits to the society (Venkatesh Mani et al., 2016c), we considered this theme under the social benefits.

9.1.10. Theme 3 - Economic Development in Areas of High Priority

This theme was considered under Goal 1 focused on poverty. “Significant indirect economic impacts, including the extent of impacts” is the example indicator considered (GRI et al., 2015). Further “the total number of dependents supported through income from one job” coming under poverty reduction was also discussed as an indicator.

Sustainable clothing provides opportunity for workers and their families along the supply chain to earn benefits, resulting in the poverty reduction in the area (Gardetti & Subramanian, 2015). Further, these job opportunities provided are resulting in the poverty reduction (Lopez-Acevedo & Robertson, 2016). This role of poverty reduction is mainly discussed under the topic “Communication for Sustainable Social Change” (Servaes, 2017). Therefore, we considered this theme under the social sustainability dimension.

Further, interviewee #5 discussed why people enter the apparel industry under very bad conditions.

“In countries like Bangladesh, they are doing work in apparel industry because they are so poor. They have no other choice. They take the job, even under the worst conditions. But any other place where they have a choice, some sort of choice, they will be going for that.”

Interviewee #5 further described how economic development has happened with apparel industry in Sri Lanka.

“In Sri Lanka, we have Company B owning garment factories in the northern part of Sri Lanka. I have visited some of these factories. They have employed people who have no other job in the area. So obviously whoever goes there, gets an income every month and they contribute to a decrease in poverty in that area.”

The comments of the interviewee depicted the role of apparel industry as a poverty reducing agent. Since poverty reduction aspect was identified as a philanthropic approach relating to the society by (Venkatesh Mani et al., 2016a), we considered this theme under the social benefits to the society.

9.1.11. Theme 27 - Access to Public Spaces

This theme came under Goal 11 and discussed “11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities” as the SDG target. The interview supported this argument as made in the theme 25. Therefore, we considered this theme under theme “infrastructure investment” which belonged to philanthropic activities.

9.1.12. Theme 60 - Changing the Productivity of Organizations, Sectors, or the Whole Economy

This theme was connected to Goal 2 and 8. The sample indicator derived from GRI G4 Sustainability Reporting Guidelines was “Significant indirect economic impacts, including the extent of impacts” (GRI et al., 2015).

The significant impact created by the apparel industry in the whole community or economy was discussed by the interviewee #5 as follows.

“With huge apparel companies in Sri Lanka, they have a huge impact on the communities and all. They change the whole place where the factory is located. They have very diversified people which ultimately change the whole economy.”

This comment proved the argument of huge economic impact causing the social benefits to the society at large. Therefore, we are considering this theme under the social sustainability dimension and the theme social benefits to the society in the conceptual framework.

9.1.13. Theme 50 - Research and Development

This theme belonged to Goal 9 and brought up performance indicators such as “Total environmental protection expenditures and investments by type” and etc. (GRI et al., 2015). Roca & Searcy (2012) described two indicators falling under Research and Development as number of patents and investment in R&D. How a company contributed to developing sustainable products via its R&D and innovativeness is also considered here (Labuschagne et al., 2005). Since R&D of the companies drive the society towards sustainability (European Commission, 2011) and makes a good change in the social sustainability dimension, we considered this theme under the social sustainability dimension.

9.1.14. Theme 99 - Technological Legacies

This theme fell under Goal 8 and 9. “Number, type and impact of physical and technological legacies” derived from GRI G4 Event Organizers Sector Disclosures is the sample indicator (GRI et al., 2015).

“Technology development” comes under Sustainable Supply Chain Management (Carter & Rogers, 2013). “Including variables like trust and commitment, the role of power and information technology into future investigations can give insights into the effective management of socially sustainable supply chains” (Yawar & Seuring, 2017, p. 638). Hence, we considered this theme under the theme social benefits to the society of social sustainability dimension. Further interviewee #5 described the practice of technological aspect in the social sustainability as follows.

“If company employees getting hurt because of some kind of machinery in the factory, it is very important to do a technological advancement.”

Since technology development fell under the theme 50 on Research and Development because of their similarity, we integrated two themes when developing the conceptual framework.

9.1.15. Theme 64 - Disaster/ Emergency Planning or Response

Goal 1,3 and 11 covered this theme and the sample indicators were sector specific and as follows. They were derived from GRI G4 Oil and Gas Sector Disclosures, GRI G4 Electric Utilities Sector Disclosures (GRI et al., 2015).

- “Contingency planning measures, disaster/emergency management plan and training programs, and recovery/restoration plans”
- “Number of process safety events, by business activity”

The reports on sustainability described example indicators coming under this category as “number of emergency response operations supported, donations of staff time, assets and transport services and contributions of knowledge, skills and resources to humanitarian relief organizations” (Piecyk & Björklund, 2015). However, the respondents from apparel industry also provided us enough evidence that they were also considering this theme in their supply chain as well in order to make sure the betterment of the employees and the society.

The comments of interviewee #2 provided enough evidence.

“We built lot of tsunami houses and we renovated few houses in the recent flooding”

A deep clarification on this theme was done by interviewee #1.

“Nation building is where we give to the larger society. When the flood happened in May, initially we collected both with financially and with their time. And we can mobilize larger number of people across the country because we have like 2000, 4000 people. So, we can say "send 200 people to help this place". So, we did that with tsunami in Sri Lanka as well. Company A collected 2 million dollars together with our customers and other partners for the rebuilding effort. not only for our people, but for Sri Lanka as a whole. we put that into fund saffron or something, there was this tsunami some fund, and our chairman was part of that and we managed that. So, in

case of any national need, we are always there. There is a platform called "Asia Pacific Disaster Management Center" which is a body that has the Ministry of Disaster Management. Corporates, civil society, the forces everybody in it. We are also a part of that. So now even currently with the draught, they always send us updates, and ask for various things, so bowsers of water or whatever things. so that is the nation building national nation mindedness part of it as well. we do a lot of things for our employees and the communities, but for Sri Lanka as a whole also we help in times of nature crisis.”

Therefore, considering the social benefits to the society we considered this theme under the social sustainability dimension.

9.1.16. Theme 86 - Partnerships

This came under Goal 17 and discussed under Medical sector using two sample indicators as;

- “R&D partnerships in which the company has been involved, with the aim of developing products or formulations for Index Diseases specifically targeting access issues in Index countries (adjusted for the number of molecules in the company’s research pipeline).”
- “The company commits to work with relevant stakeholders, including universities, patient groups, local governments, employees, local and international NGOs and peers with the aim of improving access to medicine.”

They were derived from Access to Medicine Index (GRI et al., 2015). However, partnerships with other stakeholders and communities assist in bringing benefits to the society while practicing social sustainability dimension (Tajbakhsh & Hassini, 2015). The following comment of Interviewee #1 further proved how these partnerships have evolved with the aim of improving social sustainability dimension.

“Now customers are more and more interested in seeing what we are doing, in this phase also, partnering with us. Various customers have programs like the GAP Phase Program and other customers are also like to join with us. Recently I had a discussion with several customers, and they wanted to partner with us in order to help us make a

better environment socially and environmentally in the areas we are having our manufacturing plants.” Therefore, we considered this theme under social sustainability dimension and bringing benefits to the society.

9.1.17. Theme 10 - Access to Medicines

UN SDG Compass pointed out the example of “partnering with health care NGOs and public clinics to raise awareness and increase access to targeted health services for women and men workers and their families” (GRI et al., 2015).

“Medical room” is one of the many facilities provided to the workers, when the garment industries moved out from busy town areas to the industrial zones (Aker, 2016). As per the comments of the Interviewee #1, they were conducting public clinics in collaboration with government hospitals under social sustainability dimension.

“So now we do charity and philanthropy activities. We also do big sustainable projects like capacity building. So, from giving 10,000 LKR to somebody whose roof is leaking all the way to spending like Rs. 5 million on a cancer clinic in Kurunegala hospital.”

Interviewee #1 further mentioned about a breast cancer awareness they conducted which ultimately helped employees to identify the cancer at early stage and get cured. These arguments were further supported by interviewee #3 when discussing about mental health of the employees.

“All of our plants have a counselor. Not full time at least visiting. They come twice a week. They talk with the employees. They have all these free legal aid clinics. Psychiatric visits to the hospitals if it is a serious issue.” Therefore, this theme was integrated with the “Partnership for social sustainability development” theme.

9.2. Appendix 2 - Education Benefits (EB)

9.2.1. Theme 12 - Availability of a Skilled Workforce

Goal 8 on Decent work and economic growth covered this business theme. SDG Compass pointed out the example indicators as “Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region” and “Programs and processes to ensure the availability of a skilled workforce” derived from GRI G4 Electric Utilities Sector Disclosures (GRI et al., 2015).

“Investment in staff education and training” was a sustainability performance measure in supply chains (Jakhar, 2015b). As related to the training and education requirement to be a skilled worker in apparel industry, “a sewing machine operator requires four to six weeks of training” along with a primary education matching to meet with the training (Lopez-Acevedo & Robertson, 2016, p. 19). This aspect was further discussed by Interviewee #1 under social sustainability dimension in their company supply chain;

“So, you must have heard at our company, we give a lot of training, we develop people, even when they leave and go, we are okay. We think "okay, we have made a good person to go and work somewhere else and it is good for Sri Lanka”

As interviewee #1 further discussed,

“One is career advancement which is focusing on giving soft skills to these team members to progress in their careers. so, majority of the demand is for English classes or computer classes, communication skills, personality development things like that. Recently they have been requested for driving license.”

Further, interviewee #3 also discussed on employee training as follows.

“We are giving training and awareness. Not only in the job, but somewhere else as well. So sometimes we spend hours to train them or make them aware”.

As this theme discussed providing training and education for skill development, we considered this theme under educational benefits provided in the social sustainability dimension of our research.

9.2.2. Theme 13 - Capacity Building

Goal 4, 8 and 10 addressed this theme. SDG Compass described this theme providing examples such as “providing employees with continuous opportunities to improve their (job) skills for their current and future employment”, “putting in place mechanisms to identify child labor and forced labor throughout global supply chains, and implement remediation when abuses are discovered” and “investing in business-driven poverty eradication activities (e.g. develop living wage policy)” derived from Access to Medicine Index (GRI et al., 2015). Although the given examples were from medical sector and they were varying their scope from one another, what we were

considering in this theme was the opportunity given to employees to excel in their work through skill improvement.

Capacity building in workers is named as “career development” which “focuses on the training of employees and the provision of career guidance and higher-education opportunities” (Labuschagne et al., 2005, p. 7). Further, the necessity of capacity building of the workers in the premises of suppliers is very crucial to achieve economic benefits in any supply chain (Yawar & Seuring, 2017). Since majority of the apparel manufacturers are suppliers in the global apparel supply chain, capacity building is important for these companies. This argument was further supported by the comments of interviewee #1.

“Under skills development what we do is, we try to develop their skills which is not directly related to what they do, but which will help them may be have a secondary source of income. say for instance, they want to do a beauty culture program, so we have beauty culture programs within the company and then we help them like entrepreneurial guidance to them how can they set up a small salon or how do you market your products. within our company also we have platform called "my business". through this "my business" what happens is if I have some talents like I am a hair dresser, apart from my regular sewing work, I can advertise my business on the notice board. not only mine, my husband is like a plumber or somebody or my mother does bath packets, I can advertise that on the notice board. so, anybody who wants that service, can go and look. then the thing is not only me, my other family members also find a way to earn some money.”

Therefore, we considered theme of capacity building under the social sustainability dimension.

9.2.3. Theme 38 - Employee Training and Education

Goal 8 discussed this theme and came up with the following indicators (GRI et al., 2015).

- “Average hours of training per year per employee by gender, and by employee category”
- “Percentage of employees receiving regular performance and career development reviews, by gender and by employee category”

- “Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings”

Education is considered as one of the societal commitments coming under the social sustainability dimension in the supply chain (Chardine-baumann & Botta-genoulaz, 2014). Therefore, we considered this theme under the educational benefits of the social sustainability dimension.

In apparel industry also a “primary level of education” is required to conduct a training session as a sewing machine operator, (Lopez-Acevedo & Robertson, 2016). Further education also has boosted the high skilled women ratio in the industry (Lopez-Acevedo & Robertson, 2016). Moreover “Investment in staff education and training” is introduced as a sustainability performance measure (Jakhar, 2015b). Goworek (2011) discusses this theme through an exemplary apparel company named “People Tree” where they conduct an educational and vocational training institute for low income families in Kathmandu, Nepal letting 450 women have a stable income through hand-knitting and 250 children to receive free schooling. In a country like Sri Lanka where free education is provided for 13 years, the training institutes relating to apparel are built upon the general education level of the country (Lopez-Acevedo & Robertson, 2016). At the same time, higher education standards is one of the major reasons for the country to maintain high labor standards in the garment factories (Ruwanpura & Wrigley, 2011).

The theme 12 on “availability of skilled workforce” also discussed the “training” aspect mentioned in this theme. Therefore, we paid attention specifically to “education” aspect in this theme.

9.3. Appendix 3 – Equity Improvement

9.3.1. Theme 7 - Non-Discrimination

This theme was covered under Goal 5,8 and 16 which respectively focused on poverty and decent work and economic growth. This theme disclosed “Total number of incidents of discrimination and corrective actions taken” as a sample indicator (GRI et al., 2015).

Discrimination was one of the issues coming under the social sustainability dimension of supply chains (Chardine-baumann & Botta-genoulaz, 2014; Egels-Zandén & Lindholm, 2015; Gurusinghe, 2012; V. Mani et al., 2015, 2016; Venkatesh Mani et al., 2016c; Piecyk & Björklund, 2015; Sadaat Ali Yawar & Stefan Seuring, 2015; Turker & Altuntas, 2014). Moreover, Venkatesh Mani et al., (2016c) categorized non-discrimination an aspect of equity. Therefore, we considered this theme under the equity improvement aspect of the social sustainability dimension.

Interviewee #1 described how they have taken steps in the apparel industry to avoid the discrimination amidst difficulties due to the lacking support of the responsible bodies;

“As a company, what we can do is on a macro platform, country has to do it. Say for instance, there is a person with disability. We are providing him enough facilities in our company. but if the national infrastructure is not in place, even though we have ambitious goals like, recruiting 2000 persons with disabilities working in our organization by 2020, no matter how much we align our own offices to aid. if the national infrastructure is not there, how are these people going to come to our office. Even the buses that we have are not geared assist to these people. Even not the bus stands. Basic national infrastructure doesn't support this. So as a company, we can aspire to it.”

9.3.2. Theme 43 - Grievance Mechanisms

This theme connected with Goal 16 and following were the indicators suggested (GRI et al., 2015).

- “Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms”
- “Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms”
- “Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms”
- “Do ALL workers along the value chain have access to a non-judicial grievance mechanism(s) (GMs)? If no, provide the approximate proportion of workers that do/ do not have access (disaggregate data by m/w and type of worker)”

Grievance mechanism can be classified under the equity aspect of the social sustainability dimension in the supply chain (Venkatesh Mani et al., 2016c). As interviewee #4 described the employees are provided with mental relief of grievance through a counsellor.

“All of our plants have a counselor. Not full time, at least visiting. They come twice a week. They talk with the employees. They have all these free legal aid clinics. Psychiatric visits to the hospitals if it is a serious issue. Our workforce is 70% women. Actually, men don’t come and talk much with the counsellor. But women do. Their family issues, domestic violence, all these things. “

The above-mentioned indicators investigate the solutions regarding discrimination issues such as human right and labor right violations and ultimately ensuring non-discriminatory actions. Therefore, we considered this theme combined with the theme “non- discrimination” in our conceptual framework.

9.3.3. Theme 17 - Diversity and Equal Opportunity

Both Goal 5 and 10 addressed this theme under equality and gender equality. “Company system have policies/programs promoting equal opportunities (regardless of gender and other diversities) that explicitly extends to the entire value chain?” and “Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity” are two of the example indicator coming under this theme (GRI et al., 2015).

Diversity and equal opportunity are considered under the equity aspect of the social sustainability dimension of the supply chains (Amulya Gurtu & Cory Searcy & MY Jaber, 2015; Venkatesh Mani et al., 2016a). Equal opportunity and diversity should be considered due to the rising human exploitation in the apparel industry as a result of the “labor intensiveness” of the industry and the “pressure imposed by competitive prices” (Gardetti & Subramanian, 2015). Further the importance of workforce diversity and inclusiveness was described as “the attraction and retention of a workforce that reasonably represents the customer and communities in which the organization operates” (ISM, 2012, p. 3).

Moreover, Interviewee #1 explained how diversity and inclusiveness have been addressed in the apparel supply chain over the years by changing the names of the positions and letting the workers feel that they are a part of a team.

“Garment industry, may be not today so much, but if you take 5 to 7 years ago, there was a stigma attached to it. Lots of people did not want to come and work here, because they were called out as " garment kello, jukee kello". So, we started this program "women grow beyond" to kind of mitigate that situation, those labels. So, we can reposition the machine operators. Now for us at our company we don't call the machine operator. We call them team members”

How diversity in the apparel industry is encouraged by recruiting disabled people into the company workforce was discussed by the interviewee #4 as follows.

“We are having active policies to get the disabled people into work. In Company D alone, we have about 140 hearing impaired people.”

Further, interviewee #4 described how equal opportunities are given despite the age in a leading apparel manufacturing company.

“We hope to have things like senior people in the work force with this new sustainability strategy of the company. Like after 55 years, they have to retire, you know. But we are trying to see how we can get them involved in back in business. Because that's going to be an issue to Sri Lanka. Our ageing population is high. And they are going to be a burden to the government. Therefore, we are going to look into how they can be a part of the company at least as consultants, part time workers or anything like that.”

The below comments of the interviewee #1 further approve the above argument on equal opportunities.

“And the other one is we want to look at getting older people who are going to retired, facilitating them to stay back in work and getting older people to come into work. Sri Lanka is the fastest aging country in the Asian region. So, and when it comes to apparel industry, people who have started 30 years ago when the company started, people who was still here, they have such a lot of technical knowledge. so how do we facilitate them. what happens is millennials coming, and so these people are also feeling that they have so much of technical knowledge and how are they going to share that

knowledge, transfer that knowledge. I have seen millennials that they are a bit impatient with these people. They are older and slower, and they are not that tech savvy and they are not on what's app and all that. We want to create an environment where we also help them to get on this what's apps and other things and they also feel comfortable to continue work after the retirement age. and also look at the medical side of them, may be offer shorter working hours, come and work 8 hours instead of that. may be 5 hrs. and so on.”

9.3.4. Theme 34 - Inclusive Decision Making

This theme was categorized under the Goal 16. Stakeholder engagement/ participation and employee engagement were discussed under this theme.

Stakeholder engagement comes under the social sustainability dimension (Coppola et al., 2014) while employee engagement is also a social initiative in sustainable supply chain (Gopalakrishnan et al., 2012). Employee engagement in charitable activities including volunteering comes under economic sustainability dimension of the pharmaceutical industry (Narayanamurthy & John, 2015). However, in apparel industry, they consider “volunteering” under the social sustainability dimension while encouraging the employee engagement. The following comment of the interviewee #1 proved this;

“Employee volunteerism is also important. Employees they volunteer hours, they come to help us to do awareness programs. some of this examination awareness programs are done by our own employees to the wider audience. we actually count the number of volunteer hours that the employees take.”

Interviewee #1 further described how they have improved employee engagement based on the diversity of the employees in their supply chain.

“We ensure that physically loss employees and employees with disabilities are part of decision making bodies. sometimes the nutrition needed by the persons with disabilities. so, we have food committees, safety committees, fire committees, health committees, we have all these committees. so, we want them also to be a part of it because their needs are very different.”

Since stakeholder engagement improves fairness in the supply chain via inclusive decision making, we considered this theme under the equity improvement theme in the conceptual framework.

9.4. Appendix 4 – Gender related Equity Improvement (EqITWO)

9.4.1. Theme 20 - Women in Leadership

This theme belonged to Goal 5 on gender equality and following were the sample indicators by SDG Compass (GRI et al., 2015).

- “Report the composition of the highest governance body and its committees by Executive or non-executive, Independence, Tenure on the governance body, Number of each individual’s other significant positions and commitments, and the nature of the commitments; Gender, Membership of under-represented social groups, Competences relating to economic, environmental and social impacts, Stakeholder representation”
- “Proportion of women interviewed who indicate that they are comfortable voicing their opinions about unequal treatment”
- “Representation of women in i) management positions, ii) skilled (non-management) positions and iii) unskilled positions”
- “Where relevant, the proportion of women representatives in leadership roles in trade unions, workers' committee and/or associations”

When considering the current situation in Sri Lankan apparel industry, there is very lower number of women in management position despite the fact that majority of the employees are women (RATNASINGHAM, 2015; Wage Indicator, 2017). Therefore, the industry has taken steps to mitigate this negative condition.

Interviewee #4 commented how they are giving opportunity to women to be leaders in the apparel supply chain.

“In our integrated sustainability strategy, we are looking at one to one ratio in female leadership. Fifty to fifty men women have to be in the workforce. As a result, this year we are looking at a KPI to improve the number of promotions getting by female employees. Because we did a study to see, although 75 to 80 percent of our grassroots

employees are female, when you are going up the ladder it is reducing. Only an 8% of women are in leadership roles.”

The comments of interviewee #1 further approved this argument.

“if you take, diversity at work, it is not only about gender, by 2025 we are hoping to have one to one ratio in management. in apparel industry, it is very tough because lots of operational roles in apparel industry is very male dominant.”

By giving equal leadership opportunities for both men and women, this theme discussed the fairness towards gender. Therefore, we considered this theme under the gender related equity improvement of the social sustainability dimension.

9.4.2. Theme 42 - Gender Equality

This theme adhered to Goal 5. Following were the sample indicators pointed out by SDG Compass (GRI et al., 2015).

- “Average hours of training per year per employee by gender, and by employee category”
- “Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity”
- “Percentage of employees receiving regular performance and career development reviews, by gender and by employee category”
- “Total number and rates of new employee hires and employee turnover by age group, gender, and region”

The proportion of female workers is relatively high in the textiles and apparel industry (Lopez-Acevedo & Robertson, 2016). Therefore, gender equality is an important theme in socially sustainable supply chain (V. Mani et al., 2015; Turker & Altuntas, 2014; Yawar & Seuring, 2015a). Further, gender equality is considered as a sub category of “equity” (Henriques & Richardson, 2004; V. Mani et al., 2014). Therefore, we considered this theme under the gender equity improvement in social sustainability dimension.

As the above indicators suggested they are also a part of other themes. For example, “Average hours of training per year per employee by gender, and by employee

category” came under the theme of “education and training” as well. Hence this points out that “gender equality” is a vast concept.

However, interviewee #5 discussed the gender equality of the apparel industry considering the higher number of women.

“Garment industries mostly women. So, whatever your impact is also on the women or on the gender balance.”

The interviewee #1 further approved this argument.

“If you take, diversity at work, it is not only about gender, by 2025 we are hoping to have one to one ratio in management. in apparel industry, it is very tough because lots of operational roles in apparel industry is very male dominant.”

The apparel manufacturers in developing countries are trying to balance the gender disparity in this sector.

9.4.3. Theme 53 - Women's Empowerment through Technology

This theme belonged to Goal 5 and “Increased access to information and technology for women (women's participation in programs enhancing the use of enabling technologies)” was the sample indicator depicting this theme (GRI et al., 2015).

Women empowerment in apparel supply chain is discussed under the social sustainability dimension (Khan, 2009). Therefore, we considered this theme under the gender related equity improvement of the social sustainability dimension understanding the equal opportunities given for women to learn and nourish. As interviewee #1 commented;

“Women's Advocacy is very big for us. We have women's empowerment program because the majority of our workforce is females and because of that we have a Director of women's advocacy from the central office.”

Interviewee #1 further described how they conduct computer classes for the female workers upon their request.

“We have this program, normally the cutting part of the stuff is done by men. Women don't like to use those blades and things. Then mechanical work, electrician work. We have a special training for them to if they want to be that. So, there are instances where

they say, 'I want to learn'. And we have given them the training and some of them have been absorbed as an electrician or a mechanic and they are no longer doing sewing." These comments depicted that more opportunities for women are given to expose themselves into the fast-moving world.

9.5. Appendix 5 – Ethical Improvement (EI)

9.5.1. Theme 31 - Anti-Corruption

This theme followed under Goal 16 and discussed about communicating and offering training on policies and procedures related to anti-corruption, while publicly stating their stance regarding corruption and working against actions such as bribery and extortion (GRI et al., 2015).

Fighting against corruption is a sub field in the social sustainability dimension in the supply chain (Chardine-baumann & Botta-genoulaz, 2014). Institute of Supply Management (ISM) strictly mentions that the corruption at all means will not be tolerated when developing a sustainability framework (ISM, 2012). Further, in Latin American CSR history, corruption was identified as one of the social issues which need attention (Gil-aluja et al., 2015). The companies in the developing countries will have to face “latent liabilities and operational risks” if they reject their responsibilities to address the issue on corruption, as the governments in developing countries are very poor in acting against corruption (Klassen & Vereecke, 2012). Hence, this theme was considered under the ethical aspect of the social sustainability dimension.

Interviewee #6 discussed the corruption in the medium sized apparel company where they manipulated the reports submitted to the buying company. Further their operations are in order and sustainable only on the day of the factory visits by the auditors of the buying company. There have been situations where they even bribed these auditors to get the business contract. This showed the necessity of anti-corruptive actions to win a sustainable operation in the apparel supply chain.

9.5.2. Theme 40 - Ethical and Lawful behavior

This theme was related to Goal 16 and discussed “internal and external mechanisms for reporting and seeking advices on concerns about unethical or unlawful behavior”

along with “describing the organization’s values, principles, standards and norms of behavior such as codes of conduct and codes of ethics” (GRI et al., 2015).

In our conceptual framework, we discussed this ethical behavior and lawful behavior of the company separately. Therefore, the lawful behavior was discussed under the theme 30 on “compliance with laws and regulations”. Hence, we discussed only the “ethical behavior” here.

The ethical behavior of the organization does not discuss only “moral attitude and ethical judgment” within the interpersonal relations, but also “the relations between society and nature” (Gardetti & Subramanian, 2015). Since luxury textile processing industries are more likely “small boutique shops” sometimes they do not have trained staff and this leads to “unethical work practices” (Tang & Zhou, 2012). Further, as most companies are profit driven, through their ethical behavior they can become more profitable as they can ask for higher prices, reach a higher market share and explore new markets for their products by value additions gained via activities such as remanufacturing, recycling, and using eco-friendly, ethical, socially responsible raw materials in the production (Dabija et al., 2016). Further the Institute of Supply Management points out that “every supply management professional is responsible for behaving ethically and actively promoting ethical conduct throughout the supply chain” (ISM, 2012, p. 3).

When the overall content of the interviews was considered, we can witness that big apparel companies are having ethical and lawful behavior except for the medium sized apparel company discussed by the interviewee #6.

9.6. Appendix 6 – Health & Safety Improvement (HS)

9.6.1. Theme 8 - Healthy and Affordable Food

“Healthy and affordable food” was discussed under the theme of Hunger in Goal 2. Although the indicators pointed out under this theme are specific to “Food Processing Sector” (GRI et al., 2015), the relevance of “access to healthy, nutritious and affordable food” was further proven by the comments of interviewee #5 on how supplying food leads to the betterment of the employees.

“By providing food to the employees in the canteen, a nice working environment is created.”

Interviewee #5 further continued the explanation on the argument as;

“Apparel company may provide organic food or healthy range of food in the canteen. So that’s a low cost for the employees and they can go and eat there.”

Meanwhile, interviewee #6 described the supply of food practices in a medium sized apparel company regarding the poor quality of the free food which was also ignored by the management of the company. On the other hand, similar situations have been reported where food poisoning was a major issue in the Sri Lankan apparel industry in year 2014 (Perera, 2014). Considering the high impact created on the human factor via healthy and affordable food, we considered this theme under the social sustainability dimension. Moreover, in a way, this theme can also be considered as an integration of the themes 69 and 70 (later discussed).

Provision of healthy free food to the workers in the apparel industry of Sri Lanka has already been a legal requirement since 1993 considering the wellbeing of the workers (Perera, 2014). However, research conducted so far in SSCM have not identified this aspect as a common sustainable practice in the social sustainability dimension. Hence, we considered this theme under the social sustainability dimension in the apparel supply chain even though it is a legal requirement.

9.6.2. Theme 69 - Food Prices

This theme comes under Goal 2 in SDG Compass. The general indicator derived from UN Global Compact-Oxfam Poverty Footprint is “Measure of incurred price fluctuations and inflation (i.e. changes in housing and locally-available food prices)” (GRI et al., 2015). Since the foods are provided in the apparel industry, we considered this theme under “healthy and affordable food” (Refer theme 8 for explanation).

9.6.3. Theme 70 - Food Safety

This theme also fell under Goal 2. The indicators considered here were also related to food processing sector and they are “Percentage of production volume manufactured in sites certified by an independent third party according to internationally recognized food safety management system standards” and “Policies and practices on antibiotic, anti-inflammatory, hormone, and/or growth promotion treatments” (GRI et al., 2015).

Since the foods are provided in the apparel industry, we considered about the safety of foods under the theme “healthy and affordable food” (Refer theme 8 for explanation).

9.6.4. Theme 5 – Access to WASH

Only “Giving access to water” concept coming under this theme was discussed under “health and safety improvements” since providing food and water is a basic requirement of the workers. Health and Sanitation aspect of this theme was considered under the “Social sustainability Practices for the Benefits of the society” (Refer SB4 for more information).

9.6.5. Theme 9 - Occupational Health and Safety

This theme was discussed under Goal 3 on Health. The following indicators were pointed out as a few examples (GRI et al., 2015).

- “Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender”
- “Workers with high incidence or high risk of diseases related to their occupation”
- “Proportion of local health workers/authorities interviewed who perceive that workers along the value chain (m/w) are experiencing increased exposure to sexually transmitted diseases, including HIV/AIDS (when compared with national average)”
- “Approximate proportion of workers exposed to health hazards with access to Personal Protective Equipment (PPE) and training on its appropriate use”
- “Work-related injuries frequency rate (m/w), occupational diseases frequency rate (m/w), severity rates of work-related injuries and occupational diseases (i.e. lost work days per year) (m/w), and number of work-related fatalities (m/w) along the value chain in last three years (m/w) and, where available, work-related fatalities of smallholders (m/w)”
- “Percentage of total workforce represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs”

Occupational health and safety was discussed under the social sustainability of the SSCM (Ahi & Searcy, 2015b; Akter, 2016; Venkatesh Mani et al., 2016c). Ruwanpura

(2014) discussed how addressing “ill health and work place injuries” can create a discussion on the health and safety code of the employees in the apparel manufacturing factories. Hence, monitoring indicators such as “ratio of average days not injured to the total days worked (per employee)” is important to improve the social sustainability of the supply chain (Hutchins & Sutherland, 2008). All the interviewees also stressed the importance of safety at the working place.

9.7. Appendix 7 – Improved Labor Conditions (R2)

9.7.1. Theme 19 - Workplace Violence and Harassment

This theme fell under the gender equality concept of Goal 5 and further described as “establish a zero-tolerance policy towards all forms of violence at work, including verbal/ and/ or physical abuse and prevent sexual harassment” by SDG Compass (GRI et al., 2015).

Apparel industry is known for its violence and harassment through exploitation of people (Gardetti & Subramanian, 2015). Some of the actions are “social abuses, including instances of long hours”, “unsafe working conditions”, “emotionally or physically abusive supervisors”, “locked dormitories”, and “the exploitation of pregnant workers” (Hiller Connell & Kozar, 2012). This is where Sri Lanka won its competitive advantage over the others in global apparel supply chain with “high labor standards and levels of compliance at sites of manufacturing”, resulting the sweatshop free culture in the country (Ruwanpura & Wrigley, 2011). Since the issue of sweatshops was considered under the social sustainability dimension by Venkatesh Mani et al., (2016c), we considered this theme under labor conditions.

Interviewee #5 further discussed violence and harassment in the apparel industry.

“If you are going every day to an office, you have to make sure people there are not bullied. People there can come without being harassed. Sexually harassed or harassed because they look different. That is very important. That makes a person come and work. So, we are strict about that.”

This comment proved the real situation in the apparel industry in Sri Lanka where employees are safe.

9.7.2. Theme 94 - Sexual Exploitation

This theme was classified under the Goal 16. “Does the business have a policy on the prohibited types of client entertainment (e.g. sex industry) and how does it communicate this policy internally?” is the sample indicator derived from The Women’s Empowerment Principles: Reporting on Progress (aligned with GRI G4) (GRI et al., 2015).

Sexual exploitation was an issue in the apparel industry many years back because of the domestic side of the industry (Kelegama, 2009). However, as per the comments of the interviewees, the arise from the stigma attached to the apparel industry, social exploitation within garment factories is very poor. Further, this theme is verisimilar to theme 19 on ‘workplace violence and harassment’. Therefore, we considered this theme under the labor conditions of the social sustainability dimension.

9.7.3. Theme 41 - Freedom of Association and Collective Bargaining

This theme was associated with Goal 8 and following were the sample indicators (GRI et al., 2015).

- “The percentage of total employees covered by collective bargaining agreements”
- “Do all major employers along the value chain, including the Company (HQ level) and its subsidiaries, recognize the right to freedom of association AND the right of its workers to collectively bargain (e.g., to join any trade union)?”

“Freedom of association” comes under the social sustainability dimension in supply chain (Akter, 2016; Chardine-baumann & Botta-genoulaz, 2014; Egels-Zandén & Lindholm, 2015; Huq et al., 2014). Since freedom of association and collective bargaining aspects are ultimately affecting the employees, this theme was considered under the labor conditions of the social sustainability dimension as further suggested by Venkatesh Mani et al. (2016c).

Interviewee #1 discussed how the freedom of association is empowered in their company as follows.

“We ensure that physically loss employees and employees with disabilities are part of decision making bodies. sometimes the nutrition needed by the persons with disabilities. so, we have food committees, safety committees, fire committees, health committees, we have all these committees. so, we want them also to be a part of it because their needs are very different.”

Further, the interviewee #3 discussed collective bargaining aspect.

“We do not apply all the requirements of our buyer. We can argue and negotiate with them as suits for our country.”

The comments of interviewee #1 further explained this argument as follows.

“So, when somebody in the UK, few years back had this discussion with me, and said "No. the machine operator needs to be able to, with her weekly salary, go to the movies or theater twice a week, go out to coffee or dinner." and I was like "hello, even I don't do that". Our life style is very different. you can't judge from the western ideals and calculate something from the western ideal and tell us where the apparel industry is not paying the wage. I am not saying that may be other apparel companies who are not paying that wage. but big players, our customers won't come to us if we are not paying that. So, they can't judge this whole living wage story. that's why we want to be sustainable compensation for all that we have a methodology or a framework on which that we have calculated, and we are paying an equitable salary which is customized to Sri Lanka or India or Bangladesh or wherever. It doesn't have to be the UK or Singapore standard.”

This statement further illustrated that to which extent the collective bargaining power is extended over the supply chains with examples.

9.7.4. Theme 46 - Labor/Management Relations

This theme addressed “making awareness on employee rights/ collective agreements”. Labor management relationship is where the both parties can earn a win-win situation by minimizing the conflicts and this is the platform where the management decides to work with unions or without unions (Md. Mohiuddin, 2014). Hence, this theme encourages the human rights we considered this theme under the labor conditions of the social sustainability dimension (Venkatesh Mani et al., 2016c).

As per the interviewees' overall comments the status of labor/ management relations was vague in the Sri Lankan apparel supply chains. On the one hand, certain apparel manufacturers do not tolerate the unions in the company, while some accept their existence and work in unison. On the other hand, there are certain NGOs assisting and training garment workers to stand up for themselves while fulfilling their duties as well (Abraham, 2017). As a result, the labor/ management relationship has improved compared to the past years.

9.8. Appendix 8 – Child and Bonded Labor Conditions (R1)

9.8.1. Theme 47 - Labor Practices in the Supply Chain

This theme fell under the Goal 8 and the following indicators were considered as suggested by SDG Compass (GRI et al., 2015).

- “Does the Company system have a policy/code that addresses labour rights and standards along the value chain? If yes: i) Is compliance with this policy promoted by the Company system along the value chain? If so, how? ii) Do ALL other major employers along the value chain have a policy/code on labour rights and standards? If no, what is the proportion of those who have a policy/code? iii) Are there discrepancies between the Company’s and other employers’ codes/policies and minimum standards (as recommended by ETI)? If so, what are the discrepancies?”
- “Significant actual and potential negative impacts for labor practices in the supply chain and actions taken”
- “Does the Company system screen and monitor its major suppliers for compliance with labour rights and standards (as per the Company’s code/policy)? i) If yes, what are the mechanisms in place to monitor compliance? ii) What are the core indicators evaluated? iii) Does the Company have a mechanism or system in place to deal with suppliers who are non-compliant?”

Labor practices falls under the social sustainability dimension in the supply chain (Agbonkhese, 2010; Akter, 2016; Ha-Brookshire & Hawley, 2014; Labuschagne et al., 2005; Venkatesh Mani et al., 2016c; Marc Winter A. Michael Knemeyer, 2013). No

matter the pressure imposed on the companies by the “government and international communities”, they give priority to profit making over the labor practices (Akter, 2016). However, the labor practices in developing countries are gaining attention by NGOs, media and customers since the suppliers of global brands are located in these countries (Klassen & Vereecke, 2012).

Interviewee #5 explained how meeting labor rights of employees’ effect on the apparel supply chain and why exporting apparel manufacturers in Sri Lanka especially need to pay attention on this aspect.

“Sri Lanka is exporting these apparel, no? the buyers in other countries are demanding sustainability into a certain extent. Not 100%. But if they find out that some of these clothes are manufactured under unethical conditions, they would not buy them. They won’t say “I don’t know I buy whatever my consciousness allows me to buy, but when I find out that these guys are violating the human rights of the staff, under really bad conditions, I don’t want to buy them, I want to buy something else”. So, it is a requirement for apparel companies to have at least a basic system which is sustainable.”

Moreover, the above-mentioned indicators depicted that they discussed the bigger picture relating to labour practices. Therefore, we paid attention specifically to the following two themes under “labour practices in the supply chain” because of their significant connection to the labor rights and standards discussed across the supply chains (McClelland, 2017; Moulds, 2017).

- Abolition of child labor (Refer Theme 35)
- Elimination of forced or compulsory labor (Refer Theme 37)

9.8.2. Theme 35 - Abolition of Child Labor

This was associated with Goal 16 and they pointed out “operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor” as an indicator (GRI et al., 2015).

Child labor is one of the social matters (Chardine-baumann & Botta-genoulaz, 2014) rising because of the apparel industry (Hiller Connell & Kozar, 2012; Roos et al., 2016). Child labor is mainly compromised in the luxury apparel industry (Gardetti & Subramanian, 2015). However, Sri Lankan apparel industry is far ahead with its policies regarding banning of child labor (Lopez-Acevedo & Robertson, 2016). All the interviewees agreed with the fact that child labor is no longer an issue in the Sri Lankan apparel industry. Their stance was further supported by the “Garments Without Guilt” concept of Sri Lanka Apparel (Joint Apparel Association Forum Sri Lanka, 2009).

9.8.3. Theme 37 - Elimination of Forced or Compulsory Labor

This theme came under Goal 8 and they discussed “Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor” as the sample indicator (GRI et al., 2015).

Forced labor is an issue coming under social sustainability of the supply chain (Chardine-baumann & Botta-genoulaz, 2014). With the current situation of the apparel industry, interviewee #5 discussed on labor conditions introducing the concept of “modern slavery”.

“There are always things you can do better. At least the fair working conditions need to be provided, not like modern time slavery which is happening in other countries. But in Sri Lanka the condition is pretty okay.”

This comment was agreed further with the fact that forced labor is no longer an issue in the Sri Lankan apparel industry as a result of the “Garments Without Guilt” concept of Sri Lanka Apparel (Joint Apparel Association Forum Sri Lanka, 2009). Moreover, there are NGOs who are empowering garment workers to make sure their labor rights and human rights are protected (Abraham, 2017).

9.9. Appendix 9 – Regulatory Responsibilities (RR)

9.9.1. Theme 29 - Effective, Accountable and Transparent Governance

This theme fell under Goal 16 of Justice. SDG Compass discussed about “complying with laws and seeking to meet international standards; requiring and supporting business partners to do the same” along with the few examples of indicators such as “reporting processes for the highest governance body to ensure conflicts of interest are avoided and managed, reporting whether conflicts of interest are disclosed to stakeholders” (GRI et al., 2015).

Corporate governance comes under the social dimension of sustainability (Tay et al., 2015). By implementing internal controls over accountability and governance, integrity and transparency of the financially responsible supply chain can be managed (ISM, 2012). Sri Lankan apparel known as the “Garments Without Guilt” is the only Asian country to attain concessions by the European Union because of the good governance (The Island, 2007). Even after 10 years, the major apparel companies are maintaining a good governance as per the comments of the interviewee #1, #2, #3 and #4. However, interviewee #6 pointed out that a medium sized apparel manufacturer does not conduct good governance or transparency in the day to day business.

9.9.2. Theme 49 - Protection of Privacy

This theme was addressed under the Goal 16 and the sample indicator was “total number of substantiated complaints regarding breaches of customer privacy and losses of customer data” (GRI et al., 2015). In order to characterize integrity and transparency of the supply chain, complying with applicable laws and regulations is a must which includes safeguarding the privacy and security of customer data as well (ISM, 2012). Further this “customer privacy” comes under social sustainability dimension (Dissanayake et al., 2016; Piecyk & Björklund, 2015).

This theme was not discussed by any of the interviewees due to the sensitivity of the theme and the information need to be discussed.

9.9.3. Theme 30 - Compliance with Laws and Regulations

This theme fell under Goal 16 and discussed the following sample indicators (GRI et al., 2015).

- “Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations”
- “Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services”
- “Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes”
- “Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes”
- “Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes”
- “Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data”

Suppliers being socially sustainable indicate that they adhere to the local regulations and other regulations (Venkatesh Mani et al., 2016a; Reefke & Mattia, 2013; Sancha et al., 2016). Hence, compliance is regarded as a way to ban the criticism from the stakeholders and win the name for social responsibility while improving economic performance (Yawar & Seuring, 2015b).

Further, the following comment from the interviewee #3 depicted that this theme links with the social sustainability dimension and goes beyond compliance;

“The legal requirement and the customer requirement are the base line in social sustainability. But our business cannot be driven only maintaining that. We have to go beyond that.”

Interviewee #4 depicted how complying with the requirement of the customers improved the apparel company’s sustainability dimension;

“Brand A has this very high compliance policies which are stringent even than UN or ILO. So once your company comes to that kind of a level, you know that you are far better than the rest.”

However, interviewee #6 commented;

“the employees of the company long lasts because of the compliance requirement of the buyers.”

Apparel manufacturers are working hard to ensure the social sustainability is met beyond compliance. This showed that the apparel manufacturers in Sri Lankan context have understood their role and learning that social sustainability needs to be a part of the day to day operation to survive in the industry in the long run.

9.10. Appendix 10 – Improved Wage Condition (WC)

9.10.1. Theme 2 - Earnings, Wages and Benefits

This key business theme was addressed under Goal 1 on poverty. The following indicators were some of the examples coming under this theme (GRI et al., 2015).

- “Do major employers along the value chain and the wider Company system negotiate wage and benefits standards through collective agreement?”
- “Does the Company have a mechanism/policy/code that seeks to ensure that small-scale suppliers, smallholders and/or distributors are paid a fair price for goods, services, and/or crops supplied to the Company, enabling sustainable trade? If yes, provide details.”- since we are not looking into the supplier aspect of this company, we are not considering this kind of indicators.
- “Estimated proportion of workers (m/w) along the value chain who have other jobs to sustain their livelihoods”
- “Range of company benefits for permanent vs. part-time contractual workers – in low and high seasons”
- “Range of company benefits for full time vs. part time workers (along the value chain)”
- “Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation”

“Wages” and “benefits” are considered under social sustainability dimension of supply chain (Campbell, 2007; Egels-Zandén & Lindholm, 2015; Huq et al., 2014; V. Mani et al., 2015; Venkatesh Mani et al., 2016a, 2016b; Rajak & Vinodh, 2015; Sadaat Ali Yawar & Stefan Seuring, 2015).

Interviewee #3 explained how the wages or payments in the apparel industry were addressed under the social sustainability dimension.

“If we take the payments, the customer is asking only to pay the legal required. But if we pay that legal required amount, we can't sustain. So, we pay more than legal required and more than industry standards. If the legal requirement is LKR 10,000 and the industry standard in LKR 15,000, we need to pay more than LKR 15,000 to retain them. We are always going beyond compliance.”

Interviewee #1 also elaborated on this comment further.

“When it comes to the community what we want to do is, in terms of global employer choice, trying to look at sustainable compensation. Story in the market about apparel industry, fashion and life style industry is living wage. You have heard that always saying "people are not paying a living wage". So, we know internally that we are paying a very good salary to our employees. Some of them are earning more than teachers. They have the capability of earning more than nurses and doctors because they have a basic salary. they have incentives. they have team incentives. group incentives. individual incentives. some overtime. then from multi skilling, also they get incentives. So, they have the ability to earn. But through this sustainable compensation, we want to have a methodology in which to calculate. So, when somebody comes and says the living wage for apparel industry is LKR 73,000 it's not. Even some executives don't earn LKR 73,000. living wage and it is a subjective thing. So, when somebody in the UK, few years back had this discussion with me, and said, "No. the machine operator needs to be able to, with her weekly salary, go to the movies or theater twice a week, go out to coffee or dinner." and I was like "hello, even I don't do that". Our life style is very different. you can't judge from the western ideals and calculate something from the western ideal and tell us where the apparel industry is not paying the wage. I am not saying that may be other apparel companies who are not paying that wage. but big players, our customers won't come to us if we are not paying that. So, they can't judge this whole living wage story. that's why we want to be

sustainable compensation for all that we have a methodology or a framework on which that we have calculated, and we are paying an equitable salary which is customized to Sri Lanka or India or Bangladesh or wherever. It doesn't have to be the UK or Singapore standard.”

The leading export apparel manufacturers are conscious about the payment they make, and the benefits offered to the employees mainly because of the pressure from the focal companies. Therefore, because of the importance of wages and benefits emphasized in the literature and interviews, when the conceptual framework is developed, these two aspects are considered separately.

9.10.2. Theme 16 - Equal Remuneration for Women and Men

Both gender equality in Goal 5 and equality in Goal 10 discussed this theme.

Following were a few example indicators of this theme (GRI et al., 2015).

- “Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation”
- “What is the frequency of periodic equal pay reviews/audits, including basic pay, overtime and bonuses? What is the methodology for the equal pay reviews? What were the findings of the last review and is a plan of action underway to redress the gender wage gap found in pay reviews, or plans to undertake such actions in the future? What is the explanation of source, nature and likely causes of any differences between women’s and men’s pay within the business?”

Equal remuneration has been identified as one of the indicators in the Corporate Social Responsibility (CSR) reports (Dissanayake et al., 2016; Piecyk & Björklund, 2015). When it comes to remuneration pattern in the apparel industries of developing countries, the women are paid 31 percent and 64 percent less than men respectively in India and Bangladesh (Lopez-Acevedo & Robertson, 2016). With the comments mentioned in above themes, all the interviewees representing export apparel manufacturing companies agreed upon the stance that equal remuneration is actively occurring in the Sri Lankan apparel supply chain.

9.11. Appendix 11 – Workers’ and Employees’ Conditions (WEC)

9.11.1. Theme 54 - Work Life Balance

Goal 5 described the indicator in this theme as “What is the business’ policy regarding flexible working and how many employees – male and female – have used this provision? What steps are the company implementing to encourage the uptake of flexible working?” (GRI et al., 2015).

Work life balance is discussed under social sustainability dimension (Closs et al., 2011; Keating et al., 2008) which is important to improving the working conditions. Interviewee #1 discussed about this under social sustainability dimension of the apparel supply chain.

“Obviously, we know that when it comes to women, we have to do this job, go back and do the caregiver’s job. So how do you balance these two things. So, we have training programs and awareness programs from emotional intelligence, marriage counselling. We have an inhouse counselor and may be visiting counsellors who help people to balance those two. So that their job and family life will be balanced because this has always been a challenge in very rural areas where we provide employment for women. So, if you take ‘Area A’, I always talk about ‘Area A’ because I was there for many years. Their fathers or their husbands are like bulath farmers or things like that. So now their daughters or heir life is the one who is going and earning 20,000 and 22,000 whatever rupees. So sometimes they can't handle this. We are in a patrilocal culture. Our culture is such that more male dominant. So, when these people started becoming the main bread winners of the family, sometimes the fathers and people can't handle this. Husbands can't handle it. Then that sometimes also helps to emerge the phase of violence and various harassments and things like that. So how do they balance all this is what we do through work life balance.”

The strategy to improve the flexible working hours of women working in the apparel industry was described by the interviewee #4.

“Under female empowerment, what we are trying to do is allow flexible working hours for women. Put that baby into the day care in the plant. And they can bring him back

when she is going, or the parent can come and collect the baby or any way it is a long day care from 8 to till the evening.”

Since work life balance is a combination of many aspects such as flexible working, support with child care, transport facilities to reach work, housing facilities for the employees' family etc., we considered many themes under this topic when developing the conceptual framework.

9.11.2. Theme 21 - Childcare Services and Benefits

This theme fell under Goal 5 on gender equality and “What is the business' policy and provision of childcare facilities and how many employees, if any, use this facility?” was the sample indicator pointed out (GRI et al., 2015).

“Baby care center with equipment” was one of the many facilities provided to the workers, when the garment industries moved out from busy town areas to the industrial zones (Akter, 2016). However, in countries such as Bangladesh, the child is taken care by a neighboring relative when the parent comes to work, although the requirement for nurseries are raised under the code of conduct of the buyers (Huq et al., 2014). Since baby care centers facilitate the workers' and employees' working conditions, we considered this theme under the social sustainability dimension in our conceptual framework. Further, by providing this type of necessities of the employees, company positively impact on the employee performance (Hutchins & Sutherland, 2008).

Interviewee #4 explained how the childcare services are provided in one of the leading apparel company in Sri Lanka.

“We also have day care centers. Not all plants. But now we are trying to have more. Under female empowerment, what we are trying to do is allow flexible working hours for women. Put that baby into the day care in the plant. And they can bring him back when she is going, or the parent can come and collect the baby or any way it is a long day care from 8 to till the evening.”

Current apparel manufacturers are keen on providing baby care centers understanding the issues faced by workers and assisting them to improve their working conditions.

9.11.3. Theme 26 - Sustainable Transportation

This theme was classed under Goal 11 on sustainable cities and communities. Although majorly this theme discussed about the environmental impact created by transportation, there was another underlying area as “making transportation safer and more affordable for all” addressing the social dimension. Moreover, literature also catered enough proof on the necessity of considering this theme under the social sustainability dimension of supply chains. Poor transportation is a social issue among other social factors in the apparel industry (Lopez-Acevedo & Robertson, 2016). Transport is important for lady apparel workers to ensure their personal safety because of the lack of public transportation between their house or boarding places and workplace (Ruwanpura, 2014). This argument was further proved by the comments of Interviewee #1;

“Like our former managing director, Mr. D who was here, he had this idea that we must help the people. When they went to cases like Area A, they realized the hardships of the people, of the employees. Some of them walked 4 kilometers to come to the bus point to come to work. Therefore, we provided transport to the closest place.”

Therefore, facilitating transportation is considered to be vital in order to make employees’ lives easier. Further, interviewee #5 proved that certain apparel companies provide transportation to the employees in the apparel industry.

“Apparel company may provide transport to the employees, shuttle buses to some areas.”

Because of the support provided by the transport facilities to workers to work without hassles, we considered this theme under the workers’ and employees’ working condition in the social sustainability dimension.

9.11.4. Theme 24 - Access to Affordable Housing

This theme was included in the Goal 11 on cities and communities. The sample indicator derived from GRI G4 Financial Services Sector Disclosures is “monetary value of products and services designed to deliver a specific social benefit for each business line broken down by purpose” (GRI et al., 2015). However as per the guide

by SDG Compass, this theme covers the SDG target “11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums”. Therefore, we considered this theme in our conceptual framework as to understand how the apparel manufacturing companies were addressing this theme in the supply chain.

Affordable housing is one of the indicators in the social sustainability dimension of SSCM (Venkatesh Mani et al., 2016a). Further, the attention to housing in the socially sustainable supply chains has improved during the last two decades (V. Mani et al., 2015). One of the annual sustainability reports of a leading apparel company addressed how they have approached this theme as “Offering assistance to those who were badly affected from floods to rebuild their homes” (Brandix, 2011). Further interviewee #1 commented how they were helping the society to have affordable housing;

*“So now we do charity and philanthropy activities. We also do big sustainable projects like capacity building. So, from **giving 10,000 LKR to somebody whose roof is leaking** all the way to spending like 5 million LKR on a cancer clinic in Area A hospital.”*

Further, interviewee #5 also provided evidence saying that bigger apparel companies sometimes even provide housing loan schemes for its employees.

9.12. Appendix 12 – Improved Economic Performance (EP)

9.12.1. Theme 36 - Economic Performance

This theme is coming under Goal 8 and they discuss the following indicators.

- “Direct economic value generated and distributed”
- “Do the Company’s buying practices (e.g., volume of purchase, prices negotiated and paid) impact price volatility of key commodities, materials, crops, and/or inputs that suppliers rely on in local or national markets?”
- “What are the Company's planned investments in the country? In other words, does the Company plan to 1) maintain a similar level of investment in the coming years, 2) increase its investment or volume of trade, or 3) divest or reduce volume of trade with suppliers and distributors? What type of business

model(s) does the company plan to use to invest (e.g. direct investment, contract)? The answer to this question will help assess security of income for suppliers (including smallholders) and workers in the longer term.”

“economic performance” is considered as a performance indicator in the apparel supply chain (Gardetti & Subramanian, 2015). Further, the economic performance in the long term is important for any company (Reefke & Mattia, 2013). The companies in very competitive industries prefer economic performance over the social and environmental performances whenever there is a conflict among these performance indicators (Freise & Seuring, 2015). Financial indicators in the economic sustainability mainly cover the monetary valued economic performance which is traditional (Azapagic & Perdan, 2000). However, under economic performance indicators such as “supply chain cost” and “service level” can also be added (Varsei et al., 2014). Therefore, this theme is considered under the economic sustainability dimension.

Since some of the indicators are sensitive towards apparel companies’ financial performance, because of the sensitivity of the data, such indicators are not addressed in this research. As majority of the apparel companies in Sri Lanka are privately owned, we did not ask for figures directly, but what’s happening all over. This is further proved by the following statements of the interviewee #1.

“Somewhat financial reason for socially sustainable activities are retention of our employees, engagement of our employees and attraction of new employees. When we go to a rural area, we have given some medical maternity clinics. Other people also come there and say "This is done by Company A and my daughter is also working there". That kind of word of mouth expressions. Those are the benefits that we are getting, in terms of branding. There is no direct financial return we can see. It is also from the perspective of the employee. What we want to do is gather employees and do something in return for their betterment.”

Interviewee #1 further explains this as;

““Also, we don't do ROI on any of this because it has always been for us social reason for doing it primarily to. Somewhat financial reason for socially sustainable activities are retention of our employees, engagement of our employees and attraction of new employees.”

This comment is further approved with the CSR Impact Model presented by (Weber, 2008, p. 250) showing how the non-monetary aspects such as “customer attraction and retention, reputation, and employee recruitment, motivation and retention” are ultimately leading economic success in the companies. Hence, we are considering the following factors under the economic sustainability dimension of our research.

9.12.2. Theme 36.1 - Retention of Employees

9.12.3. Theme 36.2 - Attraction of New Employees

9.12.4. Theme 36.3 - Improved Image

Interviewee #1 comments on the improved image as follows.

“When we go to a rural area, we have given some medical maternity clinics. Other people also come there and say "This is done by Company A and my daughter is also working there". That kind of word of mouth expressions. Those are the benefits that we are getting, in terms of branding.”

Interviewee #5 explains the benefit of employee attraction to the company through the improved image.

“Therefore, why not create an environment where people want to come? For example, like company A, there are many people who want to go and work for them. They have such a good reputation. So, it's a reward for the workers to be able to work for such a company.”

On the other hand, interviewee #5 reveals a dark secret which comes along with the improved image. That is the clothes being branded.

“There are companies who make clothes very sustainably. But they brand the clothes very high. So, they are not sustainable towards the consumer, what if you can't afford it. They say “now we are green. So, you need to pay us a lot.”

As interviewee #5 further mentions there are other reasons for improved images to be pricey.

“Designers who are creating all these sustainable clothing is using their talent. Like the people who do upcycling. Therefore, they are maintaining their own brands and they charge more for their brand and the talent.”

9.12.5. Theme 36.4 - Attraction of Potential New Customers

Interviewee #1, #2 and #6 agree that with social sustainability dimensions, they expect to attract potential new customers as well.

9.12.6. Theme 36.5 - Customer Retention

Interviewee #1 explains the importance of existing customers.

“Sri Lanka itself always used to differentiate ourselves as a country in the apparel world as an ethical sourcing destination because we couldn't compete on the volumes with China, Vietnam and Bangladesh. There are some customers who are willing to pay a premium for this ethical sourcing. So, in Sri Lanka that is the kind of positioning we had to take because we couldn't give the competitive prices of China or the volumes of China. But what we have is they don't have. I am sure you have read on this. That is whole ethical, our factories are lot better. Even if it's not the big players. Local players in the small garment factories also have the standards which are lot better than in China, you know, like Bangladesh. So, because of that customers like Nike or Victoria Secret they like to come here and get us to manufacture their apparel simply because of this ethical sourcing. That started out like that but it became ethical and sustainable”

This shows that the existing customers want this company to be socially sustainable. On the other hand, for this company to have business, they have to be economic sustainable. In other words, existing customers are important for them to be both socially and economic sustainable.

This argument is further proved by the following comments of the interviewee #5.

“Sri Lanka is exporting these apparel, no? the buyers in other countries are demanding sustainability into a certain extent. Not 100%. But if they find out that some of these clothes are manufactured under unethical conditions, they would not buy them. They would say “I buy whatever my consciousness allows me to buy, but when I find out that these guys are violating the human rights of the staff, under really bad

conditions, I don't want to buy them, I want to buy something else". So, it is a requirement for apparel companies to have at least a basic system which is socially sustainable."

9.12.7. Theme 39 - Employment

Goal 8 addresses this theme with the following sample indicators.

- "The total number of employees by employment contract and gender"
- "The total number of permanent employees by employment type and gender"
- "The total workforce by employees and supervised workers and by gender"
- "The total workforce by region and gender"
- "Report whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals other than employees or supervised workers, including employees and supervised employees of contractors"
- "Average working hours per week (m/w), including overtime"
- "Does the Company system and all major employers along the value chain have policies stating that hiring, placement, remuneration, advancement, training, discipline, retirement, and termination decisions are based on objective factors and are not connected to gender, age, nationality, ethnicity, sexuality, race, colour, creed, caste, language, mental or physical disabilities, etc.? If yes, how are the policies promoted internally by the Company system and each major employer/organization?" – related to non-discrimination
- "Total number of permanent vs temporary workers (m/w) along the value chain"
- "Considering contractual workers only, the approximate proportion of those who are employed on an annual basis, on a seasonal basis, on a daily basis, and on a piece/task basis"
- "Total number and rates of new employee hires and employee turnover by age group, gender, and region"

This shows the vastness of the theme "employment" (Roca & Searcy, 2012). And how employment comes under the economic sustainability dimension is discussed under

the theme 36 on economic performance, while its social sustainability dimension is discussed under theme 15 and 38.

9.12.8. Theme 48 - Parental Leave

This comes under the Goal 5 and 8, and addresses the following indicators.

- “Return to work and retention rates after parental leave, by gender”
- “What is the business’ policy on maternity, paternity and family leave length and entitlements and to what extent does this go above the statutory provisions in the regulatory regime where the business is operating? Do these policies apply throughout the operations in each country? Are sex-disaggregated statistics kept and tracked?”

Leave for maternity is one of the factors that need to consider in order to make sure that the companies’ health and safety code reflects the workers’ needs (Ruwanpura, 2014). Further, parental leave comes under the social security (Steen & Palander, 2016).

The interviewees point out that the parental leave is given to the female workers as per the regulations in the law. Therefore, this theme is considered under the social sustainability dimension.

9.12.9. Theme 71 - Foreign Direct Investment

This theme comes under Goal 10 and 17. “Significant indirect economic impacts, including the extent of impacts” is the sample indicator derived from GRI G4 Sustainability Reporting Guidelines.

“Indirect economic impacts can be monetary or nonmonetary, and are particularly important to assess in relation to local communities and regional economies” (Global Reporting Initiative, 2016). Under they discuss “Stimulating, enabling, or limiting foreign direct investment” (Global Reporting Initiative, 2014). Further, “total value of investments in sustainable development” is considered under the economic sustainability dimension in SSCM (Tajbakhsh & Hassini, 2015). And larger infrastructure investment can also lead to larger customer orders in the long term (Huq et al., 2014).

Therefore, this theme relating to increase in investment is considered under economic sustainability dimension of this research.

9.12.10. Theme 107 - Improved Profits

Interviewee #1 has the following comment.

“When we go to a rural area, we have given some medical maternity clinics. Other people also come there and say “This is done by Company A and my daughter is also working there”. That kind of word of mouth expressions. Those are the benefits that we are getting, in terms of branding. There is no direct financial return we can see. It is also from the perspective of the employee. What we want to do is gather employees and do something in return for their betterment.”

But a contrasting comment is given by the interviewee #6 on the profit making in the medium sized apparel company; *“profit is the main objective”*. Since profits are coming under the economic sustainability dimension, we are considering this theme under the economic sustainability dimension.

9.13. Appendix 13 – Rejected Themes

The rejected themes in Phase 1 analysis are as follows.

9.13.1. Theme 1 - Availability of Products and Services for those on Low Incomes

Both goal 1 and 10 addressed this business theme. SDG Compass described this theme as “Developing products and services tailored for poor customers (e.g. mobile based money transfer services for unbanked consumers)”.

Especially this theme was not common to all types of companies in the apparel industry. For example, this is not related to export apparel manufacturers as they are catering the requirement of the final customer or brand (the focal company). Therefore, this theme was not considered in this conceptual framework.

9.13.2. Theme 6 - Electricity Availability and Reliability

This theme was discussed under Goal 7. Electricity availability is very important for the wellbeing of a society. However, enough evidence could not be found relating to

the sustainable actions of the apparel manufacturers. Further as SDG Compass depicted this theme falls under a sector specific area addressed by the “electric utility” sector as well. Therefore, we did not consider this theme in our research.

9.13.3. Theme 14 - Indirect Impact on Job Creation

This theme was addressed under the Goal 4 on education. “Assessing the impacts of growth or contraction of the organization on its suppliers/ such as outsourcing of jobs to an overseas location” is the example pointed out in the guide of SDG Compass (GRI et al., 2015). Since we are not taking suppliers into consideration in this research, we ignored this theme.

9.13.4. Theme 22 - Access to Financial Services

This theme fell under “financial sector services” in which the sample indicators were related to that specific sector. Since we could not relate this theme to the apparel industry, we rejected this theme.

9.13.5. Theme 23 - Economic Inclusion

This theme was addressed under Goal 8 and 10. SDG Compass pointed out the following indicator as an example; “Describe policies and practices used to promote economic inclusion when selecting suppliers. Forms of economic inclusion may include: suppliers owned by women; suppliers owned or staffed by members of vulnerable, marginalized or underrepresented social groups; and small and medium sized suppliers” (GRI et al., 2015). As this theme also focused on suppliers, we did not consider this theme in our research.

9.13.6. Theme 28 - Sustainable Buildings

This theme was verisimilar to the theme 25 on “infrastructure investments”. This theme was also discussed under Goal 11 and SDG Compass described this as “type and number of sustainability certification, rating and labeling schemes for new construction, management, occupation and redevelopment” under construction sector (GRI et al., 2015). Therefore, this theme was not taken into consideration. However, the sustainable development relating to buildings (e.g. facilitating disabled people) was addressed under a separate theme in the analysis (refer [Theme 17](#)).

9.13.7. Theme 33 - Physical and Economic Displacement

The indicators suggested in this theme were derived from different sources related to different industries such as GRI G4 Electric Utilities Sector Disclosures, GRI G4 Airport Operators Sector Disclosures, GRI G4 Construction and Real Estate Sector Disclosures, GRI G4 Mining and Metals Sector Disclosures and GRI G4 Oil and Gas Sector Disclosures (GRI et al., 2015).

- “Number of persons voluntarily and involuntarily displaced and/or resettled by development, broken down by project”
- “Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process”
- “Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process”
- “Approach to managing the impacts of displacement”
- “Stakeholder participation in decision making processes related to energy planning and infrastructure development”
- “Number of persons physically or economically displaced, either voluntary or involuntary, by the airport operator or on its behalf by a governmental or other entity, and compensation provided”

These indicators were discussed in sectors such as construction, real state, oil and gas, mining and metal, electric utilities, and airport operator sectors which take a vast land space. However, we could not find enough evidence to support the link between this theme and apparel industry. Therefore, we did not consider this theme in our framework.

9.13.8. Theme 45 - Jobs Supported in the Supply Chain

This theme considered the “assessing of the impacts of growth or contraction of the organization on its suppliers” (GRI et al., 2015). In other words, this theme focused on supplier relationship. Since we are not considering the suppliers in this research, we rejected this theme.

9.13.9. Theme 51 - Security

“The conduct of security personnel towards third parties is underpinned by their training in human rights, particularly regarding the use of force” was the aspect discussed under this theme (GRI et al., 2015). Since enough evidence was not found relating to this theme it is not considered in this research.

9.13.10. Theme 52 - Socially Inclusive Events

This theme followed the Goal 10 and discussed “type and impacts of initiatives to create a socially inclusive event” under sample indicators (GRI et al., 2015). This indicator was derived from GRI G4 Event Organizers Sector Disclosures. Since this theme discussed specifically under “event organizers” sector and we could not find enough evidence to relate this theme to the apparel industry, we rejected this theme from this research.

9.13.11. Theme 55 - Accessibility of Buildings

This theme came under Goal 4 and 10. “Type and number of sustainability certification, rating and labeling schemes for new construction, management, occupation and redevelopment” coming under GRI G4 Construction and Real Estate Sector Disclosures. This theme specifically discusses the construction industry performance. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

7. Theme 56 - Accessibility of Events

This theme comes under Goal 10 and the sample indicators are as follows.

- “Significant environmental and socio-economic impacts of transporting attendees to and from the event, and initiatives taken to address the impacts”
- “Type and impacts of initiatives to create an accessible environment”

This comes under GRI G4 Event Organizers Sector Disclosures. Therefore, this theme specifically discusses the operations of event organizers. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

8. Theme 57 - Accessibility of Media Content

This theme comes under Goal 10.

Sample indicators are “Actions taken to improve performance in relation to content dissemination issues (accessibility and protection of vulnerable audiences and informed decision making) and results obtained” and “Number and nature of responses (feedback/complaints) related to content dissemination, including protection of vulnerable audiences and informed decision making and accessibility, and processes for addressing these responses” derived from GRI G4 Media Sector Disclosures. This theme specifically discusses the media sector. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

9. Theme 58 - Access to Land

This theme specifically discusses “land conversions” and “resettlements”. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

10. Theme 59 - Air Quality

This theme addresses Goal 3 and 12.

Following are the sample indicators (indicators general to any industry) considered and they are relevant to environmental sustainability dimension. These are derived from GRI G4 Sustainability Reporting Guidelines.

- “Direct greenhouse gas (GHG) emissions”
- “Emissions of ozone-depleting substances (ODS)”
- “Energy indirect greenhouse gas (GHG) emissions”
- “NO_x, SO_x, and other significant air emissions”
- “Other indirect greenhouse gas (GHG) emissions”

Air emission is one of the highly mentioned metrics in the Green Supply Chain Management literature (Ahi & Searcy, 2015a; Chardine-baumann & Botta-genoulaz, 2014). Therefore, we are not considering this theme in our research.

11. Theme 61 - Cultural Diversity through Media Content

This theme comes under Goal 11.

Sample indicator is “Actions taken to improve adherence to content creation values, and results obtained” derived from GRI G4 Media Sector Disclosures.”. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

12. Theme 62 - Cultural Heritage

This comes under Goal 11.

Sample indicators derived from GRI G4 Electric Utilities Sector Disclosures and GRI G4 Oil and Gas Sector Disclosures are as follows.

- “Approach to managing the impacts of displacement”
- “Operations where involuntary resettlement took place, the number of households resettled in each and how their livelihoods were affected in the process”

This theme specifically discusses displacement and relocation of people due to environmental changes in oil and gas industries. As enough evidence could not find in order to relate this theme to apparel industry, we are not considering this theme in this research.

13. Theme 63 - Deforestation

This theme comes under Goal 15.

The general indicators under this theme are;

- “Has your organization made a commitment to reduce or remove deforestation and forest degradation from your direct operations and/or supply chain?”
- “Please disclose your production and/or consumption data”
- “Please identify which of the following criteria are specifically stated in your organization’s commitment to reduce or remove deforestation and forest degradation from your direct operations and/or supply chain”

These indicators have been derived from CDP's 2015 Forests Information Request. Deforestation comes under environmental sustainability dimension of the supply chain (Blowfield, 2003). As this theme comes under environmental dimension, we are rejecting this theme from our research.

14. Theme 65 - Electricity Access

This theme comes under Goal 7.

This is discussed under “sector specific” indicators derived from GRI G4 Electric Utilities Sector Disclosures.

- “Average plant availability factor by energy source and by regulatory regime”
- “Average power outage duration”
- “Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime”
- “Percentage of population unserved in licensed distribution or service areas”
- “Practices to address language, cultural, low literacy and disability related barriers to access and safely use electricity and customer support services”
- “Programs, including those in partnership with government, to improve or maintain access to electricity and customer support services”

As the all above indicators are related to issues need to be addressed by the electric sector or government. There is no connection to apparel industry. However, enough evidence could not find to make this theme relate to the apparel supply chain in Sri Lanka. Therefore this theme is rejected.

15. Theme 66 - Energy Efficiency

This comes under Goal 7,8, 12 and 13.

General indicators are as follows.

- “Energy consumption outside of the organization”
- “Energy consumption within the organization”
- “Energy intensity”
- “Reduction of energy consumption”

- “Reductions in energy requirements of products and services”
- “Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year”

Metrics such as “energy efficiency”, “energy use” and “energy consumptions” are “environmental focus” (Ahi & Searcy, 2015a). Therefore, we are not considering this theme in our research under social and economic sustainability dimensions.

16. Theme 67 - Environmental Investments

This theme comes under Goals 7,9,12,13,14,15 and 17.

The general indicator “total environmental protection expenditures and investments by type” has been derived from GRI G4 Sustainability Reporting Guidelines.

Since environmental investments are considered under environmental supply chain management (Eneko Igartua, 2014; Wiengarten, Pagell, & Fynes, 2013), we are not considering this theme in the framework.

17. Theme 68 - Food Labelling

This is food sector specific theme, and the sample indicators is “policies and practices on communication to consumers about ingredients and nutritional information beyond legal requirements” derived from GRI G4 Food Processing Sector Disclosures. Therefore, we are not considering this in the research.

18. Theme 72 - Forest Degradation

This theme also comes under Goal 15.

The general indicators are;

- “Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?”
- “Direct greenhouse gas (GHG) emissions”
- “Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?”
- “Energy indirect greenhouse gas (GHG) emissions”

- “Extent of impact mitigation of environmental impacts of products and services”
- “Greenhouse gas (GHG) emissions intensity”
- “How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?”
- “NO_x, SO_x, and other significant air emissions”

This is very much similar to the theme 63 on “deforestation”. As this theme also comes under environmental dimension, we are rejecting this theme from our research.

19. Theme 73 - GHG Emissions

This theme comes under Goal 13.

General indicators are;

- “Direct greenhouse gas (GHG) emissions”
- “Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?”- CDP’s 2015 Climate Change Information Request
- “Energy indirect greenhouse gas (GHG) emissions”
- “Extent of impact mitigation of environmental impacts of products and services”
- “Greenhouse gas (GHG) emissions intensity”
- “How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?”
- “Other indirect greenhouse gas (GHG) emissions”
- “Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO₂e per full time equivalent (FTE) employee”
- “Reduction of greenhouse gas (GHG) emissions”

These are a few of the sample indicators and the literature shows that “GHG emission” is one of the highly discussed metrics in the Green Supply Chain Management literature (Ahi & Searcy, 2015a). Therefore, we are rejecting this theme from our research.

20. Theme 74 - Genetic Diversity of Farmed and Domesticated Animals

This comes under Goal 2 and 15.

The sample indicator of “Percentage and total of animals raised and/or processed, by species and breed type” is related to food processing sector. Since animal husbandry is not related to apparel industry, we are rejecting this theme.

21. Theme 75 - Indigenous Rights

This comes under Goal 2. “Total number of incidents of violations involving rights of indigenous peoples and actions taken” is the sample performance indicator discussed.

Indigenous rights come under social sustainability dimension (Piecyk & Björklund, 2015). But since the indigenous people are not a part of the apparel industry, this theme is rejected.

22. Theme 76 - Land Remediation

This theme discusses about stopping environmental damage happen in land as per the definition of Cambridge Dictionary (“Cambridge Dictionary,” 2017). Therefore, this comes under environmental sustainability dimension and we are not considering this in our research.

23. Theme 77 - Landscapes, Forest Management and Fiber Sourcing

This theme comes under Goal 15. And the indicators are as follows derived from WBCSD Forest Solutions Group KPI.

- “% of all owned, leased and managed forests certified”
- “% of total volume of wood/fiber/products intake certified”

Forest management comes under environmental sustainability dimension (GRI, 2013). We are not considering sourcing in our research. Therefore, this theme is not considered in this research.

24. Theme 78 - Marine Biodiversity

This comes under Goal 14.

General indicators are;

- “Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas”
- “Habitats protected or restored”
- “Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization’s discharges of water and runoff”
- “Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas”
- “Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk”

These are derived from GRI G4 Sustainability Reporting Guidelines.

Biodiversity comes under environmental sustainability (Chardine-baumann & Bottagenoulaz, 2014). Therefore, we are not considering this theme under social and economic sustainability dimension of the apparel supply chain.

25. Theme 79 - Materials Efficiency

This theme comes under Goal 8 and 12.

General indicators derived from GRI G4 Sustainability Reporting Guidelines are as follows.

- “Materials used by weight or volume”
- “Percentage of materials used that are recycled input materials”

Less material usage is important for green supply chain (Milano, 2014). Therefore, we are not considering this theme under social and economic sustainability dimension of the apparel supply chain.

26. Theme 80 - Materials Recycling

This comes under Goal 12.

“Percentage of materials used that are recycled input materials” is the sample indicator from GRI G4 Sustainability Reporting Guidelines.

Since recycling comes under environmental sustainability (Ahi & Searcy, 2015a) we are not considering this theme in our research.

27. Theme 81 - Media Literacy

Goal 4

Sector specific indicator “Actions taken to empower audiences through media literacy skills development and results obtained” derived from GRI G4 Media Sector Disclosures. Since this is not related to apparel supply chain, we are rejecting this theme.

28. Theme 82 - Mountain Ecosystems

This theme comes under Goal 15.

General indicators are;

- “Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas”
- “Habitats protected or restored”
- “Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas”
- “Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk”

Since eco systems are addressing the environmental sustainability dimension (Chardine-baumann & Botta-genoulaz, 2014), we are not considering this theme in our research.

29. Theme 83 - Natural Habitat Degradation

This theme is considered under Goal 15.

General indicators are;

- “Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas”
- “Habitats protected or restored”
- “Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization’s discharges of water and runoff”
- “Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas”
- “Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk”

Similar to the previous theme, habitat degradation comes under environmental sustainability dimension (Aref A. Hervani Marilyn M. Helms Joseph Sarkis, 2005; Joung, Carrell, Sarkar, & Feng, 2012; Narayanamurthy & John, 2015; Nurul, Wan, Brito, & Tavasszy, 2016; Palme, 2011). Therefore, this theme is rejected.

30. Theme 84 - Noise

This theme comes under Goal 11.

The sample indicator “Number and percentage change of people residing in areas affected by noise” is related to aviation sector derived from GRI G4 Airport Operators Sector Disclosures. As this is environmental sustainability related (Chardine-baumann & Botta-genoulaz, 2014), we are rejecting this theme in this research.

31. Theme 85 - Ocean Acidification

This comes under Goal 14.

General indicators are derived from GRI G4 Sustainability Reporting Guidelines and CDP’s 2015 Climate Change Information Request.

- “Direct greenhouse gas (GHG) emissions”
- “Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?”

- “Energy indirect greenhouse gas (GHG) emissions”
- “Extent of impact mitigation of environmental impacts of products and services”
- “Greenhouse gas (GHG) emissions intensity”
- “How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?”
- “NOx, SOX, and other significant air emissions”
- “Other indirect greenhouse gas (GHG) emissions”
- “Please account for your organization’s Scope 3 emissions, disclosing and explaining any exclusions”
- “Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per full time equivalent (FTE) employee”
- “Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings”
- “Reduction of greenhouse gas (GHG) emissions”

Similar to the theme 73 on “GHG emissions”, we are rejecting this theme from our research as this theme covers one of the “planetary boundaries” coming under the environmental sustainability dimension (Roos et al., 2016).

32. Theme 87 - Procurement Practices

Since we are not looking into supplier’s aspect of the focal company, we are ignoring this theme.

33. Theme 89 - Renewable Energy

This comes under Goal 7.

General indicators are “Energy consumption outside of the organization” and “Energy consumption within the organization” derived from GRI G4 Sustainability Reporting Guidelines.

Energy consumption (Ahi & Searcy, 2015a) and finding alternative energy sources (Chardine-baumann & Botta-genoulaz, 2014) come under environmental sustainability dimension. Therefore, this is not considered in this research.

34. Theme 90 - Resource Efficiency of Products and Services

Goal 8 and 12

General indicators derived from GRI G4 Sustainability Reporting Guidelines are;

- “Extent of impact mitigation of environmental impacts of products and services”
- “Percentage of products sold and their packaging materials that are reclaimed by category”

Resource efficiency looks into the environmental sustainability dimension of a supply chain (Wang, 2014; Zhou, 2009). Therefore, we are rejecting this theme in our research.

35. Theme 91 - Responsible Content Dissemination

Goal 3 and 16

Sector specific indicators derived from GRI G4 Media Sector Disclosures are discussed here.

- “Actions taken to improve performance in relation to content dissemination issues (accessibility and protection of vulnerable audiences and informed decision making) and results obtained”
- “Number and nature of responses (feedback/complaints) related to content dissemination, including protection of vulnerable audiences and informed decision making and accessibility, and processes for addressing these responses”

As enough evidence could not find to relate this theme to apparel industry, we are rejecting this theme.

36. Theme 92 - Responsible Finance

Goal 10

Sector specific indicators derived from GRI G4 Financial Services Sector Disclosures are discussed here.

- “Coverage and frequency of audits to assess implementation of environmental and social policies and risk assessment procedures”
- “Interaction with clients/investees/business partners regarding environmental and social risks and opportunities”
- “Percentage and number of companies held in the institution's portfolio with which the reporting organisation has interacted on environmental or social issues”
- “Percentage of assets subject to positive and negative environmental or social screening”
- “Policies for the fair design and sale of financial products and services”
- “Policies with specific environmental and social components applied to business lines”
- “Procedures for assessing and screening environmental and social risks in business lines”
- “Process(es) for improving staff competency to implement the environmental and social policies and procedures as applied to business lines”
- “Processes for monitoring clients' implementation of and compliance with environmental and social requirements included in agreements or transactions”

As enough evidence could not find to relate this theme to apparel industry, we are rejecting this theme.

37. Theme 93 - Risks and Opportunities due to Climate Change

Goal 13

The following are the indicators discussed under this theme and they are derived from UN Global Compact-Oxfam Poverty Footprint, GRI G4 Sustainability Reporting Guidelines and CDP's 2015 Climate Change Information Request.

- “Do the Company’s operations pose a risk of environmental disasters (e.g. drought, contamination, etc.)? If yes, does the Company engage with communities to mitigate and manage these environmental risks on local communities? If yes, provide details, such as the practices or programs in place, objectives and targets).”

- “Does the Company engage in initiatives that promote resilient practices and/or upgrade value chain procedures in order to address climate change? If yes, do the initiatives extend to stakeholders outside the value chain (e.g., surrounding communities and smallholders)?”
- “Does the Company system engage with commercial partners and/or smallholders to understand the impacts of climate change on suppliers and the supply chain? If yes, provide details on the engagement.”
- “Does the Company system promote climate resilient practices within its business relationships? If yes, do these practices extend to smallholders (where applicable)? If yes, provide details on practices, including objectives.”
- “Financial implications and other risks and opportunities for the organization’s activities due to climate change”
- “Have you identified any inherent climate change opportunities that have the potential to generate a substantive change in your business operations, revenue or expenditure?”
- “i) Proportion of the smallholders interviewed (m/w) who indicate they are experiencing impacts of climate change (e.g., extreme weather conditions and/or changing conditions in rainfall or temperature). ii) Provide details on how MSMEs and/or smallholders interviewed perceive the effects of climate change, how they are coping with the changes, and the main challenges they are facing.”

Issue of climate change comes under environmental sustainability dimension (Carter & Easton, 2011; Palme, 2011; Srinivas Nowduri, 2014). Therefore, we are not considering this theme in our research.

38. Theme 95 - Spills

Spills come under Goal 3,6,12,14 and 15.

“Total number and volume of significant spills” is the sample indicator derived from GRI G4 Sustainability Reporting Guidelines.

Since spills are an impact on environmental sustainability (Chardine-baumann & Botta-genoulaz, 2014), we are not considering this theme in our research.

39. Theme 96 - Sustainable Sourcing

Since we are not looking into suppliers, we are no considering this theme.

40. Theme 97 - Sustainable Tourism

This theme discusses a separate industry; therefore, we are not considering this theme in our research.

41. Theme 98 - Sustainable Water Withdrawals

This comes under Goal 6.

The following indicators are derived from the following sources.

- “Average water intensity in water-stressed or water-scarce areas”- CEO Water Mandate’s Corporate Water Disclosure Guidelines
- “Does the Company system have procedures or systems in place to help reduce its footprint on water? (for instance, seeking alternative water sources, such as grey water or rainwater capture systems)?”- UN Global Compact-Oxfam Poverty Footprint
- “Extent of impact mitigation of environmental impacts of products and services”- GRI G4 Sustainability Reporting Guidelines
- “Location-specific data: Water withdrawals by source type”- CEO Water Mandate’s Corporate Water Disclosure Guidelines
- “Total water withdrawal by source”- GRI G4 Sustainability Reporting Guidelines
- “Water performance in the value chain”- CEO Water Mandate’s Corporate Water Disclosure Guidelines
- “Water sources significantly affected by withdrawal of water”- GRI G4 Sustainability Reporting Guidelines
- “Water withdrawals: for the reporting year, please provide total water withdrawal data by source, across your operations”- CDP’s 2015 Water Questionnaire

“Water sources significantly affected by withdrawal of water” is an “environmental performance indicator” (Altmann, 2014). Therefore, we are not considering this theme in our research.

42. Theme 100 - Terrestrial and Inland Freshwater Ecosystems

This theme comes under Goal 15.

Based on GRI G4 Sustainability Reporting Guidelines, the following indicators are identified under this theme.

- “Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas”
- “Habitats protected or restored”
- “Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization’s discharges of water and runoff”
- “Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas”
- “Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk”

As eco systems are coming under environmental sustainability dimension (Chardinebaumann & Botta-genoulaz, 2014), this theme is also rejected.

43. Theme 101 - Waste

Waste comes under Goal 3,6 and 12.

The general indicators derived from GRI G4 Sustainability Reporting Guidelines are as follows.

- “Extent of impact mitigation of environmental impacts of products and services”
- “Total weight of waste by type and disposal method”

- “Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally”

As waste (both water waste and solid waste) is an issue related to environmental sustainability dimension in the supply chain (Ahi & Searcy, 2015a), we are not considering this theme.

44. Theme 102 - Water-Related Ecosystems and Biodiversity

This also comes under Goal 6.

The following are the indicators based on GRI G4 Sustainability Reporting Guidelines.

- “Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas”
- “Habitats protected or restored”
- “Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization’s discharges of water and runoff”
- “Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas”
- “Total number and volume of significant spills”
- “Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk”
- “Total water discharge by quality and destination”

Similar to theme 100 on eco systems, biodiversity also comes under environmental sustainability dimension (Chardine-baumann & Botta-genoulaz, 2014). Therefore, this theme is not considered in this research.

45. Theme 103 - Water Discharge to Oceans

Goal 14

The following indicators are considered here based on CEO Water Mandate's Corporate Water Disclosure Guidelines, GRI G4 Sustainability Reporting Guidelines and CDP's 2015 Water Questionnaire.

- "Location-specific data: Water discharge by destination"
- "Total water discharge by quality and destination"
- "Water discharges: for the reporting year, please provide total water discharge data by destination, across your operations"

Hence this theme is related to social sustainability dimension, we are rejecting this theme.

46. Theme 104 - Water Efficiency

This comes under Goal 6, 8 and 12.

Following are the indicators based on CEO Water Mandate's Corporate Water Disclosure Guidelines, GRI G4 Sustainability Reporting Guidelines, CDP's 2015 Water Questionnaire and WASH Pledge and Guiding Principles for Implementation.

- "Location-specific data: Water consumption"
- "Location-specific data: Water intensity"
- "Percentage and total volume of water recycled and reused"
- "Water consumption: for the reporting year, please provide total water consumption data, across your operations"
- "Water performance in the value chain"
- "Number of premises under direct control where water saving technologies and water saving awareness campaign are employed in areas facing water scarcity or water stress"

Since water consumption comes under environmental focus in the supply chain (Ahi & Searcy, 2015a), we are rejecting this theme from our research.

47. Theme 105 - Water Quality

Theme on “water quality” belongs to Goal 3, 6 and 12.

CEO Water Mandate’s Corporate Water Disclosure Guidelines and GRI G4 Sustainability Reporting Guidelines are the sources for following sample indicators.

- “Percent of facilities adhering to relevant water quality standard(s)”
- “Water performance in the value chain”
- “Total water discharge by quality and destination”

Water quality comes under the environmental sustainability dimension (Feng, Li, Duan, & Zhang, 2007). Therefore, we are not considering this in our research.

48. Theme 106 - Water Recycling and Reuse

This comes under Goal 6 and “Percentage and total volume of water recycled and reused” is the indicator coming under GRI G4 Sustainability Reporting Guidelines.

Recycling and reuse come under environmental sustainability dimension (Ahi & Searcy, 2015a; Chardine-baumann & Botta-genoulaz, 2014). Therefore, we are not considering this theme in our research.

9.13.12. Relationship between Social and Economic Sustainability Dimensions

As interviewee #3 describes;

“We calculate the number of hours we spent in training and evaluate the cost. Normally we calculate monthly how many hours for training, how many hours for lunch and other breaks during the training. We have to calculate the ROI.”

“The number of visits to the medical room and the medical cost (the costs of tablets and Panadol etc.). we are trying to maintain these in a lower level. And also, we calculate the knowledge, happiness and the satisfaction level. At the end of the day, all these things are linked to the financial measures”

However, as the interviewee #1 mentions their company is not looking that much into financial figures.

“Also, we don't do ROI on any of this because it has always been for us social reason for doing it primarily to. Somewhat financial reason for socially sustainable activities are retention of our employees, engagement of our employees and attraction of new employees.”

This depicts that the understanding of the relationship between economic and social sustainability is very lacking and it is an area needs to be improved.

9.14. Appendix 3 - The Survey Questionnaire

9.14.1. Effect of Economic and Social Aspects in Sustainable Supply Chain Management in Apparel Industry

I am a full time postgraduate research student reading for the Master of Science in Supply Chain Management in the Department of Transport & Logistics Management, Faculty of Engineering, University of Moratuwa. Currently I'm carrying out a survey on above topic where the focus is on studying the relationship between social and economic dimensions of sustainability aspects in the Sri Lankan apparel industry.

This survey aims to find about:

- 1) Social aspects considered in the Sustainability Dimension of Apparel Supply Chain in Sri Lanka
and;
- 2) Economic aspects considered in the Sustainability Dimension of Apparel Supply Chain in Sri Lanka

All the information collected from this survey will be used only for academic purposes and will be treated as strictly confidential.

I recognize the value of your time and gratefully appreciate your efforts in completing this questionnaire. For additional information about this survey, please do not hesitate to contact me (jayaishsudu@gmail.com).

1. To which category does your company belong to?
 - SME
 - Large scale

2. What is the business type of your company?
 - Apparel exporting company
 - Local Apparel Manufacturer
 - Both

3. What is your position in the company?

- Top Level management
- Middle Level management
- **Operational Level Management**

4. Please mark to which extent you agree with the following actions of your company (these actions can be directed either towards the company employees or society or both).

		Strongly Disagree	Disagree	Agree	Strongly Agree
	Company conducts social sustainability practices to ensure the benefits towards the society.				
	Company provides education, training and skill development opportunities to employees.				
	Company acts towards equity improvement (e.g. non-discriminatory actions within the company, ensuring diversity and providing equal opportunities etc.)				
	Company promotes gender related equity improvement (e.g. women are promoted to be leaders, gender equality is promoted, women empowerment actions etc.)				
	Company conducts ethical improvement practices (e.g. working against corruption, ethical behavior etc.)				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	Company works towards health and safety improvement (e.g. provides access to clean water and good food, Occupation Health and Safety concerns are addressed etc.)				
	Company ensures improves labor conditions (e.g. act against workplace violence, freedom of collective bargaining, good labor/management relations etc.)				
	Company acts against child and forced labor				
	Company acts understanding the regulatory responsibilities (e.g. accountable and transparent governance of the company, compliance to laws and regulations in the industry and country etc.)				
	Company provides improves wages and benefits (e.g. good wages and benefits to the employees and workers, equal remuneration etc.)				
	Company ensures better working conditions for employees and workers (e.g. childcare facilities, sustainable				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	transport facilities, housing options are provided)				
	Company ensures the economic performance (e.g. by higher retention of employees, higher attraction of new employees, good image, attraction of new customers etc.)				
Requirement fulfilled by the company					
1	Company provides emergency relief during disasters (e.g. during floods, draughts)				
2	Company provides access to healthy, nutritious and affordable food along with safe drinking water and sanitation facilities.				
3	Company provides opportunities for affordable housing				
4	Company provides transportation facilities to the employees (E.g. Employees are provided with staff transport, The company promotes less energy intensive transport modes such as train travel over private vehicle usage among the employees)				

		Strongly Disagree	Disagree	Agree	Strongly Agree
5	Company provides affordable and safe childcare services to employees				
Law and Ethics					
6	Company takes actions against corruption (E.g. The company does communication and training on anti-corruption policies and procedures. The company publicly states it will work against corruption in all its forms, including bribery and extortion.)				
7	Company complies with laws and regulations in the industry (E.g. The company has reduced the likelihood of groundwater contamination by treating and processing all waste with exceptional precaution, according to local and federal guidelines)				
8	Company has an effective, accountable and transparent governance (E.g. Conflicts of interest are avoided and managed, the company is obliged and responsible to give an explanation or reason for the company's actions and conduct- company has no complaints regarding breaches of customer privacy and losses of customer data, a willingness				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	by the company to provide clear information to shareholders and other stakeholders)				
9	The company sticks to ethics in its business practices. (E.g. The company has values, principles, standards and norms of behavior such as codes of conduct and codes of ethics, internal and external mechanisms for reporting concerns and seeking advice about unethical or unlawful behavior and make these policies into work)				
Health, Sanitation & Safety					
10	The company provides hygiene training and awareness along with sanitary facilities to its employees and the society. (E.g. Women employees and women in the community are given access to reproductive health services, Employees have access to free and voluntary HIV testing (either through their employer or public/community health systems).				
11	The company commits to invest in health infrastructure-related charity projects and capable of explaining the rationale behind that investment.				

		Strongly Disagree	Disagree	Agree	Strongly Agree
13	<p>The company has occupational health and safety policies and/or procedures and comply with the highest industry standards.</p> <p>(E.g. The company system monitors health impacts on the workforce - type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities etc., Workers are given access to Personal Protective Equipment (PPE) and training on its appropriate use and they use, Workforce is represented in formal joint management–worker health and safety committees that help monitor and advise on occupational health and safety programs)</p>				
Education and Training					
15	The company provides opportunities for employees and their children to continue their education.				
16	Company holds programs and processes to ensure the availability of a skilled workforce (e.g. on the job training)				
17	Company provides opportunities to improve employees' other skills (e.g. opportunities for entrepreneurships,				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	learning English, obtaining driving license)				
18	<p>The company takes sustainability initiatives to raise awareness, share knowledge and influence behavioral change, and has achieved results.</p> <p>(E.g. The company educates employees and consumers on the importance of using water efficiently, raises consumer awareness on effective ways to properly dispose of their waste to discourage littering and promote responsible behavior, educates consumers about sustainable consumption by developing innovative solutions which can reduce energy need in usage, transfers knowledge on best practice, and lessons learned)</p>				
Equality					
19	<p>The company has policies/programs promoting equal opportunities.</p> <p>(E.g. Company has policies stating that hiring, placement, remuneration, advancement, training, discipline, retirement, and termination decisions are based on objective factors and are not</p>				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	connected to gender, age, nationality, ethnicity, sexuality, race, colour, creed, caste, language, mental or physical disabilities, etc.)				
20	The company encourages employees to share or participate in organizational decision-making. (E.g. The company recognizes the right to freedom of association and the right of its workers to collectively bargain - to join any trade union)				
21	Company considers equal remuneration for women and men (e.g. Company gives explanation of source, nature and likely causes of any differences between women's and men's pay within the business)				
22	The company has a clear-cut, well-publicized policy of zero tolerance towards gender-based violence and harassment occurring in and around the workplace. (E.g. Sexual harassment, violence while traveling to workplace, including while carrying out livelihood tasks such as collecting water and firewood, alcohol-				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	related violence, Company has a confidential complaint procedure to address this)				
Gender Equality					
23	Company does not favor for the gender when making decisions (E.g. All the employees receive regular performance and career development reviews)				
24	The company has taken corrective actions during the incidents of discrimination. (E.g. Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms)				
25	Company gives opportunities for women to climb up the career ladder (E.g. Women employees are comfortable voicing their opinions about any unequal treatment in the company. Company gives opportunity to the representation of women in management positions, skilled positions, unskilled positions, trade unions, workers' committee and/or associations of the company)				

		Strongly Disagree	Disagree	Agree	Strongly Agree
26	Company empowers women through technology (e.g. Company provides information and communication technology knowledge for women)				
Labor Policies					
27	Company has taken measures to contribute to the effective abolition of child labor				
28	Company has taken measures to contribute to the effective abolition of forced or compulsory labor. (Forced or compulsory labor is any work or services which people are forced to do against their will under the threat of some form punishment)				
29	Company has aligned its policy/code that addresses labor rights and standards along the value chain. (E.g. The company aligns with the customer requirement related to labor practices, demonstrates consistent practices for informing and/or training workers on their rights under national labour and employment law, Company labour practices have created significant				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	actual and potential negative impacts in the supply chain and taken actions to mitigate them)				
Other social aspects					
30	<p>Company builds partnerships to improve social sustainability</p> <p>(E.g. The company is working with other groups such as governments, community groups, peer companies and NGOs to improve local water governance or on water projects to address identified challenges)</p>				
31	<p>The company develops quality, reliable, sustainable and resilient infrastructure to support economic development and human well-being.</p> <p>(E.g. Company invests in water and sanitation projects or infrastructure in under-served regions. When developing their own factories, they consider accessibility of disabled people, company building wells and tanks in the neighborhood, Company invests in water treatment so that municipal treatment facilities are not overburdened by industrial waste-water, Company invests</p>				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	in natural infrastructure as a cost-competitive alternative to grey infrastructure.)				
32	<p>Company encourages innovation and research related to social sustainability</p> <p>(E.g. The company implement product portfolio analysis tools to understand social footprint of products within lifestyles as well as production. Innovations of the company align products and applications to appropriately address sustainability mega trends. Company invests in R&D related to sustainable energy services, bringing new technologies to the market quickly to make living better. Establish standards and promote regulation that ensure company projects and initiatives are sustainably managed.)</p>				
Economic growth					
33	Company image has been improved through social activities				
34	Company profits have been increased through social activities				
Employment opportunities					

		Strongly Disagree	Disagree	Agree	Strongly Agree
35	Potential employees are highly attracted to the company compared to other companies in the industry				
36	Company's employee turnover is low compared to other companies in the industry				
37	More youth is attracted to the jobs in the company				
38	Employee engagement is encouraged. (Employees happily join with the company's social initiatives with an aim of giving back to society.- e.g. Volunteering work)				
Customer Base					
39	New customers are attracted to the company compared to other rival companies in the industry				
40	Existing customers are happy with the company's socially sustainable approach				
Economic productivity					
41	Company is planning to increase its investment or volume of trade				
42	Company negotiates wage and benefits standards through collective agreement				

		Strongly Disagree	Disagree	Agree	Strongly Agree
	along the value chain (e.g. Minimum wages along the value chain)				
43	Full time, part time and temporary employees are satisfied with the benefits provided by the company				