ABSTRACT

Cesca, Lynsey Anne, Economic Competitiveness in the Global Textile Supply Chain: Examination of Logistics Cost Structures. (Under the direction of Dr. Nancy Cassill and Dr. Michelle Jones).

The purpose of this research was to examine the logistical cost structures along the global textile and apparel supply chain and their relationship to competitive advantage, strategy, performance and overall economic competitiveness. The topics were developed in accordance with the model proposed in Logistics, Strategy and Structure: A Conceptual Framework written by Stock, Greis & Kasarda in 1999. The research focused on the supply chains within the US Bed-bath and Bottom weights markets with companies using purely domestic, global and mixed strategies. A sample group involving US retailers, US/US manufacturers, US/US-Offshore manufacturers and sourcing agents was chosen for each market. As part of a collaborative research study focusing on economic competitiveness, a questionnaire was developed and administered during information interviews to the selected sample. Section II of the survey posed questions directly dealing with logistics costs, competitive advantage, strategy and performance.

With regard to logistics costs, the research sought to determine the most significant costs, as pertaining to the textile and apparel supply chain, as well as define them. It also examined each logistics cost structure and its relation to the finished product cost. Regarding competitive advantage, the research was used to provide and verify a definition. It also determined the advantages resulting

from the use of specific logistical chains and cost optimization plans with their relationship to economic competitiveness. The research was also used in order to determine whether there was a relationship between logistical cost structures and economic competitiveness in terms of strategy and performance.

Companies used for the information interview process were selected on the basis of annual sales and growth rates from 1999-2003, reputation, sourcing strategies and product mixes. The finalized sample contained 18 companies with 33 total respondents having an average of 25 years of experience. Four trips were made in order to individually interview executives from each sample company; each to Hong Kong, New York City, Miami and a driving trip of the Southeastern US.

ECONOMIC COMPETITIVENESS IN THE GLOBAL TEXTILE SUPPLY CHAIN: EXAMINATION OF LOGISTICS COST STRUCTURES

by

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BIOGRAPHY

The author, Lynsey A. Cesca, was born in Manchester, Connecticut on October 29, 1978. She is the daughter of Ken and Susan Cesca. Lynsey grew up in Cheshire, CT and attended Cheshire High School. After graduation in 1996, Lynsey moved to Raleigh, NC in order to attend North Carolina State University. After many years of hard work and dedication, she achieved a Bachelors of Science in Textile and Apparel Management from the College of Textiles in 2002. Upon graduation, Lynsey worked for Martin & Jones Law Offices in Raleigh, NC as an Office Assistant. In the fall of 2003, Lynsey returned to North Carolina State University in order to pursue a Masters of Science degree through a fellowship from the Institute of Textile Technology. She is currently completing the requirements for her graduate degree in Textile Management and Technology. Lynsey has accepted a job offer with Abercrombie & Fitch in Columbus, OH where she will pursue a career in textile and apparel sourcing.

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I would like to extend my gratitude to Dr. Nancy Cassill and Dr. Michelle Jones for their continuing guidance and support throughout this research process. I am truly grateful to have worked with such wonderful mentors on this project from whom I have learned so much. Their guidance has helped me grow, not only as a student, but as a person as well. I would like to thank the staff, especially Dr. Gilbert O'Neal, Christopher Moses and Patrice Hill, as well as the membership and alumni of the Institute of Textile Technology for the financial and emotional support they have provided during this thesis project. I would also like to express my appreciation to Dr. Robert Barnhardt and Dr. George Hodge for participating as committee members. Dr. Barnhardt provided an industrial point of view in order to make this research truly relevant to the textile and apparel industry. Dr. Hodge's insight into this research has enabled me to create a much stronger logistical study.

I would also like to thank Hope Nowell and Michael Jones, the additional two researchers in this collaborative economic competitiveness study. Their support, friendship and laughter have gotten me through many long days and nights. This research project would not have been possible without their dedication and hard work over the past two years. I will always hold them close to my heart and look back upon this time with them with great fondness.

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CHAPTER I

INTRODUCTION

Research Problem

"The textile supply chain is experiencing deflationary price trends making cost reduction not just a fad but a key to survival" (Singhal, 2004, pg. 1). Arvind Singhal's paper, presented to the Annual Conference of the International Textiles Manufacturers' Federation, identified three distinct areas where cost reductions are critical to the supply chain: manufacturing, business process costs and logistics costs. Included in the body of the paper was a discussion of each cost and the resulting benefits of their reduction. The textile value supply chain can optimize their costs by concentrating on operational excellence, collaborating with partners and innovation with a focus in the areas of logistics and sourcing (Singhal, 2004).

Prior research on cost reducing strategies failed to include the effect of logistical costs with their analyses of traditional costs such as manufacturing and business process costs. Therefore the focus needs to fall not only on minimizing costs, but relying upon logistical costs specifically within the supply chain. This is an area that has not received attention in past cost reduction analysis; therefore it has a larger opportunity for optimization. Figure 1 shows the potential for supply chain optimization and lowered logistics costs. However, the report reveals that using the supply chain cost structure to gain competitive advantage is at the bottom of the list for many companies (Deloitte, 2003). Logistics cost optimization, especially within the textile and apparel supply chain, should be seen as valuable to both the manufacturers and retailers. This is because logistics costs increases the initial cost

of finished goods. Therefore, when there is a logistics cost increase, the companies involved in the supply chain begin to try to find ways to decrease their final cost by optimizing manufacturing and business process costs. This ultimately results in pressure put on each supplier within the supply chain to reduce their selling cost to the next upstream company. Therefore when logistics costs are not optimized, it results losses, not just for one supplier, but for the entire chain.

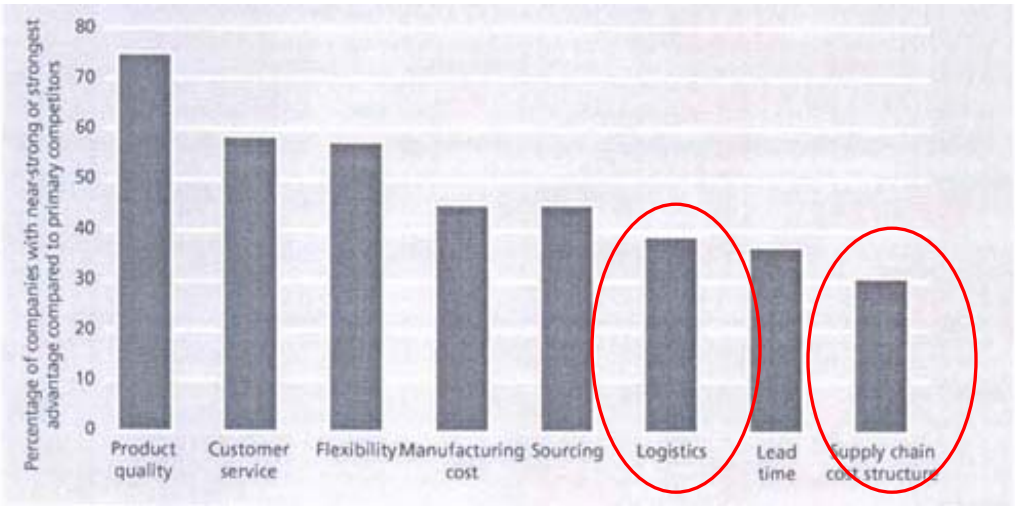


Figure 1. Deloitte Benchmarking Report: Competitive Advantages

Source: Deloitte Benchmarking Report. *Global Manufacturing: Powering Profits and Growth through Value Chain Synchronization*. 2003.

Figure 2 is a pictorial depiction of what this thesis study is investigating and the relationships it evaluates. The main research question addresses why US companies have had limited success in their foreign ventures. It can then be narrowed to address one of the root causes of this partial success; cost issues. Therefore the more narrow focus of this research becomes costs and the how manufacturers control them. This relates to Singhal's postion that there are three areas in which to control manufacturing and sourcing cost structures to gain a

competitive advantage. This study focuses one of the costs mentioned, logistics costs, and how the relationship of those costs to the global supply chain can be manipulated in order to produce a competitive advantage. The research assesses those logistical and supply chain competitive advantages and their relationship to a firm's economic competitiveness, performance and strategy.

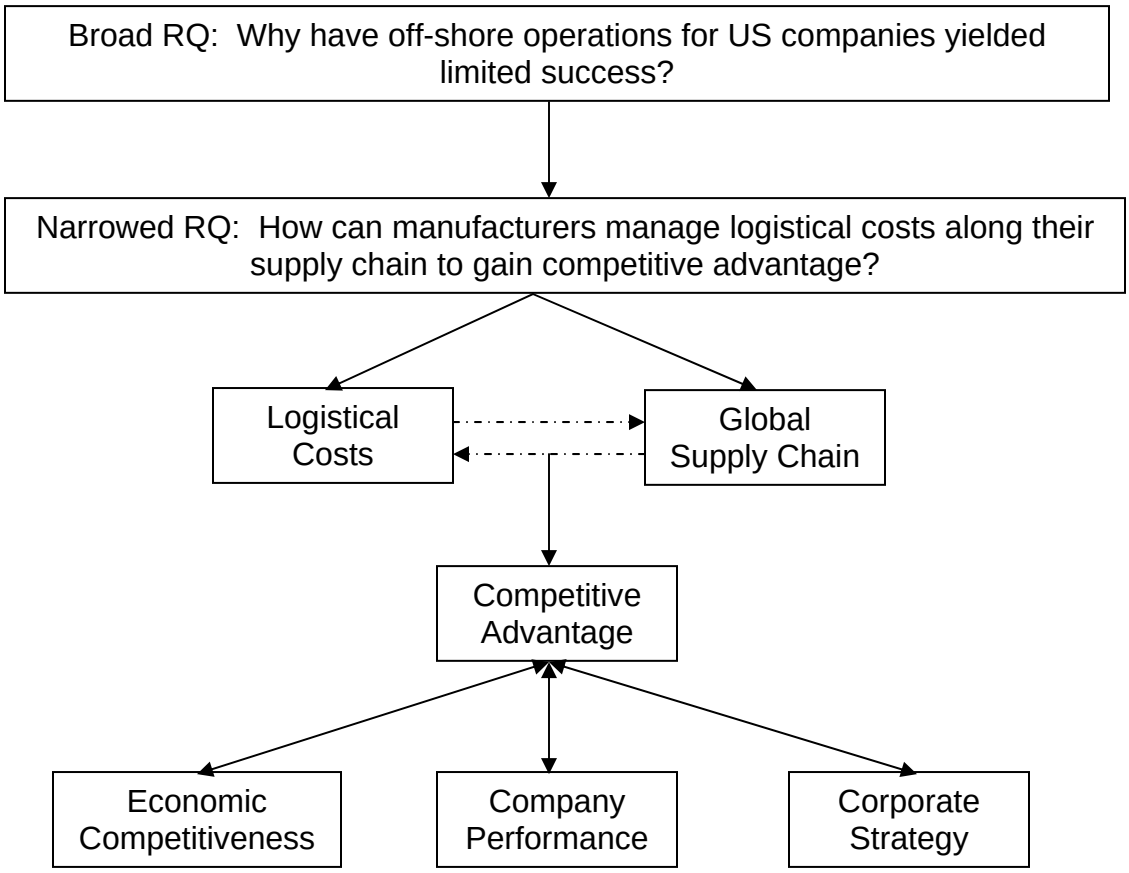


Figure 2. Visual Depiction of Research Problem and Investigation Areas

Source: Cesca, 2004.

The visual depiction explains that competitiveness, performance and strategy are the most important factors in determining competitive advantage. This runs in tandem to the model presented by Stock, Greis and Kasarda (1999) which looks at performance and strategy as they relate to the competitive environment.

Purpose of Research

The purpose of this research was to examine the logistical cost structures along the global textile and apparel supply chain. The study then determined the differences between the textile and apparel companies' supply chains as they pertained to the handling of their logistics. The research focused on the supply chains within the US Bed-bath and Bottom weights markets with companies using purely domestic, global and mixed strategies. It defined the associated cost variables and structures within each chain. Once these cost structures were understood, the research was used to determine possible competitive advantages for each model through optimization of logistics costing. This research determined if a link exists between logistics costs and corporate strategy and corporate performance, and how these three factors resulted in increased economic competitiveness within the textile and apparel arena for United States manufacturers.

The research answered the following questions:

1. What are the logistics costs associated with the textile supply chain for the Bed-bath and Bottom weights
2. How are these costs managed along the supply chain in order to create specific structures for particular companies?
3. Are these cost structures different in different markets, such as:
    a. Bed-bath Market
    b. Bottom weights Market
4. What types of competitive advantages are specific cost structures providing?

a. What types of cost leadership can be gained?

b. How do costs fit together to create different types of value added?

5. How does a company use their cost structure to compete economically? What competitive advantages are they looking for?
6. How does a company control their cost structure to fit their strategy? How does a company use their strategy to determine their optimal logistical cost structure? Or do they use their cost structure to formulate their strategy?
7. How does a company's logistical cost structure relate to their performance?
    a. What makes a company classify their performance as good or poor; what is their definition of performance?
8. Is there a logistical contingency plan in place to account for problems along the way?
9. Do companies use a quantitative model for investigation into their logistical costing?
10. Is there a way for industry companies to benchmark, for logistical cost structures, against their competition?

Research Objectives

The following are the main research objectives that will be used for this study:

RO1: To examine logistics costs in terms of:

RO1A. The percentage represented in the finished product cost. (RQ1)

RO1B. The global textile and apparel supply chains. (RQ1)

RO1C. Cost structure management. (RQ2 & RQ3)

RO2: To examine competitive advantage in order to:

RO2A. Provide and verify a definition. (RQ4)

RO2B. Determine the advantages of specific logistical chains and costs. (RQ4 & RQ5)

RO2C. Determine the relationship to economic competitiveness. (RQ5)

RO3: To determine if there is a relationship between logistical cost structures and economic competitiveness in terms of:

RO3A. Strategy (RQ6)

RO3B. Performance (RQ7)

Significance of Research

This study provided in-depth analyses of logistics costs along the global textile and apparel supply chain. "Total logistics costs often represent a large portion of total supply chain costs, especially when the supply chain is extended to the global market" (Zeng, 2003, pg. 786). This is important because previous studies have shown that logistics costs represent from "4-30% of sales" and therefore as logistics costs surge, they may reduce profit margins (Zeng, 2003, pg. 786).

This research also provided industry with different ideas to use in order to gain a competitive advantage. This is essential because the industry needs to understand the range of competitive advantages available in order to determine which one will fit best with their business plan. The research also provided a formal definition of economic competitiveness, which is a vital concept to the industry. By having a common definition, it established the standard by which companies can analyze their business plans.

The research found a relationship between logistical cost structures, corporate strategy and performance. The finding was important because it illustrates to the US textile and apparel manufacturers that optimized logistical cost structures will result in improved strategic decisions therefore enhancing corporate performance.

The study provided the industry with a preliminary means by which to benchmark themselves against their global competitors, as well as competitors in the US. It was important because companies will be able to identify where they stand among industry leaders and then use that knowledge to move forward.

The research is beneficial because “the end of quota will lead to a shake-up in sourcing bases of the retailers. Entry of more players in the global market will mean further pressures on prices” (Singhal, 2003, pg. 2). Therefore, logistics cost optimization is even more important now to textile and apparel manufacturers because of consolidation of the manufacturing base. It is necessary to optimize logistics costs in order to enhance speed and keep prices competitive.

Therefore in order to continue to stay competitive, United States manufacturers must rethink their strategy pertaining to their supply chain and logistical costs. The research provides vital information as it pertains to logistics costing, competitive advantage, strategy and performance and the enhancement of each.

Limitations of Research

There were three main limitations in this thesis study and they are the following:

Scope of Study

The study only focuses on the Bed-bath and the Bottom weights markets. While these two product categories represent a significant portion of US companies' products, results are not able to be generalized across to all other product categories.

Sample Size

In order to more feasibly interview respondents from the two markets, a sample selection was made. The narrowing of the sample resulted in the researcher being unable to sample the entire population of both market segments.

Respondent Behavior

Some companies were unwilling or unable to share their financial data, in terms of logistics costs and percent allocations, with the interviewee. They were either unwilling to share corporate information in the form of financials or were bound by a confidentiality agreement.

CHAPTER II

REVIEW OF LITERATURE

This review of literature showed the relationship of the selected conceptual models to domestic and global supply chain management while focusing on the area of logistical operations and cost structures. Methodologies for developing a survey or questionnaire for this type of mixed methods research were also reviewed. It evaluated existing literature focusing on economic competitiveness in terms of logistics, strategy, performance and competitive advantage. Supply chain models within the literature for the textile and apparel fields were analyzed. Within those chains, logistical costs were identified. Finally, after a review of prior art, an overview of the Bed-bath and Bottom weights markets is provided.

Conceptual Models

The main conceptual model provided a framework for reviewing the relationship between supply chains, economic competitiveness, strategy and performance. The other models offered a method for reviewing the relationship of the cost variables to strategy, as well as providing a method for quantification.

A framework was found in Logistics, Strategy and Structure: A Conceptual Framework written by Stock, Greis and Kasarda in 1999. This model showed the relationship of economic competitiveness to strategy and performance while using logistics as a means of bringing these ideas together through a conceptual model (Figure 3).

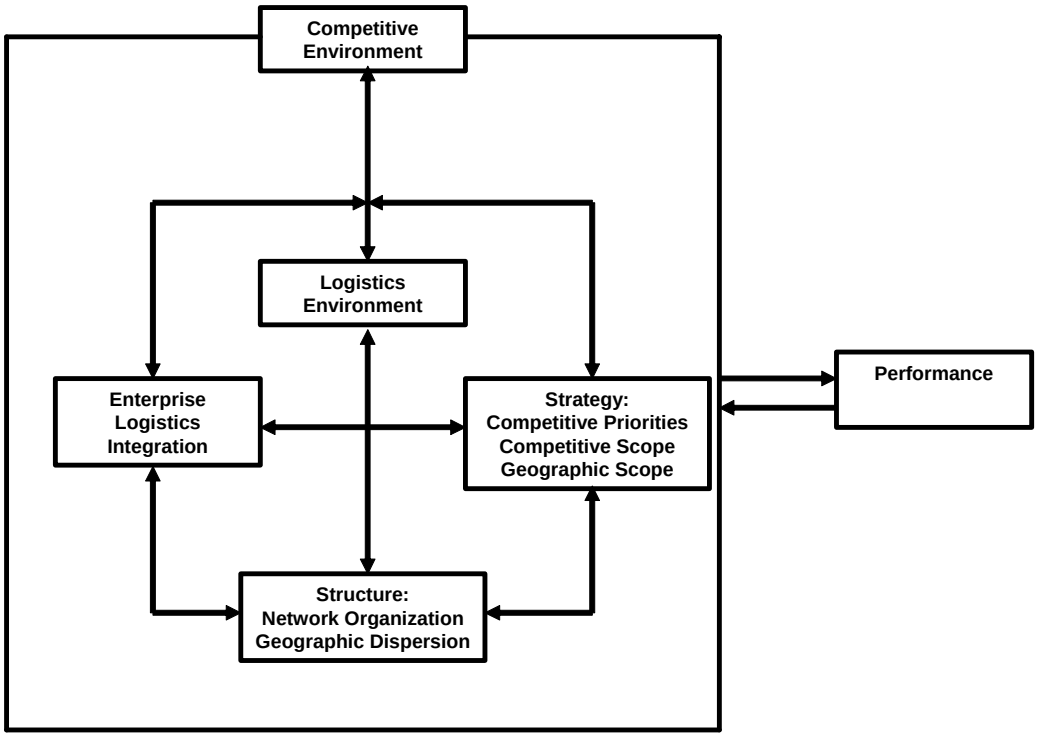


Figure 3. Logistics, Strategy and Structure: A Conceptual Framework

Source: Stock, Greis & Kasarda. Logistics, Strategy and Structure: A Conceptual Framework. *International Journal of Physical Distribution & Logistics*. 1999, pg. 226.

The objective of the paper was to "develop a conceptual model of production that explicitly recognizes the emerging role of logistics in bridging new manufacturing strategies and organizational structures that have evolved in response to new competitive pressures" (Stock, Greis, & Kasarda, 1999, pg. 224). The research was conducted with $[TC]^2$ in the areas of competitive environment, strategy and structure. After careful scrutiny of all prior art, it was determined that a new conceptual framework needed to be devised in order to take into consideration the importance of the logistics environment. The authors claimed that "the logistics environment may (then) be conceptualized as a set of choices available to firms within an industry that relate to areas of logistics activities, such as transportation, warehousing, purchasing, and management techniques. The advantage (that) a firm may have in

logistics derives from the extent to which it possesses these logistics capabilities relative to those of the other firms in the industry" (Stock, Greis, & Kasarda, 1999, pg. 227).

A framework for conducting research, empirically, to show how logistics can provide a competitive advantage was then proposed by Stock, Greis and Kasarda. "The framework links a firm's strategy, structure and logistics capabilities and their influence on performance with in the constraints of the industry's competitive and logistics environment" (Stock, Greis, & Kasarda, 1999, pg 226).

An information interview was conducted with Noel Greis, the Director of the Center for Logistics and Digital Strategy at Kenan Institute of Private Enterprise at the Kenan-Flagler Business School in Chapel Hill. Dr. Greis stated that the goal of this model was to help make US manufacturers more competitive (personal communication, September 8, 2004).

The focus of the model was logistics, with three main factors considered: speed, coordination and synchronization. The model proposes that "market forces (or the competitive environment) shape the formulation of and implementation of a firm's strategy (at both the business and manufacturing levels) and its organizational structure" (Stock, Greis, & Kasarda, 1999, pg 224). Dr. Greis agreed that the focus of this research used logistics as a midpoint in order to bridge the gap between performance and strategy; that logistics is an integrator of strategy, performance and competitive advantage (personal communication, September 8, 2004).

From the Stock, Greis and Kasarda (1999) model, the review of literature led to Developing a Framework for Evaluating the Logistics Costs in the Global Sourcing

Process by Zeng and Rossetti in 2003. A five-step evaluation framework and implementation procedure was presented using a case study at a leading firm in the US aviation industry. The framework identifies the key logistics cost categories and also suggests a method for quantification (Zeng & Rossetti, 2003). This paper took the logistical cost model a step further by providing a framework for quantification.

The companies for the study were selected and their backgrounds and histories were examined, along with their business relationships and their global logistics systems. A literature review was then conducted in order to look at all existing information on logistics cost analysis. Then the resultant logistics costs categories from the case study were defined and discussed. They were the following: Transportation, Inventory holding, Administration, Customs charges, Risk and Damage, and Handling and Packaging, all of which are used in this current thesis research. The research applies these costs to the supply chain for the Bed-bath and Bottom weights markets in the textiles and apparel industry, as opposed to the aviation industry that Zeng and Rosetti used to conduct their study.

A third framework reviewed was the Total Cost Hierarchy model by Joseph Cavinato (1992). This paper introduced a different approach to traditional costing systems. It claimed that “all costs and factors that affect costs and create value should be captured in a total cost/value model” (Cavinato, 1992, pg. 293). It discussed 20 different cost factors that can be used in order to optimize costs, value and the overall supply chain. The model gave a “core approach for product costing that is useful in special studies as well as ongoing operations” (Cavinato, 1992, pg. 299). Therefore, it is used in this thesis as a framework for looking at the

relationship between costs and supply chain structure. The difference being that Cavinato applied his model using ten different cost factors, whereas this research is only interested in logistical cost factors.

The author summarized the model as an approach for firms to use to enhance interfirm dealings, as well as the supplier and customer relationship. Cavinato stated that the competition is against other firms' complete supply chains, not among entities within the chain.

"The lack of proper metrics for a supply chain will result in failure to meet consumer/end user expectations, sub optimization of departmental or company performance, and missed opportunities to outperform the competition, and conflict with the supply chain" (Lambert & Pohlen, 2001, pg. 1-2). Listed are seven steps for creating a framework to analyze the performance of key business processes across multiple companies.

Upon further review of the literature, *Combining Quantitative and Qualitative Methodologies in Logistics Research* by Mangan, Lawani and Gardner (2004) was found. This paper described how valuable it was to use a conceptual framework, which encompassed both quantitative and qualitative methodologies, when researching logistics.

The final two pieces of literature reviewed were applicable to the development of a survey or questionnaire for the purposes of conducting information interviews. Bruce and Daly (2004) conducted exploratory research on lean manufacturing in textiles and apparel where a qualitative approach was chosen in order to map out

supply chains and to gain insight into the management of those chains (Bruce & Daly, 2004, pg. 157).

Bruce and Daly (2004) laid out a methodology that would be applicable to this thesis study. It proposed the following steps, which have now been adapted to fit the proposed research:

1. Conduct semi-structured interviews with key stakeholders in the sector, such as the top market share holders in the Bed-bath and Bottom weights markets.
2. In order to determine the key stakeholders:
    a. Conduct secondary research by looking at company reports and industry websites.
    b. Determine the most important factors as it pertains to market share and use to determine who the key players are. Some factors might be: sales, growth rate, product mix and uniqueness.
3. Then select the most relevant employees to interview, for this study it would be the sourcing managers and the logistics managers.
4. Contact the managers by letter first explaining the purpose of the research and asking for co-operation.
5. Contact the managers by phone in order to provide more details and arrange the interviews.
6. Conduct structured interviews using an aide-memoire in order to allow for comparisons to be made and for flexibility in responses. An aide-memoire is “a written summary or outline of important items of a proposed agreement or diplomatic communication” (Merriam Webster online, 2004).

a. These interviews should be tape-recorded in order to allow for a transcript to be typed.
b. After the transcript is finished it will be held by the researcher and also sent back to the interviewee.

7. The interviews will then be scrutinized in order to see common trends and flows. It will also be reviewed in order to find uncommon or random factors for comparison or identification of unknown logistics costs.

(Adapted from Bruce & Daly, 2004, pg. 157)

The importance of this paper was that it conducted exploratory research in the areas of logistics costing and supply chain issues. This thesis study follows prior research with causal and descriptive research.

The article *Cost Efficiency in Supply Chains – A Conceptual Discrepancy? Logistics Cost Management between Desire and Reality* by Kotzab and Teller (2002) provided a good methodology for development of a questionnaire, if an aide-memoire is chosen. The methodology has been adapted to this thesis research.

1. A questionnaire with logistics questions and also company-oriented questions will be developed.
2. Determine companies to be interviewed by looking at market shares, sales, percent growth, product mix and uniqueness within bed-bath and Bottom weight markets.
3. Mail out to targeted respondents, logistics managers or person responsible for logistics within that company.
4. Receive questionnaires back and determine which will be analyzed.

5. Review questionnaires and decipher any pertinent information received.

(Kotzab & Teller, 2002)

After careful review of the prior art, it was determined that this thesis study is feasible and does not encroach upon any previous studies but simply evaluates preceding ideas.

Logistics Costs

Logistics can be defined as "a process of operation that includes the purchasing, storing, transporting, and distributing of physical goods" (Gunasekran & Ngai, 2003, pg. 826). There are two types of logistics: social and corporate. Social logistics relates more towards group dynamics within the workplace. Corporate logistics was more relevant to this study and includes supply logistics, production logistics, sales logistics, reverse logistics, and disposal logistics (Gunasekran & Ngai, 2003).

Jeannette Sullivan of PriceWaterhouseCoopers spoke of logistics and sourcing models at the American Textile and Machinery Exhibition. She said that "Logistics, access to supplies, transit time and labor costs have equal importance in sourcing models" (Sullivan, 2004).

Mark Neuman, Counselor for Trade and Global Strategies for the Limited Brand, agreed and stated that "labor costs are not the biggest factor in retailing decisions. Innovation, product development, execution, delivery time, fashion focus, and speed are just as important, if not more so" (Neuman, 2004, pg. 8).

In order to understand how delivery time and speed to market can be optimized in the supply chain, the cost of logistics must be identified. Therefore the

concepts of logistics must be understood as well as the types of costs ascertained. Other items must be taken into consideration such as hidden costs and root causes of the known and unknown logistics costs. Finally, they must be compared with other companies in order to determine what is missing in order to make the study more complete.

Kotzab and Teller provide three concepts of logistics:

1. Operative Understanding: simple transportation/inventory/handling processes.
2. Tactical Managerial Understanding: management of the total flow of goods and related services within a company and between their customers and vendors.
3. Strategic Network Perspective: value-added inter-organizational flow management. (Kotzab & Teller, 2002)

The third concept directly applies to this thesis study as it described an area of logistics in the supply chain that has the qualities of being more end-user oriented and more cooperative with an inter-organizational strategic management philosophy that would have a positive effect on the overall performance of the total supply chain (Kotzab & Teller, 2002).

Within the realm of an end-user oriented supply chain, there are six main categories of logistics costs as pinpointed in the paper, *Developing a Framework for Evaluating the Logistics Costs in the Global Sourcing Process* (Zeng & Rossetti, 2003). Author Lowson (2003) in *Apparel Sourcing: Assessing the True Operational Cost,* stated that it is equally as important to identify and understand, then quantify the hidden costs and costs of inflexibility of the supply chain, aside from the

traditional logistics costs. These components interrelated and resulted in an important determining factor; the inflexibility costs.

After all costs were determined, traditional and unexpected, it was important to look at the possible root causes for each. Ayers provided several possible root causes for costs along the chain as well as barriers in addressing them: lack of focus, confusion, ineffective motivators, boundaries, rigidity (Ayers, 2003).

After the costs and root causes were identified, it was important to benchmark these factors against other companies in order to determine if there were items missing. Roberts (2003) in his presentation *Supply Chain Management: New Directions for Developing Economies* included barriers to efficient supply chains in developing countries. Finally, Roberts also listed the logistics costs that developing countries are trying to minimize.

These aforementioned cost categories, root causes, and barriers can be found in Table 1.

Table 1. Logistics Costs: Categories, Causes, and Barriers

Main Logistics Cost Categories	Costs of Inflexibility/ Hidden Costs	Root Causes of Logistics Costs	Barriers to Optimized Logistics Costs	Main Logistics Costs for Developing Countries
Transportation		Lack of clarity	High interest rates	Ordering, loading & unloading
Inventory holding	Inventory at particular supply pipeline stages	Variability	Less competitive markets	Capital carrying in transit & storage
Administration	Customer service level	Product design	Lack of market information	Storage costs
Customs charges	Supplier service level	Lack of information sharing	Poor transportation infrastructure	Safety stock carrying charges
Risk and damage	Supplier process time	Weak links	Poor communication infrastructure	Loss & damage
Handling and packaging		Unintended consequences	Slow & ineffective court systems	Spoilage due to shelf life
			Tax distortions	Transportation charges
			Counterproductive transportation regulation	

Source: Zeng & Rosetti, 2003; Lowson, 2003; Ayers, 2003; Roberts, 2003; Cesca, 2004

Goh and Ling wrote about the failures occurring within the logistics infrastructure in China: the transportation networks, telecommunications systems, customs procedures and warehousing facilities (Goh & Ling, 2003, pg. 889-913). This paper provided good insight as to how and where the US logistics frameworks can compete against China. With an understanding of both of these papers, this research was able to consider other areas where developing countries, usually the low cost leaders, are ill-equipped to compete. These ideas are further investigated in order to generate possible competitive advantages.

In a comparison by Gunasekran and Ngai, they discussed the merits of using a 3rd Party Logistics supplier in Hong Kong and what that company will provide. It was a good overall review of what companies need to look for in their logistics suppliers, or implementations that they can make within their own companies. It also showed the importance of strategic alliances among firms in their logistics

coordination. Finally, the article provides five corporate logistics areas to study which served as a good starting point in the survey development of this thesis: transportation, warehousing, inventory management, order processing/Information system, and packaging (Gunasekran & Ngai, 2003, pg. 883).

This literature review found many areas of logistics costs to consider and research. However, these logistics cost categories, causes and barriers were never further researched by prior art to determine their validity.

Economic Competitiveness: Strategy, Performance and Competitive Advantage

"Everyone is looking for cost-cutting in their supply chains and reductions in costs in inventory, so managing that inventory investment is critical" (Kay, 2003, pg. 2). A review of the literature shows that logistics is a key component to improving strategy and performance and therefore gaining competitive advantages. These factors will then improve the economic competitiveness of the firm as a whole.

In the article *Where Should You Invest?*, the author Kay (2003) pinpointed that "the potential for reducing costs...is still substantial for many companies, and can provide them with tremendous competitive advantage…" This article stressed the importance of inventory management to the supply chain and cost savings as a competitive advantage. Harrington agreed in his article, *Logistics, Agent for Change: Shaping the Integrated Supply Chain* by saying that "these companies are encouraging logistics to play a key roll in helping them become more competitive in the global marketplace" (Harrington, 1995, pg. 34).

Further review of literature found Michael Porter's Generic Strategies (1980) which shows the relationship between differentiation, cost leadership and strategic advantage. A graphical representation of this relationship is shown in Figure 4.

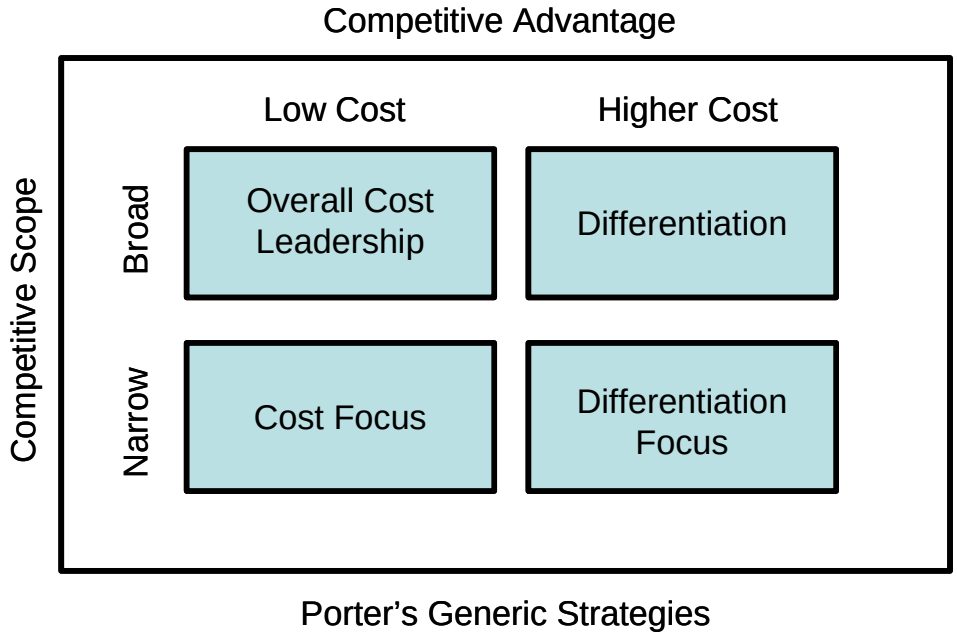


Figure 4. Porter's Generic Strategies.

Source: Adapted from Michael E. Porter, The Competitive Advantage of Nations. (New York: The Free Press, 1980), pg. 39.

This model linked logistics to strategy and competitive advantage in order to create value for companies. Many companies use the cost leadership strategy by becoming the low cost supplier in their field. However, there can only be one low cost leader. Other companies need to be able to create a differentiation for themselves. Logistics costs, in the form of reduced lead-times, flexibility and speed to market, create a competitive advantage. Chin, Tummala, Leung and Tang (2004) agreed with Porter (1980) and used the relationship of competitive advantage to strategy as a basis for their *Study on Supply Chain Management Practices: The Hong Kong Manufacturing Perspective* (Chin, Tummala, Leung & Tang, 2004, pg.

505-524). This paper provided a case study that examined the success factors in developing and implementing supply chain management strategies for Hong Kong manufacturers. It provided some insight as to whether Hong Kong manufacturers are practicing these factors in their strategies and whether it led to their success. The factors are: 1) Building customer-supplier relationships; 2) Implementing information and communication technology; 3) Re-engineering material flows; 4) Creating corporate culture; and 5) Identifying performance measures (Chin et al, 2004, pg. 506).

From the factors listed above, re-engineering material flows was considered the same as logistics and found to be a key in reducing inventory levels and network design. The paper claimed that "effective management of materials flows in the supply chain is the most imperative strategic success factor" (Chin et al, 2004, pg. 509). Logistics was linked to competitive advantage through differentiation while encompassing strategy and performance.

Supply Chain

In the article, *Logistics: Shipping the Goods*, Pang (2004) described the difference between logistics and supply chain for readers. "Supply chain management is a means of managing a business while logistics is a category that needs to be optimized for efficient supply chain management" (Pang, 2004, pg. 44). In order to understand logistics, the overall supply chain must be scrutinized first.

Colman (2003) went on to say how important supply chain management is in optimizing a business for competitive advantage. His article explained that a company should use their supply chain, specifically, as a means for competitive

advantage. This study solicited and then received over 600 responses from 22 countries. After an analysis of the responses, it was determined that management of the global supply chain was a determining factor in a company's success. The study revealed that only "7% of companies surveyed are effectively managing their supply chain (and therefore) profit margins are 73% greater than other manufacturers" (Colman, 2003, pg. 8). The study also provided the three factors that help companies differentiate themselves from others as the best. They are the following: collaboration with customers, product management and introduction, and implementation of technology within the customer, product, and supply chain operations (Colman, 2003). The report was recently released from a global manufacturing benchmarking initiative, *Mastering Complexity in Global Manufacturing: Powering Profits and Growth Through Value Chain Synchronization.*

In order to use the supply chain to boost profits and add value to a company, one must truly understand every aspect of the chain, including the overall structure. The company must be able to identify which chain is representative of their business model. A review of existing supply chain models was conducted in order to identify value chains specific to the textile and apparel industry. It looked at global chains versus domestic chains. It is also reviewed chains specific to logistics, apparel manufacturers and retailers, and textile manufacturers and retailers.

Supply Chain Models

A generic supply chain model that can be used for the purposes of this research is presented in Figure 5 (Chandra & Kumar, 2001, pg. 290). It looks at the relationships between the suppliers, manufacturers, distribution centers, retailers and customer zones.

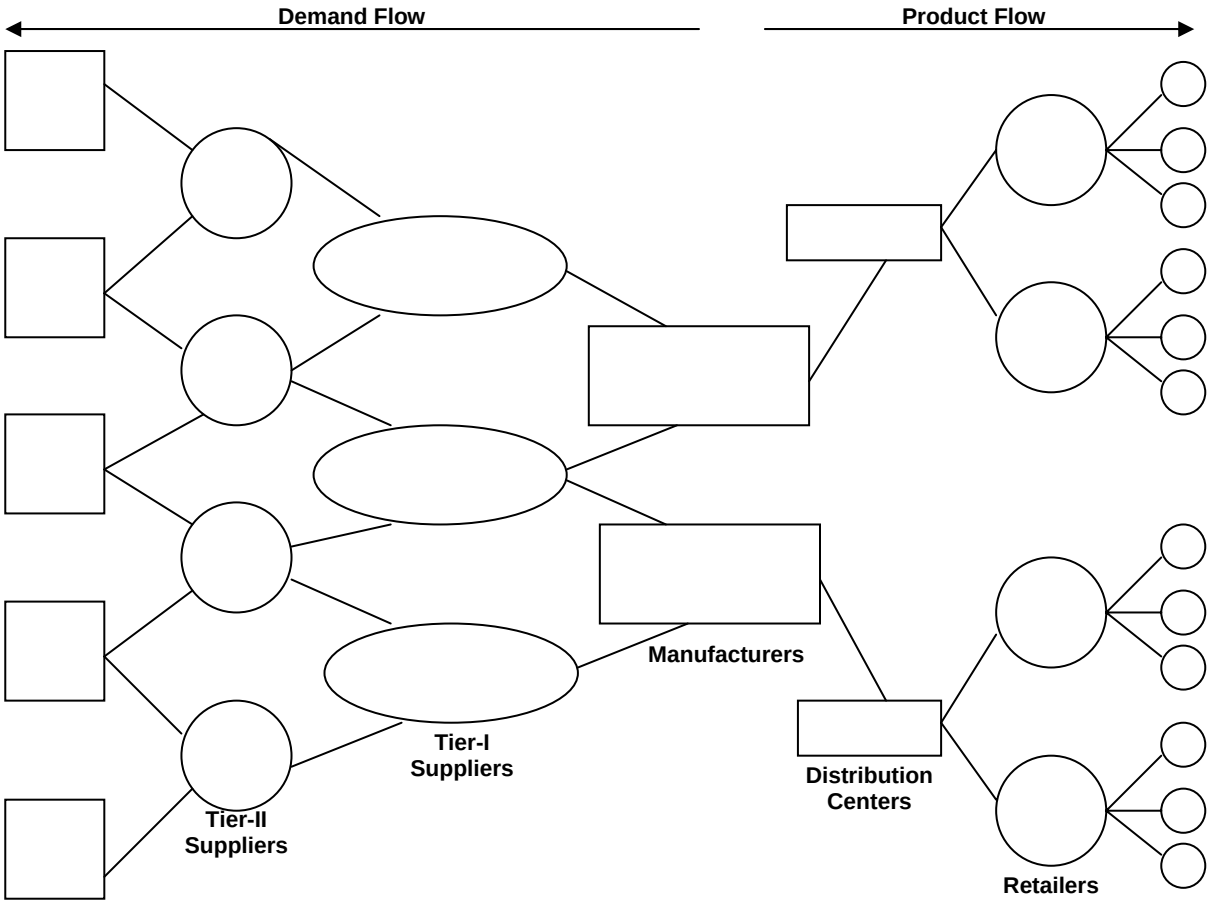


Figure 5. Textile and Apparel Supply Chain Model

Source: Chandra, C. & Kumar, S. (2001). Enterprise Architectural Framework for Supply-Chain Integration. *Industrial Management & Data Systems*, 101(6), 290.

A supply chain is defined as a network of members formed by autonomous entities bonded together in order to provide goods and services to the consumer. From Figure 5, it can be seen that for the textile and apparel sector, this supply chain can be extensive. Through the coordination of information and material flows, plant operations, and logistics, this network can work more effectively. The result is a reduction in lead times and costs which ultimately results in an improvement in the overall performance of each member (Chandra & Kumar, 2001, pg. 290).

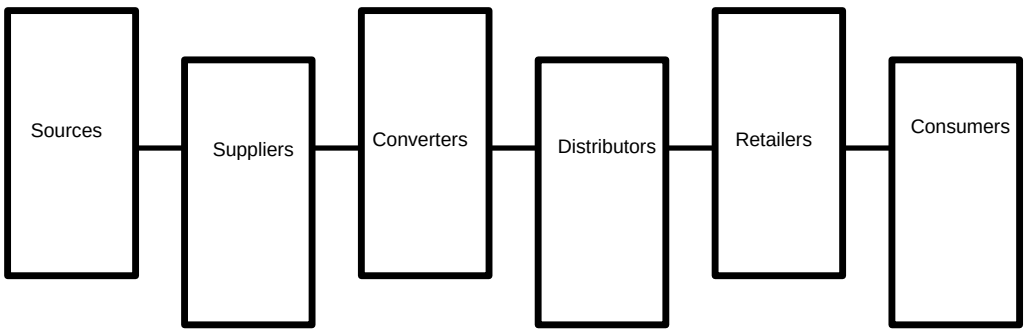


Figure 6. Components of the Textile and Apparel Supply Chain Model

Source: L. Cesca. 2004 adapted from Cokins, 2001.

Gereffi (1994) presented a model that considers buyer driven commodities defining more clearly the use of overseas producers, along with domestic manufacturers (Figure 7).

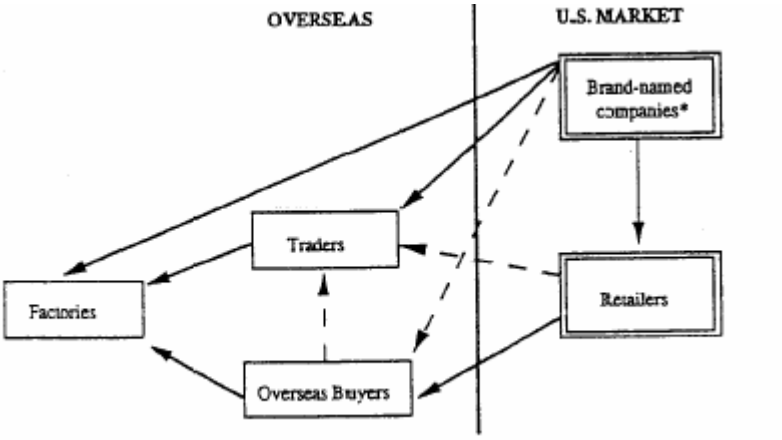


Figure 7. Buyer Driven Commodity Chain.

Source: Gereffi, G. (1994). The Organization of Buyer-Driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks. *Commodity Chains and Global Capitalism*. Westport, CT: Praeger, 1994, 95-122.

The model presented in Figure 7 can be used to enhance the supply chain presented by Chandra and Kumar. This is because it now takes into consideration the use of foreign vendors as the Tier 1 and Tier 2 suppliers as well as the

manufacturers. The coordination of logistics was even more important than in previous models because it was now a global effort.

Global with Sourcing Agent

Leung (2000) incorporated a sourcing agent in the global supply chain model and pronounced Figure 8 to be an optimal supply chain model. This model identified the complexity of global logistics coordination, as shown in the Gereffi model (1994). However, the logistics management is now considered the responsibility of the sourcing agent. These enterprises handle all areas of supply and production for the importers. The process is made easier for the importer but it remained difficult and costly for the suppliers, manufacturers and sourcing agents. The optimization of this supply chain, as well as the movement of goods along it, is critical.

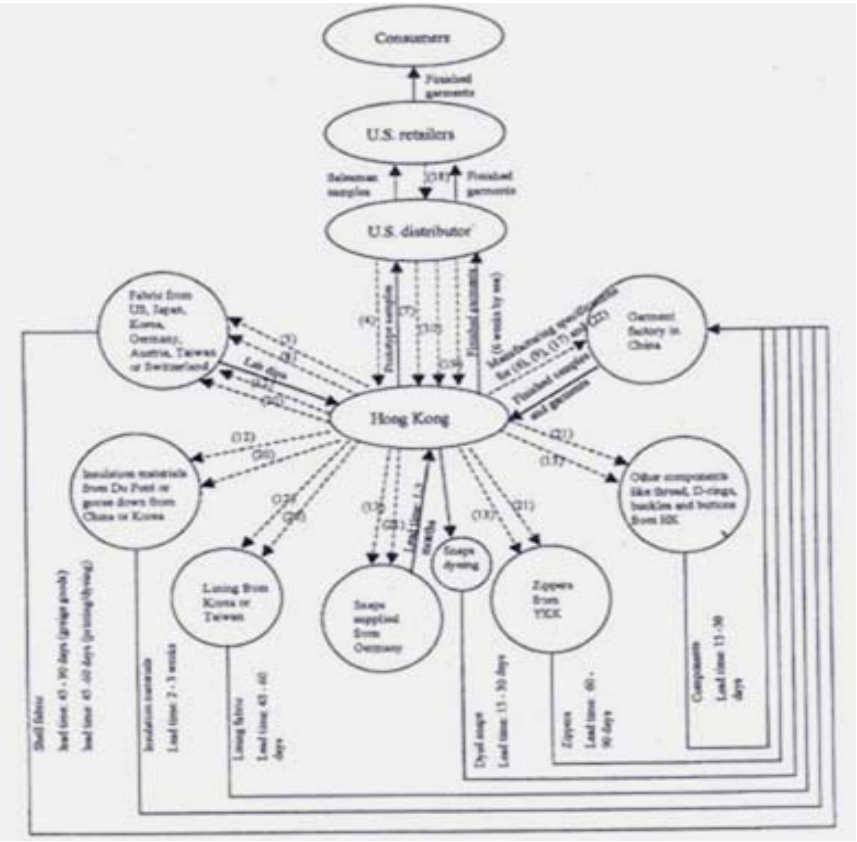


Figure 8. Global Supply Chain Model Incorporating a Sourcing Agent.

Source: Leung, S.Y.S. (2000). World-Class Apparel-Sourcing Enterprises and the Restructuring of Existing Global Supply Chains. *The Journal of the Textile Institute*, 91(2), 73-93.

Textile and Apparel: Sourcing and Manufacturing Strategies

With the introduction of a sourcing agent into the supply chain model, it was important to review different sourcing strategies used by various types of importers. Bruce and Daly (2004) in, *Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry* presented four very unique supply chains to the textile and apparel industry that involved different sourcing and manufacturing strategies. In Figure 9, the supply chain of a manufacturer of high fashion is presented. It sourced most of its textile fabrics from the Asia through the use of

agents. Also, a majority of garments were manufactured in Morocco and Cyprus with the remainder in the United Kingdom (Bruce & Daly, 2004).

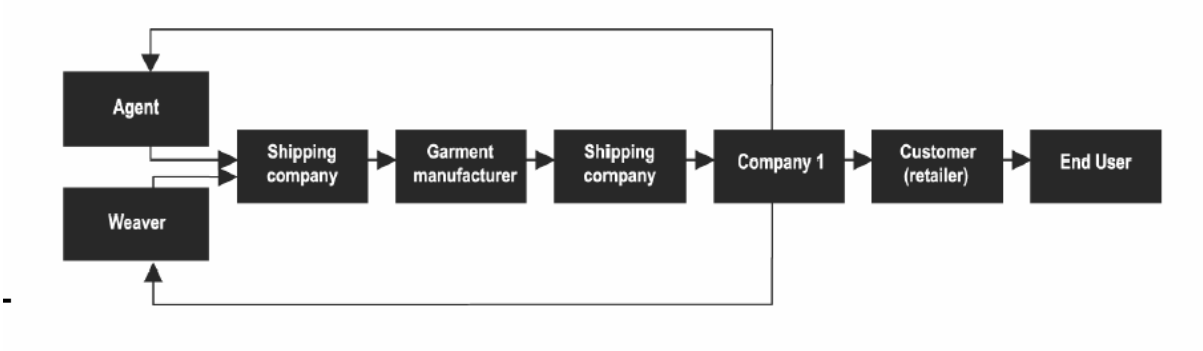


Figure 9. Supply Chain: Manufacturer of High Street Fashion

Source: Bruce and Daly. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry. *International Journal of Operations & Production Management*. pg. 158. 2004.

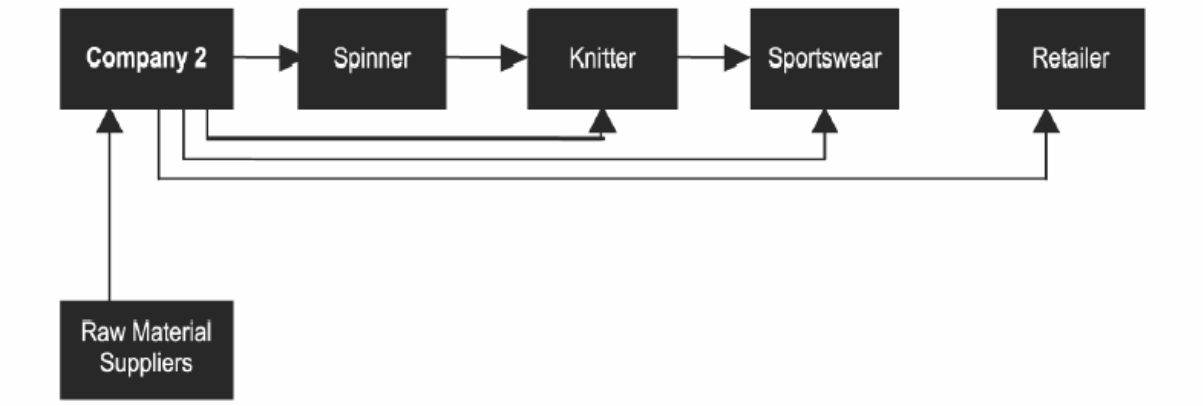


Figure 10. Supply Chain: Fiber Producer

Source: Bruce and Daly. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry. *International Journal of Operations & Production Management*. pg. 161, 2004.

The model in Figure 10 represented the fiber producer with their sourcing and manufacturing strategy as twofold. The first part of the chain dealt with a simple, risk-free component which was then sourced from a low cost overseas supplier.

When there was a more complex component, it was sourced from an advanced supplier located anywhere (Bruce & Daly, 2004).

The third supply chain presented in this paper focused on the sportswear accessory designer. Their sourcing and manufacturing strategy was based on sheer volume of what was to be produced. They used two different suppliers/manufacturers located in different areas of the world (Figure 11). They manufactured domestically in the United Kingdom if there was less than 1000 pieces needed. They would then produce in Asia if there were more than 1000 pieces needed.

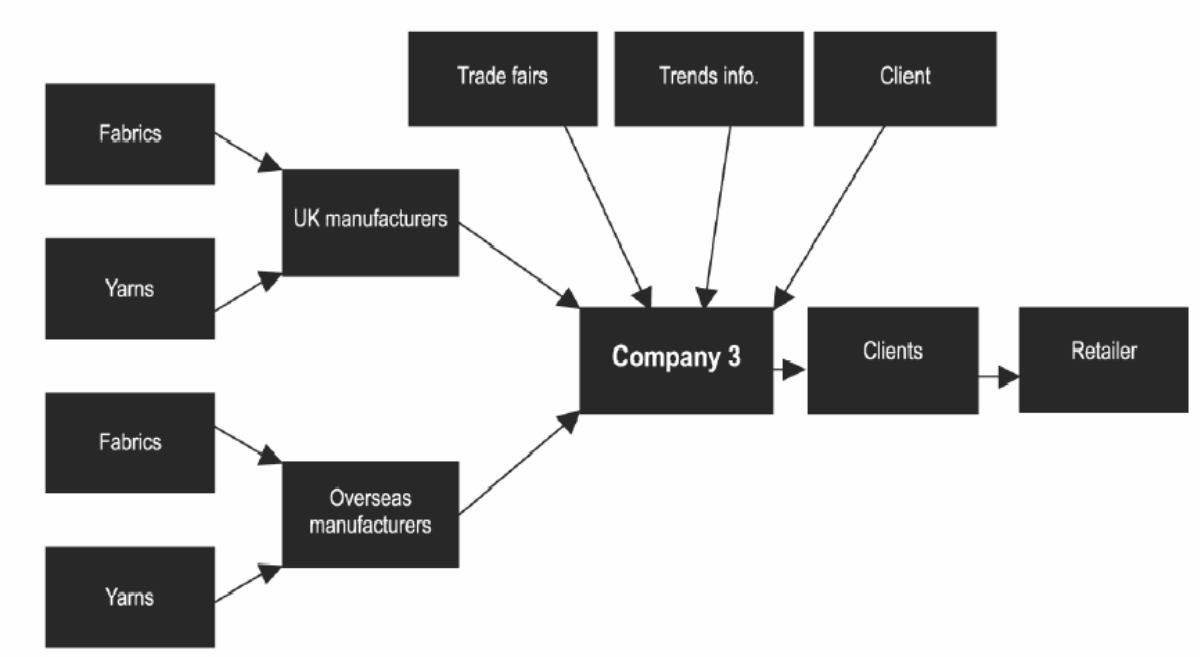


Figure 11. Supply Chain: Sportswear Accessory Designer

Source: Bruce and Daly. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry. *International Journal of Operations & Production Management*. pg. 163 2004.

Finally, the premium brand manufacturer/retailer's supply chain is shown in Figure 12. Their sourcing and manufacturing strategy utilized other manufacturers and did not manufacture anything themselves.

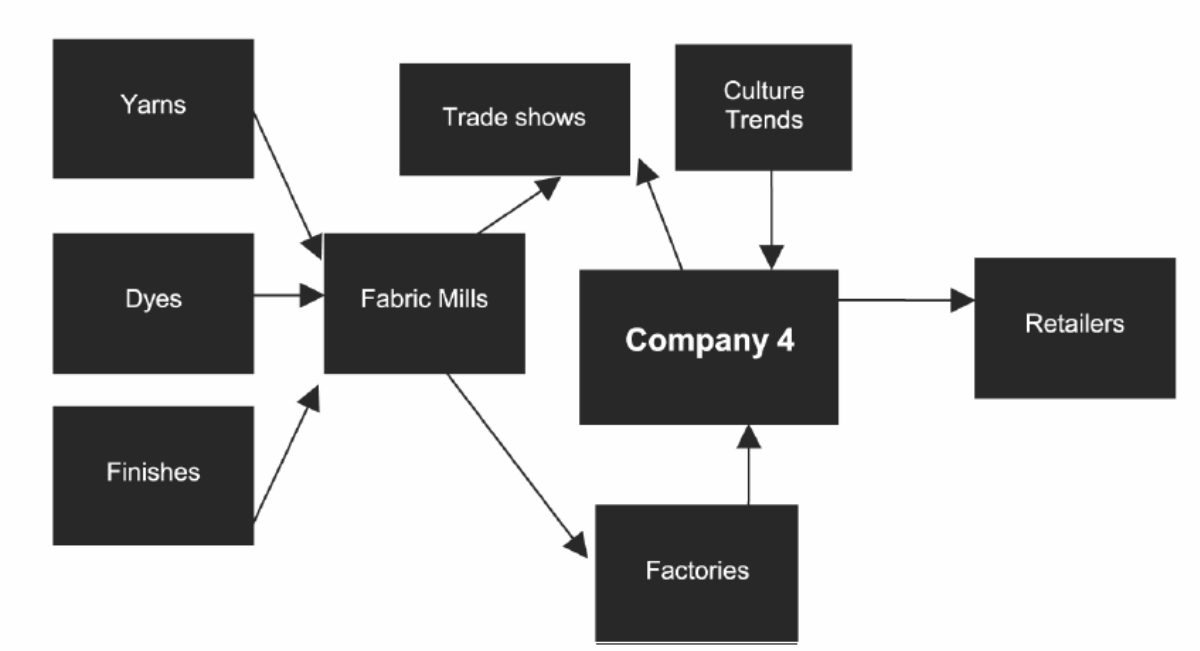


Figure 12. Supply Chain: Premium Brand Manufacturer/Retailer

Source: Bruce and Daly. (2004). Lean or Agile: A Solution for Supply Chain Management in the Textiles and Clothing Industry. *International Journal of Operations & Production Management*. pg. 165. 2004.

Supply chain configurations for the textile and apparel industry were important to research through the review of literature in order to understand how they function. However, it should be noted that not one supply chain in the literature took into consideration logistics operations or costs as a significant component.

Market Analysis: Bed-Bath and Bottom Weights

Current Industry Status

In order to conduct research in the Bed-bath and Bottom weights market, the classifications of both needed to be determined. First, all Standard Industrial Classification codes were found in order to define the product categories. Further

definition was conducted by identifying the NAICS codes for Bed-bath and Bottom weights. Finally, the product codes were found for each category. This information is shown in Tables 2 and 3.

Table 2. Bed-Bath Market: SIC, NAICS & Product Codes

Bed-Bath	
SIC code	**Description**
2211	Cotton, Woven Fabric
2299	Textile goods, NEC
2392	Housefurnishings: Textile
5023	Home Furnishings
NAICS code	**Description**
313210	Broadwoven Fabric Mills
31331	Textile and Fabric Finishing Mills
313312	Textile and Fabric Finishing (except broadwoven) Mills
314129	Other Household Textile Product Mills
Product code	**Description**
49950	Bedding, Bedspreads, Blankets, & Sheets
576995	Towels

Source: Table adapted by L. Cesca, (2004) from Harris InfoSource: "Textile Manufacturing Industry Report," (2004).

Table 3. Bottom Weight Market: SIC, NAICS & Product Codes

Bottomweights	
SIC code	**Description**
2211	Cotton, Woven Fabric
2221	Man-made fiber
2329	Men's & Boys' Clothing, NEC
2325	Men's & Boys' Seperate Trousers & Casual Slacks
2326	Men's & Boys' Work Clothing
2339	Women's and Misses' Outerwear, NEC
2369	Girls' & Infants' Outerwear, NEC
5136	Men's & Boys' Clothing
5137	Women's and Children's Clothing
NAICS code	**Description**
313210	Broadwoven Fabric Mills
313311	Broadwoven Fabric Finishing
315211	Men's & Boys' Cut & Sew Apparel Contractors
315212	Women's & Girls' Cut & Sew Apparel Contractors
315224	Men's & Boy's Cut & Sew Trouser, Slack, & Jean Mfg
315225	Men's & Boy's Cut & Sew Work Clothing Mfg
315228	Men's & Boy's Cut & Sew Other Outerwear Mfg
315239	Women's & Girls' Cut & Sew Other Outerwear Mfg
315291	Infants' Cuts & Sew Apparel Mfg
Product code	**Description**
224590	Fabrics: Broadwoven, Cotton
224580	Fabrics: Broadwoven, Synthetic

Source: Table adapted by L. Cesca,(2004) from Harris InfoSource: "Apparel-Clothing Manufacturing Industry Report," (2004)

Once the product categories were defined, a review of information from the US Census Bureau, as well as various trade magazines was conducted. This research found an alarming trend in both the Bed-bath and Bottom weights markets. Imports of both product categories are on the rise into the United States. The import penetration for the Bed-bath market in 2003 was at almost 160 million units and Bottom weights at 3 billion units. Consequently, the US production of these goods

had been declining for the past several years with Bed-bath at approximately 50 million units and Bottom weights at 750 million units (Figures 13 & 14).

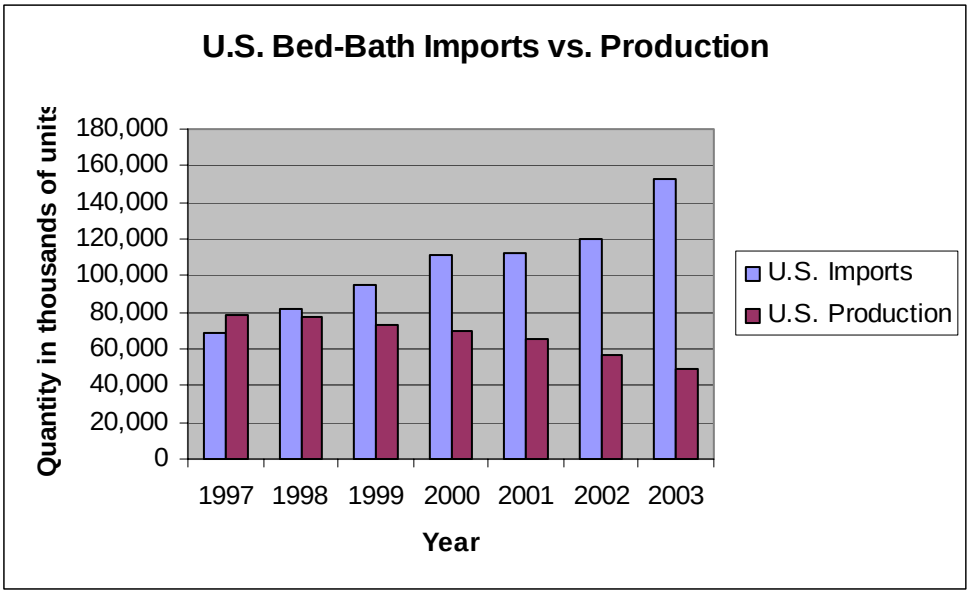


Figure 13. US Bed-Bath Imports and Production.

Source: 1997-2003 Current Industrial Reports: Bed and Bath Furnishings. (Online). September 20, 2004. US Census Bureau. http://www.census.gov/cir/www

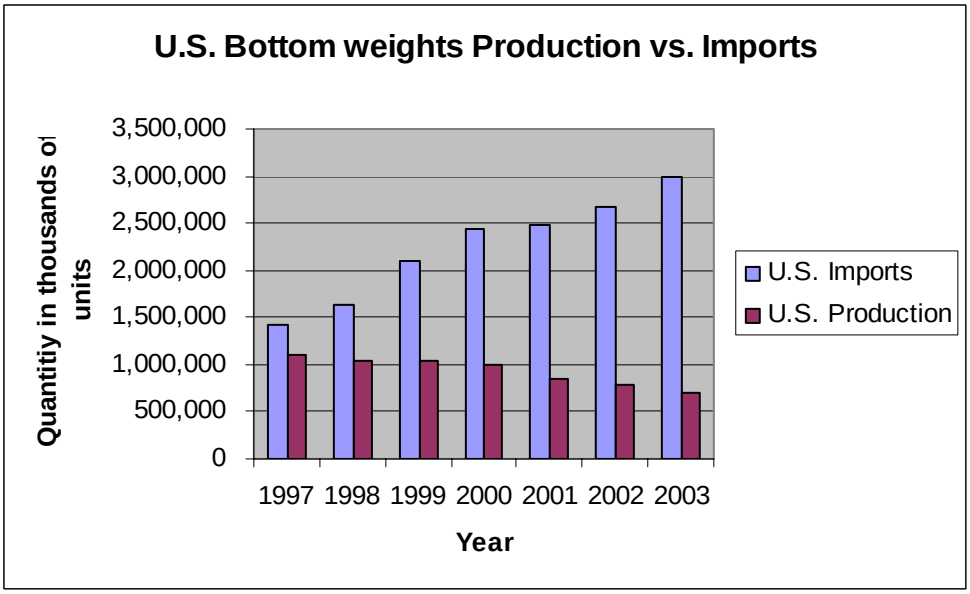


Figure 14. US Bottom Weights Imports and Production.

Source: 1997-2003 Current Industrial Reports: Bottom weights. (Online). September 20, 2004. US Census Bureau. http://www.census.gov/cir/www

When seeing this occurrence, it was noted that further examination of both the Bed-bath and Bottom weights markets must be conducted. This examination is needed in order to fully understand why the US is losing their hold on these two markets to import penetration. This information is found in the following sections of this study.

Bed-Bath Market

During further investigation of the Bed-bath market, two main trends were found. Trend 1 found that the only retail area experiencing an increase in market share was the home textiles area (Sloane, 2004). Home furnishings stores sales grew by 9% in 2003, mainly in the specialty home textiles chains (Wagle & Driscoll, 2004). Within that market, the specialty stores were starting to dominate (Sloane, 2004). It was noted that sales for these types of stores rose by 15% in 2003 and by 28% in 2002 (Wagle & Driscoll, 2004). This is important because while the retail sector is experiencing growth as a whole, the US production of these goods is declining, Trend 2. Therefore it can be inferred that these retailers are buying their home textiles from other countries. In tandem to that finding, it was found that India, Pakistan, Brazil, Turkey and China were the top five importers of Bed-bath products into the United States. This is shown in Figure 15, US Imports of Home Textiles by Country.

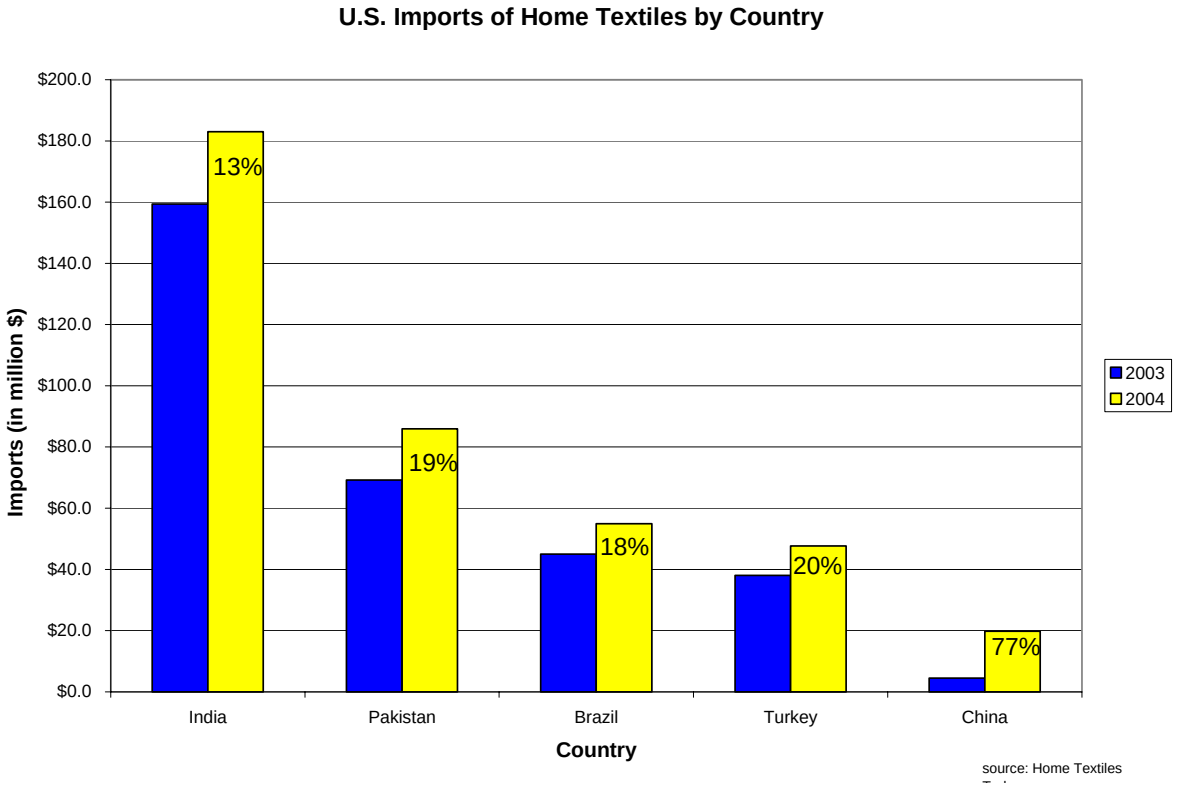


Figure 15. US Imports of Home Textiles by Country

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. *Home Textiles Today.* http://hometextilestoday.com

The importance of both of these trends is that the specialty retailer's sales are increasing in the Bed-bath market as production is moving into other areas of the world. This is significant because it showed that the US is having a hard time competing.

Bottom Weights Market

Upon further investigation of the Bottom weights market, it was noted from the graph shown in Figure 14 that the production of Bottom weights in the US was beginning to decline. At the same time import influx was increasing, putting the US manufacturers at a disadvantage. The Major Shippers Report obtained from the

Office of Textiles an Apparel (OTEXA) showed the countries with the highest shipments of cotton and synthetic bottoms into the United States (Figures 16 & 17).

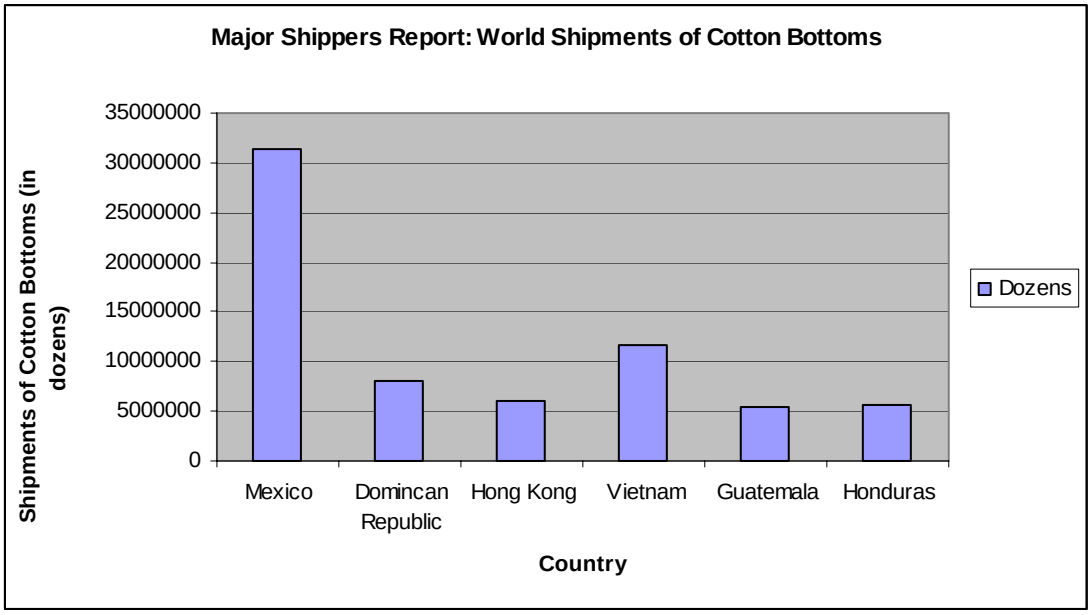


Figure 16. Top Countries Shipping Cotton Bottoms

Source: Office of Textile and Apparel: Major Shippers Report, 2004

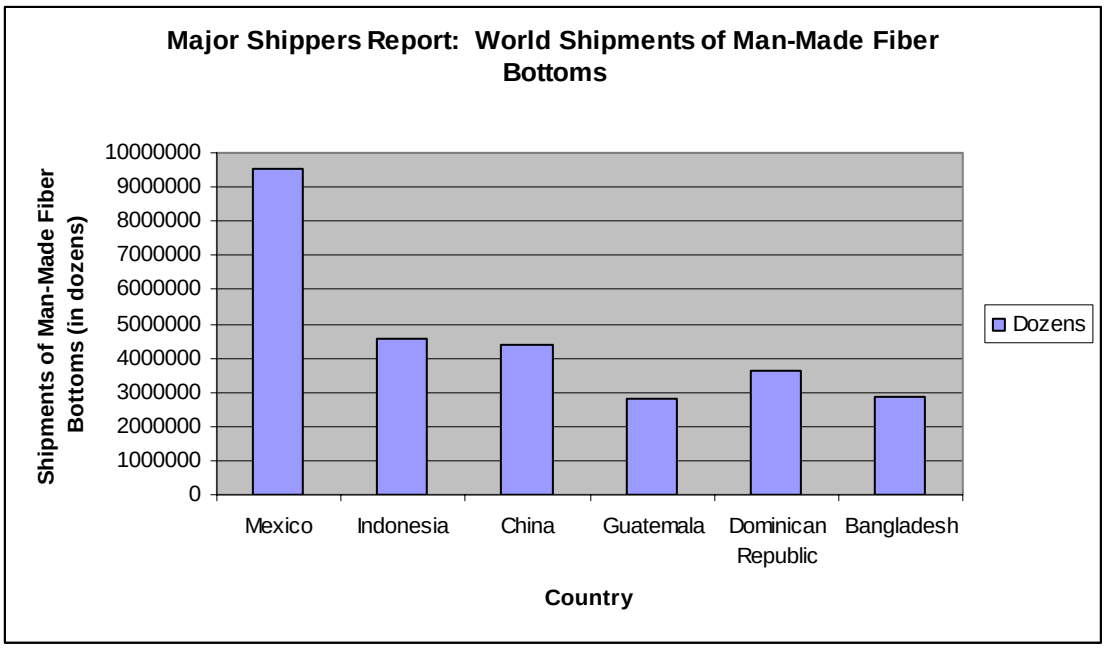


Figure 17. Top Countries Shipping Man-Made Fiber Bottoms

Source: Office of Textile and Apparel: Major Shippers Report, 2004

From these two charts, inferences can be made that Mexico, Central America and Asia were the top producers in the Bottom weights market. Therefore these regions, and the companies within, must be studied in order to gain insight as to what competitive advantage they possess in this manufacturing arena.

CHAPTER III

METHODOLOGY

Purpose of Research

The purpose of this research was to determine the logistics costs with the global textile and apparel supply chain. It would then examine the differences between United States manufacturers using a domestic or blended sourcing strategy and their management of those logistics costs. It would also review US retailers and sourcing agents in order to compare their approach to the abovementioned manufacturers. Looking at these four types of companies within the Bed-bath and Bottom weights markets, competitive advantages as a result of logistics was found. Finally, once competitive advantages were found, their relationship to strategy, performance and economic competitiveness was then studied as it related to logistics cost optimization.

The purpose of this research was to answer the following questions

1. What are the logistics costs associated with the textile supply chain for the Bed-bath and Bottom weights markets?
2. How are these costs managed along the supply chain in order to create specific structures for particular companies?
3. Are these cost structures different in different markets, such as:
    a. Bed-bath Market
    b. Bottom weights Market
4. What types of competitive advantages are specific cost structures providing?
    a. What types of cost leadership can be gained?

b. How do costs fit together to create different types of value added?

5. How does a company use their cost structure to compete economically? What competitive edge are they looking for?
6. How does a company control their cost structure to fit their strategy? How does a company use their strategy to determine their optimal logistical cost structure? Or do they use their cost structure to formulate their strategy?
7. How does a company's logistical cost structure relate to their performance?
    1. What makes a company classify their performance as good or poor
8. Is there a logistical contingency plan in place to account for problems along the way?
9. Do companies use a quantitative model for investigation into their logistical costing?
10. Is there a way for industry companies to benchmark, for logistical cost structures, against their competition?

Research Objectives

The following are the main research objectives that were used for this study:

RO1: To examine logistics costs in terms of:

RO1A. The percentage represented in the finished product cost. (RQ1)

RO1B. The global textile and apparel supply chains. (RQ1)

RO1C. Cost structure management. (RQ2 & RQ3)

RO2: To examine competitive advantage in order to:

RO2A: Provide and verify a definition. (RQ4)

RO2B: Determine the advantages of specific logistical chains and costs. (RQ4 & RQ5)

RO2C: Determine the relationship to economic competitiveness. (RQ5)

RO3: To determine if there is a relationship between logistical cost structures and economic competitiveness in terms of:

RO3A: Strategy (RQ6)

RO3B: Performance (RQ7)

Research Design

Mixed Methods

The mixed methods approach was used in this study in order to accommodate both the quantitative and qualitative data collections and analyses. This study was conducted in a concurrent matter, as both the quantitative and qualitative data were collected in tandem and implementation was simultaneous. These conclusions were made by referring to Table 4 and using it for decisions regarding the research methodology (Creswell, 2003).

Table 4. Decision Choices for Determining a Mixed Methods Strategy of Inquiry

<table>
<tr><th>Implementation</th><th>Priority</th><th>Integration</th><th>Theoretical Perspective</th></tr>
<tr><td>No Sequence Concurrent</td><td>Equal</td><td>At Data Collection</td><td rowspan="2">Explicit</td></tr>
<tr><td>Sequential--Qualitative first</td><td>Qualitative</td><td>At Data Analysis</td></tr>
<tr><td rowspan="2">Sequential--Qualitative first</td><td rowspan="2">Quantitative</td><td>At Data Interpretation</td><td rowspan="2">Implicit</td></tr>
<tr><td>With Some Combination</td></tr>
</table>

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications, pg. 211.

Once it was determined from Creswell's matrix that a mixed method approach was needed, a strategy was chosen. It was determined from the matrix that the research did not have a sequence of implementation; it ran concurrent. Also, it gave equal priority to both quantitative and qualitative data collection and the integration took place during that collection. Finally, the theoretical perspective was explicit. Therefore, the Concurrent Triangulation Strategy was used in order to conduct this research and keep with the chosen objectives of using a mixed methods design (Creswell, 2003, pg. 214).

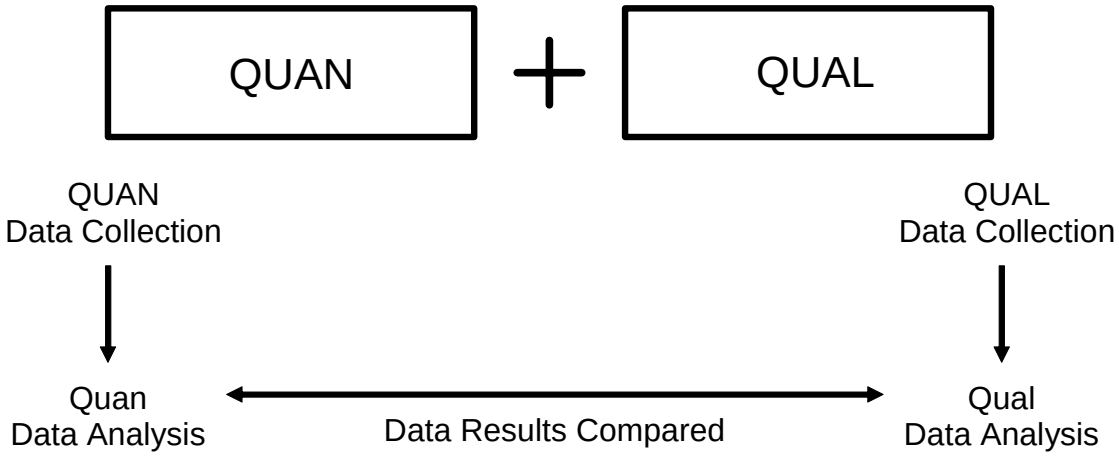


Figure 18. Concurrent Triangulation Strategy

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications

Figure 18 shows the Concurrent Triangulation Strategy that was used for both phases of the research. The first was data collection in the form of secondary research that focused on both qualitative and quantitative information. Primary research was then conducted in order to complete Phase II while using both qualitative and quantitative approaches.

Inductive and Deductive Logic

Due to the use of a conceptual model in this thesis research, inductive and deductive logic was used when conducting research. By definition, inductive research is primarily used to gain data on generalizations or theories from both the literature and informal information interviews (Figure 19). Therefore, it was used during the secondary data collection, or Phase I. Deductive logic was used in the latter part of this study, during the primary data collection in Phase II and is shown in Figure 20.

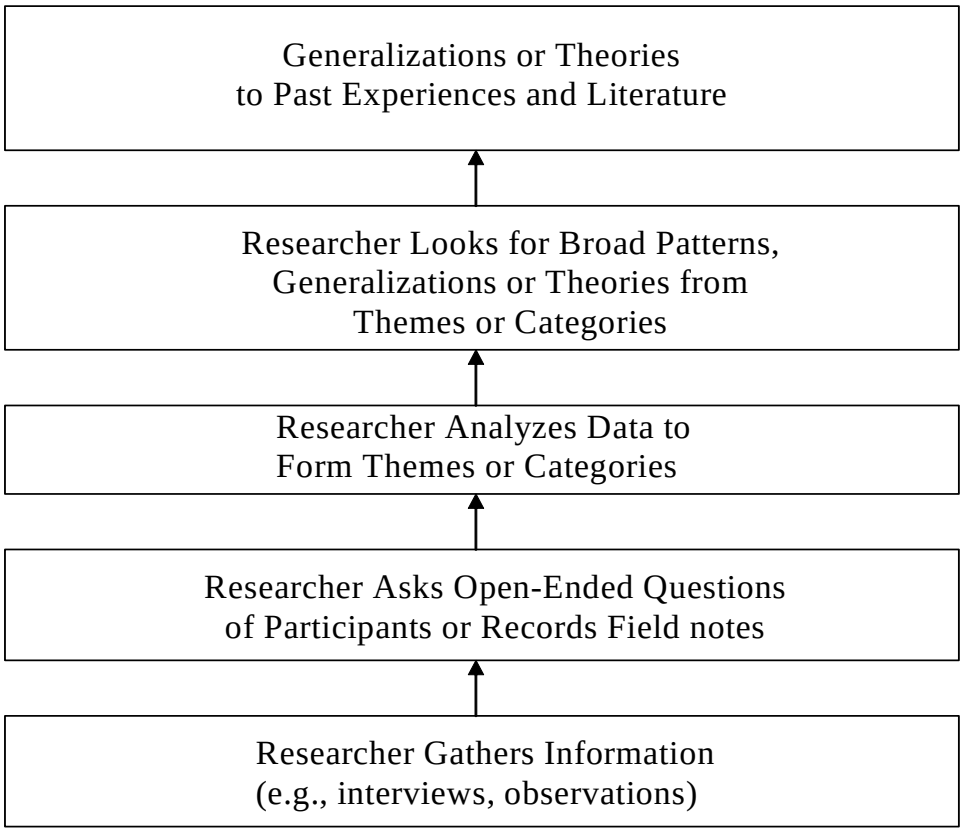


Figure 19. Inductive Logic

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications, pg. 132.

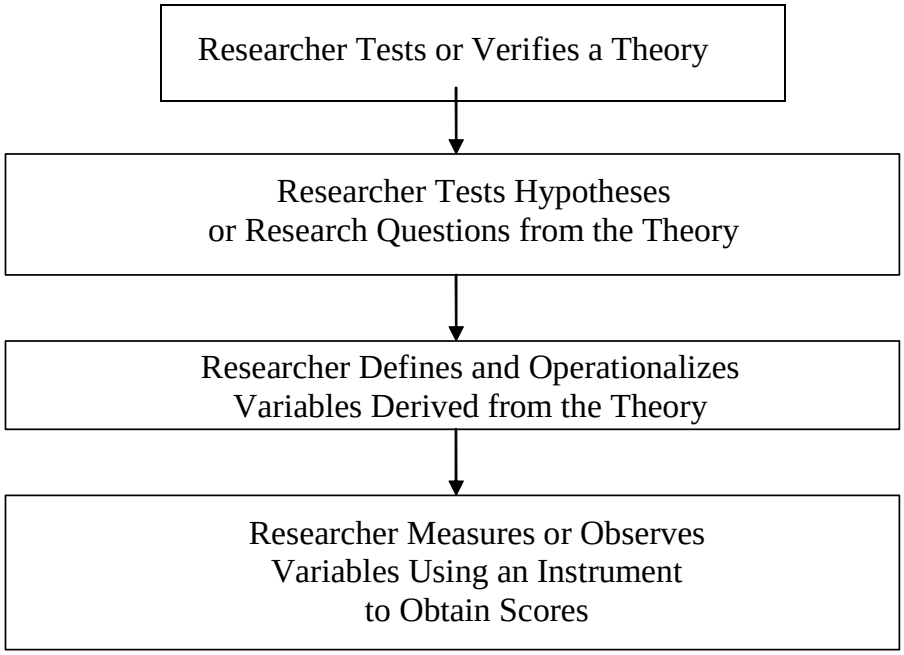


Figure 20. Deductive Logic

Source: Creswell, J. (2003). *Research Design: Qualitative, Quantitative, and Mixed Method Approaches, 2nd ed*. Thousand Oaks, CA: Sage Publications, pg. 125.

Phase I

In Phase I of this thesis study secondary research was conducted. The qualitative data was obtained in the form of industry analyses and opinions, journal articles and white papers. The quantitative data was composed of market share, production and sales data. By using inductive logic, the following research questions were answered during secondary data research.

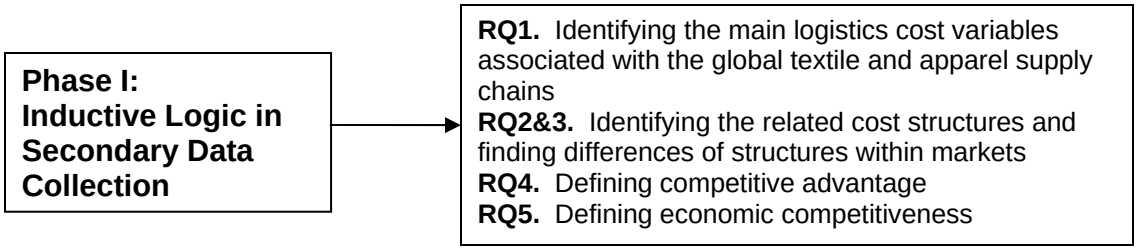


Figure 21. Research Questions Answered in Phase I by Deductive Logic

Source: Cesca, 2004.

Part of the process of inductive logic is to gather information from participants and other media. Then this information is formed into categories and themes to be investigated during the primary research collection (Creswell, 2003, pg. 132). Using this approach, the logistics cost variables and various cost structures were determined and defined through the literature. Definitions of competitive advantage and economic competitiveness were found by reviewing the literature. Table 5 shows the instrument and methodology that was used in order to complete Phase I.

Table 5. Phase I Instrument: Secondary Data Collection

Step	Process	Sources Used	Contribution
Step 1	Define Logistics Costs, Cost Structures, Competitive Advantage and Economic Competitiveness	• Logistics textbooks • Logistics and Supply Chain Journals • Textile and Apparel Journals • Economics textbooks	• Clarified the type of study to be conducted • Identified the key logistics costs to be considered • Accomplished secondary research for RO1, RO2, RO3, RO4 & RO5
Step 2	Survey the current Competitive Environment and Market Trends in the Global Textile and Apparel Industry	• Internet Research • S&P Industry Surveys • Trade Journals - logistics - supply chain management - textile and apparel - international trade • Industry Literature	• Explained the characteristics of the markets • Identified the key logistical factors being considered in the supply chain • Showed that there was a relationship between competitive advantage and logistics costs • Determined the generic supply chain for the Textile and Apparel Industry • Identified top countries trading with the US
Step 3	Secondary Research to locate US Production, Sales, Import/Export and Shipment Data for Bed-bath and Bottom weights markets	• 1999-2003 US Census Bureau Data • Trade Literature • International Trade Commission Data • S&P Industry Surveys	• Showed industry trends in each market • Provided proof that US manufacturers were not competing as well as global manufacturers in these markets
Step 4	Perform Market Analysis of the Bed-bath and Bottom weights Industries to Determine Top Candidates for Survey Sample	• Internet Research • S&P Industry Surveys • Trade Journals and Literature - logistics - supply chain management - textile and apparel - international trade • US Census Bureau Data • Trade Associations • US SEC Filings • Harris Textile Manufacturing • Harris Apparel Manufacturing	• Identified the NAICS, SIC and SITC codes in order to define the Bed-bath and Bottom weights product categories • Identified market characteristics specific to the Bed-bath and Bottom weights industries • Identified major companies involved in manufacturing and retailing of the Bed-bath and Bottom weights product categories for future sample determination • Identified company-specific sales data and growth rates from 1999-2003 in each market • Identified generic company information such as facilities and headquarters locations, product mix and sourcing strategies I • Identified top, global Bed-bath and Bottom weights producers
Step 5	Analyze Steps 1-4	• Excel • Discussion • Meetings	• Contributed toward sample selection • Information was used to develop questionnaire to be used in information interviews - company information - potential logistical costs and structures - potential competitive advantages

Source: L. Cesca, 2004.

Phase II

In Phase II, primary research was used for validation of theories as well as to uncover industry opinions and perceptions. It was also used to obtain confidential company information and opinions on actual logistics costs and strategies. This was conducted by administering a survey to the selected sample companies in three main categories: Retailers, US/US manufacturers, US/US-Offshore manufacturers and Sourcing Agents. These surveys were developed from secondary research and the answers were obtained during information interviews.

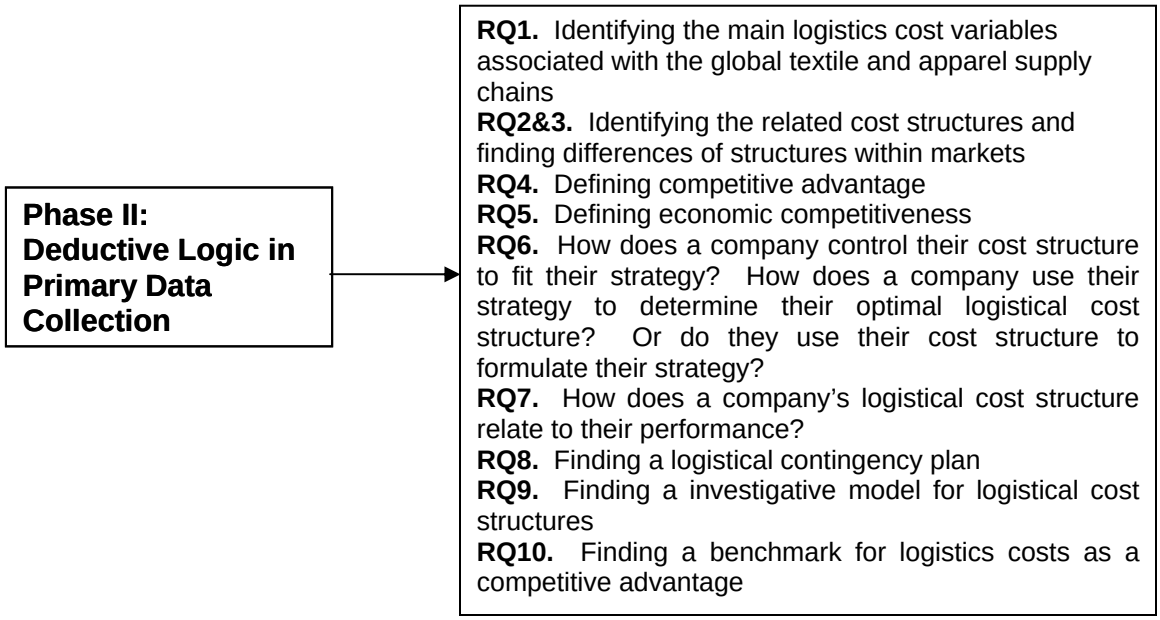


Figure 22. Research Questions Answered in Phase II by Deductive Logic

Source: Cesca, 2004.

Deductive logic was used to answer the research questions shown in Figure 22 as well as used to develop a survey and scaling method to use while conducting information interviews. For example, once the logistics cost variables were found in

the secondary data collection, an interviewee was asked to assign a percentage to each cost as it was allocated within their cost structure.

Sample Selection

In order to conduct information interviews, a sample of companies was determined from Bed-bath and Bottom weights markets. The sample included two groups of US-based manufacturers, domestic and global, as well the retailer sector in order to record trends and make comparisons. The sampling of companies was drawn from the following populations presented in Table 6.

Table 6. Population Pools Used for Sample Selection

	Bed-bath	Bottom weight
Retailers		
Manufacturers		
US/US		
US/US-Offshore		
Sourcing Agents		

Source: L. Cesca, 2004

In order to narrow the population and choose the sample interviewees, some key factors were identified such as sales, growth rates and sourcing strategies. The same methods were used for sample selection within the two product categories. However, due differences in availability of information for each category, the process for narrowing down the sample size for each category was different. The steps for the sample selection process are listed:

1. Identify the key players involved in each market according to the corresponding NAICS and SIC codes.

2. Gather information for each company. The location, sales from 1999-2003, and growth rates from 1999-2003 were determined. The distribution channel was named for the US retailers. On the other hand, for the manufacturers, the product mix and manufacturing locations were found.
3. Differentiate the sample into three tiers with Tier one being the chosen sample. Tier one was chosen first and the remaining companies were placed into two additional tiers using the same process.
4. Validate Tier one with leaders of major companies involved in both markets to determine if sample is optimal.
5. Modify sample to fit the suggestions of the Validation Team.
6. Complete sample.

Retailers

Bed-Bath Retailers

The top 50 Bed-bath retailers were chosen based on average Bed-bath sales and growth rate from 1999-2003 (Appendix A). The retailers were then classified into following store categories: Department, Mass, Chain, Specialty, Off-Price, Direct Mail and Other. The companies were then ranked from highest to lowest average sales within each category. From each of these classifications, two retailers were chosen from each retail outlet based on above average sales and above average growth rate. However, when finalizing this sample, companies with a growth rate of less than 1% were not initially selected. Also the direct mail and other distribution channel were not included in the sample because their business strategies were not

seen as relevant to this study. Figure 23 presents a visual depiction of how the sample was determined for the Bed-bath retailers.

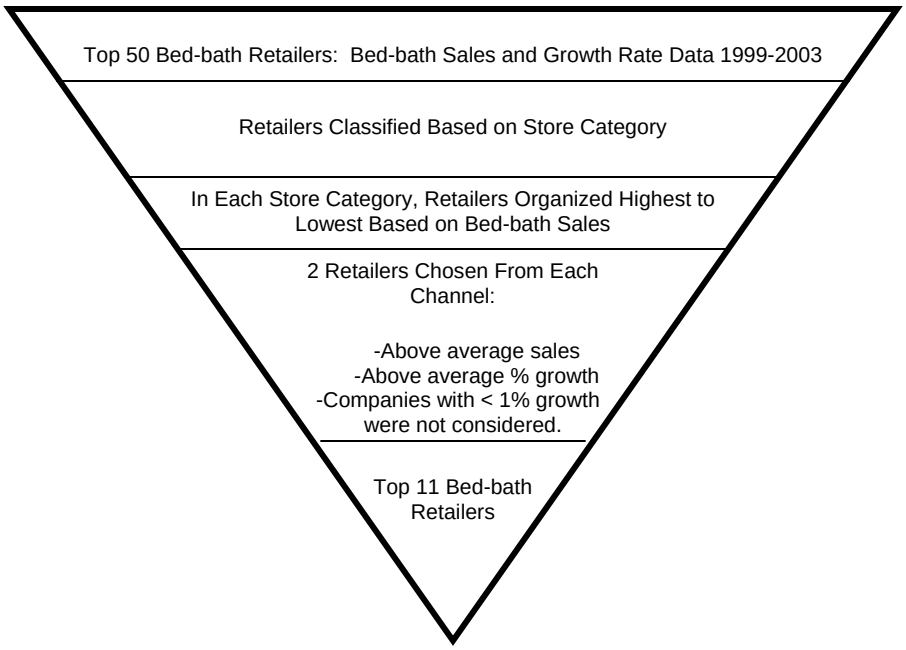


Figure 23. Company Selection Criteria for US Bed-Bath Retailers

Source: Cesca, 2004.

Bottom Weight Retailers

A similar selection process was used to determine the sample population for the Bottom weight retailers. The top 45 retailers were selected according to their sales and growth rates from 1999-2003 (Appendix B). Then they were classified according to their retail outlet and ranked from highest to lowest average sales in each category. The top two companies were chosen the same way as before, in the Bed-bath selection process. Similar to the Bed-bath sample, companies with a growth rate of less than 1% were not initially selected and the direct mail and other distribution channel were not included in the sample. The selection process is presented in Figure 24.

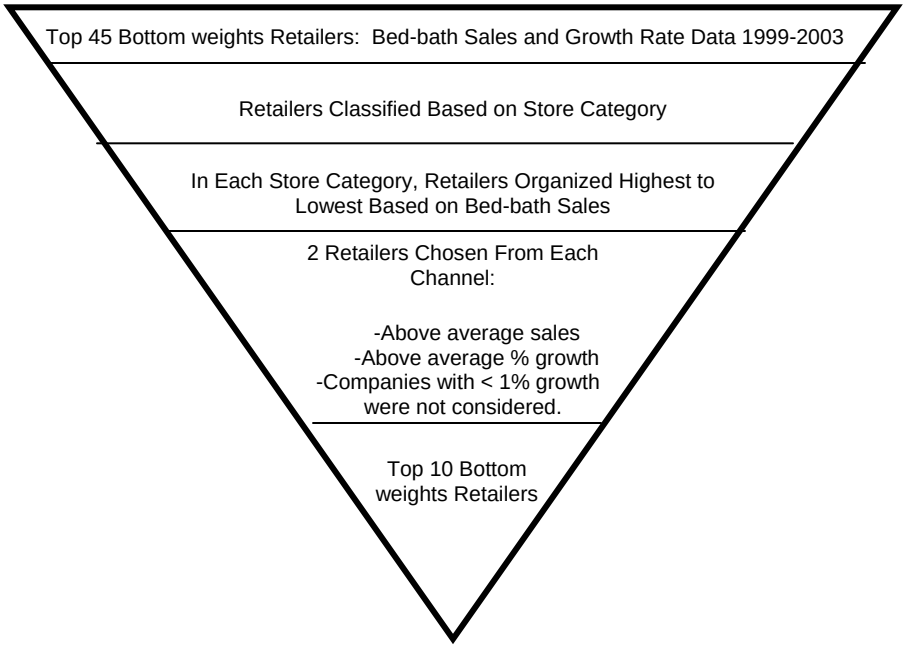


Figure 24. Company Selection Criteria for US Bottom Weight Retailers

Source: Cesca, 2004.

Manufacturers

The processes for selecting the manufacturers for both markets contained slight differences because of modifications made in order to capture a more complete sample.

Bed-Bath Manufacturers

According to the chosen NAICS and SIC codes, 21 US Bed-bath manufacturers were identified. Two of the manufacturers were found to have no manufacturing in the US, therefore categorizing them in the US/US-Offshore manufacturing sample. The remaining 19 manufacturers were ranked based on their 2003 sales. The top 15 companies based on their 2003 sales were chosen and ranked based on their average sales growth from 1999 to 2003). From this listing, the two companies with above average growth, below average growth and above

average sales were chosen. There was one modification made to this selection criterion. A company with above average percent growth was a leading slipcover manufacturer and did only a small amount of bedding products. Therefore, two other companies with above average percent growth were examined. However, one of the companies sold only a low amount of goods as home furnishings, approximately 8%. Therefore, the other company with above average percent growth was chosen which resulted in 6 manufacturers being chosen for this sample. Of the companies selected, those who have the majority, over 50%, of their manufacturing off-shore were considered US/US-Offshore manufacturers, and those with the majority, over 50%, of their manufacturing in the US were considered US/US manufacturers.

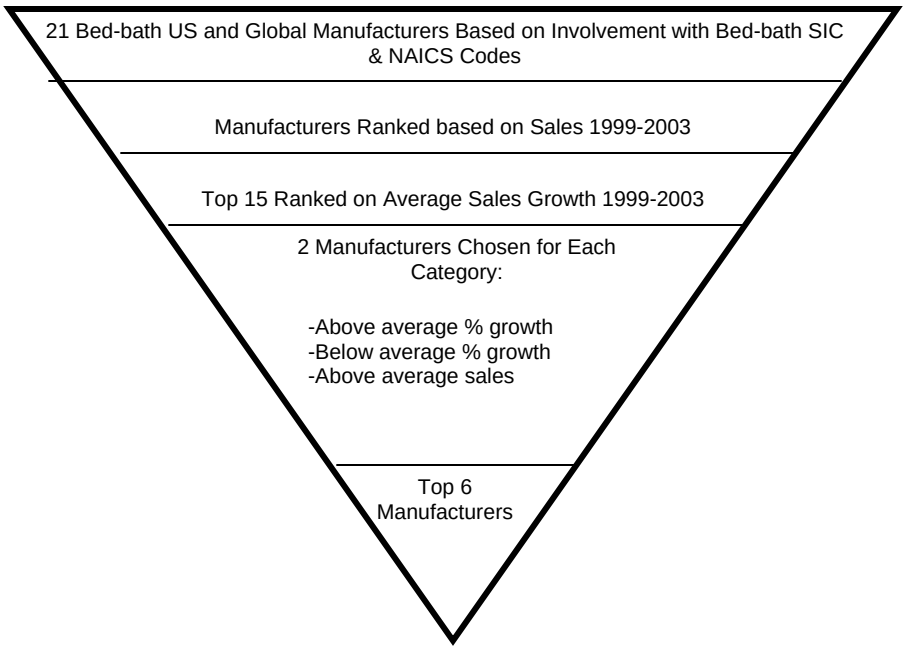


Figure 25. Company Selection Criteria for US Bed-bath US Manufacturers

Source: Cesca, 2004

Bottom Weights Manufacturers

According to the chosen NAICS and SIC codes, 18 US Bottom weight manufacturers were identified and then ranked based on their 2003 sales. The population was then divided into three groups based on their manufacturing locations and sourcing strategies:

- manufacture in the US only;
- manufacture offshore only;
- manufacture both domestic and offshore.

As in the Bed-bath sample, there were two companies with no manufacturing in the US and were categorized mainly as a global manufacturer. The remaining companies were ranked based on their average percent growth from 1999-2003 within the corresponding sourcing category. From this listing, the two companies with above average percent growth, below average percent growth and above average overall sales were chosen forming Tier 1 of the sample. There were modifications made and the first was to eliminate the companies for which no information, financial or otherwise, could be found. The second was that two additional companies were chosen due to their reputation and market share in the Bottom weights business. Therefore, the Tier 1 sample size for US-based Bottom weight manufacturers was seven. Of the companies selected, those who have the majority, over 50%, of their manufacturing off-shore were considered US/US-Offshore manufacturers, and those with the majority, over 50%, of their manufacturing in the US were considered US/US manufacturers.

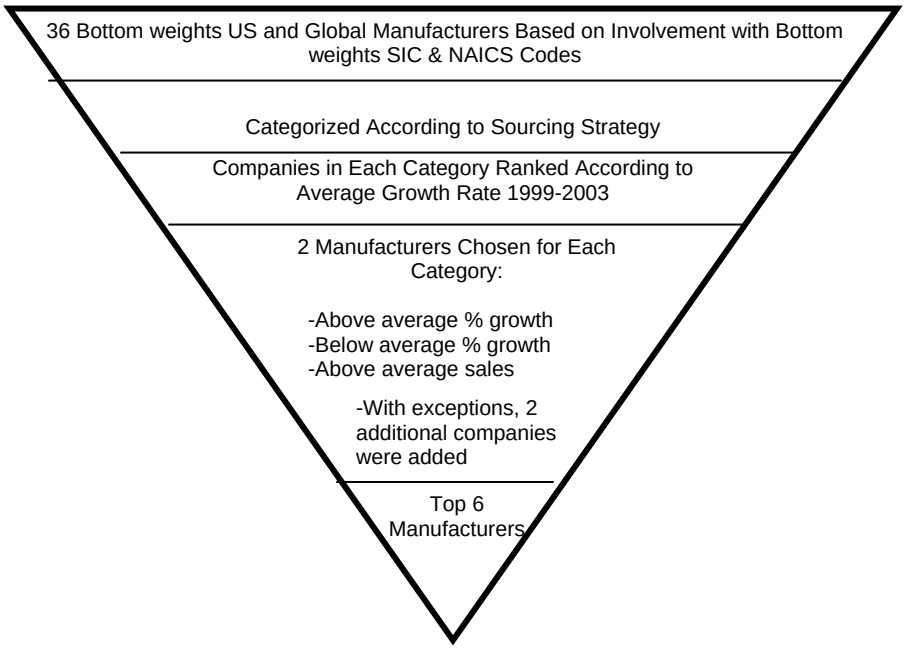


Figure 26. Company Selection Criteria for US Bottom weights Manufacturers

Source: Cesca, 2004.

Sourcing Agents

Finally in the selection process, it was determined that sourcing agents were to be chosen for the sample. Sourcing agents dealing in the selected product categories were researched and their sales data and growth rates from 1999-2003 were found. Also their locations, product mixes and sourcing strategies were determined, where the information was available. Two were chosen for the sample as one company had above average sales and the other had above an average growth rate.

Proposed Sample

Based on the previously prescribed methodology, a sample consisting of 21 retailers, 15 manufacturers, two sourcing agents and ten countries was proposed.

Sample Validation

Once the sample was selected, a validation process occurred. Five executives from industry were asked to validate the selected sample; three from the Bottom weights market and two from the Bed-bath market. Table 7 is comprised of the title of each individual that was asked to evaluate the sample.

Table 7. Validators' Credentials

Bottom Weights	**Position**
Executive 1	Division Director of New Product Development, Fashion Apparel & Specialty Products
Executive 2	VP, Product Development
Executive 3	VP, Merchandising
Bed-Bath	**Position**
Executive 1	President, CEO
Executive 2	President, Creative Products

Source: L. Cesca, 2004.

A Validation Handout was given to the industry executives during this process which consisted of the proposed sample companies. Each representative was asked to review the selected companies and countries and then determine whether they were the key players in each market. The executives were also asked if there were any other companies or countries that had been overlooked within each market.

Sample Completion

After the validation process, a procedure was created for contacting the sample. When feasible, contact names for each of the companies were obtained from the validation committee. Email and physical addresses, or phone numbers when possible, were found either from the validators or from online searches. An

initial form letter was sent out, either via US mail or by email, explaining the study and asking the company to participate (Appendix E). Then a second letter or a follow-up email was sent to the contact person with an example of the survey to be administered during the interview. Due to the fact that some declined participation, other companies were then chosen from the initial pool in order to maintain a well-rounded sample. The same procedure for contacting the initial sample was used in contacting the secondary companies.

Survey Development & Data Collection

Once the key companies were identified and validated, Phase I was completed according the instrument presented in Table 5 of this chapter. A questionnaire was then used in order to gain primary data during information interviews for Phase II. Due to the fact that this study was part of a greater industry report focusing on economic competitiveness, there were two other researchers that would be using the same sample. Therefore, a survey containing questions regarding all three thesis topics was developed (Appendix F). Section I had questions relating to supply chain structures and vendor performance as developed by researcher C. Hope Nowell. Section II covered the questions relating logistics and competitive advantage as laid out by this thesis study. Finally, Section III covered the topics regarding the level playing field and trade factors as posed by researcher Michael A. Jones.

Section II held questions that were developed specifically for this thesis study and covered the topics outlined in Table 8. The table also illustrates the relationship

between the questions and the research objectives. Also shown is the intended nature and verbiage of each question.

Table 8. Description and Objectives of Survey Questions

Survey Question	Topic	Related Research Objectives	Nature of Question	Verbiage of Question
#1	Logistics costs as part of the cost structure	RO1	Quantitative	Closed-ended
#2	Logistics costs in the global textile & apparel supply chain	RO1	Qualitative	Open-ended
#3	Logistics cost categories and structures	RO1 & RO2	Quantitative & Qualitative	Closed- and open-ended
#4	Logistics costs in the global textile & apparel supply chain	RO1 & RO2	Qualitative	Open-ended
#5	Unexpected logistics costs	RO1, RO2 & RO8	Qualitative	Open-ended
#6	Defining competitive advantage	RO3 & RO4	Qualitative	Open-ended
#7	Logistics costs as they relate to economic competitiveness, strategy & performance	RO5, RO6 & RO7	Qualitative	Open-ended
#8	Model used to investigate logistics costs	RO8	Qualitative	Open-ended

Source: L. Cesca, 2005.

Data collection took place during the month of January via trips domestic and international trips in order to speak with executives from the sample companies. There were 3 trips made within the Northeastern and Southeastern US in order to capture the manufacturing and marketing hubs. There was an additional trip made to Hong Kong and China in order to obtain information from a major Asian sourcing region. During the trips, additional companies were picked up and information was acquired regarding their logistics costs and competitive advantage. These companies were added to the sample and given the umbrella term Auxiliary Companies.

Data Analysis

Stage 1: Data Transformation

Coding following Creswell (2003, pg. 192) was applied to this data in order to identify the significance of certain variables as they pertained to the research questions (Table 9).

Table 9. Tips on Coding

Step	Process
1	Get a general idea of the information obtained from information interviews by reading them over.
2	Pick one interview and go through it to find underlying themes
3	Repeat Step 2 for other interviews and make a topic list. Cluster together similar topics and determine major headings.
4	Review information interviews using these topics while assigning abbreviations to each topic. See if any new ideas emerge.
5	Turn these topics into categories and try to reduce them into major categories
6	Finalize abbreviations for each category and alphabetize these codes
7	Assemble the data from each interview that corresponds to these codes and perform a preliminary analysis
8	Upon review, recode data if necessary

Source: Adapted by L. Cesca from Creswell, 2003, pg. 192.

For survey Questions 1-4, these tips on coding were used in order to contrive a list of reoccurring themes found in the information interviews. The following is a listing of topics and their codes found to emerge from the initial analysis.

Table 10. Topics and Codes Used for Questions 1 – 4

CODE	Meaning
AF	Air Freight
OF	Ocean Freight
TERMS	Terms
PORTS	Ports
IF	Inbound Freight
RELATE	Relationships
RELY	Reliability
FC	First Cost
TC	Total Cost
FASHION	Fashion Item
BASIC	Basic Item
FP	Full Package
FABRIC	Fabric Supply
3PL	Third Party Logistics

Source: L. Cesca, 2005.

Question 4 was also analyzed using another set of codes that specifically applied to the logistics cost categories. The significance of each cost, as it applied to strategy and performance, was determined by assigning codes the logistics cost categories and seeing how many times they appeared in the information interviews (Table 11).

Table 11. Topics and Codes Specific to Question 4

CODE	Meaning
ADMIN	Administration Costs
CC	Customs Charges and Duty Costs
H&P	Handling & Packaging Costs
IH	Inventory Holding Costs
RISK	Costs due to Risk & Damage
TRANSPORT	Transportation Costs
OTHER	Other Costs

Source: L. Cesca, 2005.

Stage 2: Validation

There were many steps used in order to validate the data obtained in this thesis study and they are named in the following:

- Triangulation of Data: Here the data was collected from primary and secondary sources in the form of interviews and document analysis.
- Member Checking: Once the data was transcribed and analyzed, a copy was sent back to the interviewee for verification upon request.
- Peer Examination: Two graduate students, two ITT faculty members and three NCSU faculty members served as examiners. There were also two executives involved in the Bed-bath market and three executives involved in the Bottom weight market that served in the sample validation process.

Stage 3: Analysis

The analysis of the information interviews took place using the coding system mentioned in the Data Transformation section on pages 58-60 of this thesis. Each information interview was put into table format regarding the survey questions. The information was then reviewed and codes assigned to find emerging themes. An analysis was performed in order to look at three main areas and they are the following:

1. Comparison of all companies involved within the Bed-bath market
2. Comparison of all companies involved within the Bottom weights market
3. Comparison across the two markets

Each research objective was identified and the findings for each were then presented. Operational definitions were identified in order to help the reader understand the terms that the researcher used.

Operational Definitions

Administration Costs: These costs include order processing, communication and overhead (Zeng & Rossetti, 2003).

Air Freight: A global or domestic transportation method that ships goods via airplane (Pierre, 2004).

Basic Item: Merchandise whose style and demand are generally constant and which must remain in stock to satisfy customers.

Bed-bath: Textiles in the Bed-bath sector of the home furnishings industry: sheets, towels, pillowcases, and washcloths.

Bottom weights: Woven bottoms made of cotton dominant fabric: ex. Denim and khaki.

Competitive Advantage: How a firm utilizes its ***resources*** and ***capabilities*** to create an advantage that ultimately results in superior value creation (Quickmba.com, 2004, online).

Cost, Insurance, and Freight (CIF): Specifically designed for ocean transportation, the point of delivery is the FOB point. Until the goods have cleared the ship's rail at the port of destination, it is the responsibility of the exporter (Pierre, 2004).

Customs Charges: These costs include customs clearance, brokerage fees and allocation fees (Zeng & Rossetti, 2003).

Economic Competitiveness: A function of a successful supply chain structure and the metrics used to measure the performance of a supply chain in order to sustain a growing business in a global economy by retaining profitability (Cesca, Nowell & Jones, 2005).

Fashion Goods: Merchandise whose style and demand greatly fluctuate and must be in stock during the height of the trend to satisfy customers.

First Cost: The first cost is the product's initial cost offered by the supplier to their customer, without logistics costs (such as freight, insurance and tariffs) factored in.

Freight on Board (FOB): The exporter is responsible for the goods until they are placed on the ship. Once on the ship, the goods become the responsibility of the importer. The exporter's responsibility ends at the port of origin (Pierre, 2004).

FOB point: Point at which the responsibility of the goods shifts from exporter to importer, usually at the ship's rail (Pierre, 2004).

Full Package: A sourcing strategy used in which one entity of the supply chain takes full responsibility of managing the entire supply chain. That person is responsible for sourcing and/or manufacturing every aspect of a product, as well as getting that product to the customer.

Handling and Packaging: These costs include terminal handling, material handling, in/out handling, disposal charges, packaging/supplies materials and storage (Zeng & Rossetti, 2003).

Inbound Procedures: Inbound procedures encompass the method(s) used to get the goods from the port of entry to the final destination; usually is done by either trucking or railroad (Pierre, 2004).

Inventory Holding: These costs include holding costs, pipeline holding and safety stock (Zeng & Rossetti, 2003).

Logistics: The process of planning, implementing and controlling the efficient flow and storage of goods, services and related information as they travel from point of origin to point of consumption (Stock, Greis & Kasarda, 1999).

Ocean Freight: A global transportation method that ships goods by ships over oceans (Pierre, 2004).

Performance: The efficiency and effectiveness of the firm as measured by internal and external factors reflecting the competency of the firm's logistics process and financial performance (Stock, Greis & Kasarda, 1999).

Internal Performance Measures: These measures include costs, delivery speed and reliability, quality, flexibility, customer service and distribution (Stock, Greis & Kasarda, 1999).

External Performance Measures: These measures include market share, return on investment and sales growth (Stock, Greis & Kasarda, 1999).

Risk and Damage: These costs include costs due to damage, loss or delay and insurance (Zeng & Rossetti, 2003).

Sourcing Agent: A business entity that manages all areas of supply, production and logistics for an importer, usually a retailer.

Strategy: The business strategy which specifies how a business unit will achieve and maintain competitive advantage within its industry (Stock, Greis & Kasarda, 1999).

Supply Chain: A term increasingly used by logistics professionals – encompasses every effort involved in producing and delivering a final product, from the supplier's supplier to the customer's customer (Supply Chain Council, 1997).

Transportation: These costs include freight charges, consolidation, transfer fees and pickup and delivery (Zeng & Rossetti, 2003).

Total Cost: The total is the cost is the cost of the product with logistics costs added.

US/US Manufacturer U.S. based manufacturer that owns at least 50% of their facilities in the United States. These manufactures may also own facilities off-shore or source other components to make-up a finish product (Cesca, Nowell & Jones, 2005).

US/US-Offshore Manufacturers include 3 sub-categories

1. U.S manufacturers who do not own any of their own facilities, but instead source all manufacturing off-shore.
2. U.S. manufacturers that owns at least 50% of their facilities off-shore.
3. Sourcing agents (Cesca, Nowell & Jones, 2005)

U.S. Retailer: U.S. Based retailers that purchase goods from both U.S. and global manufacturers (Cesca, Nowell & Jones, 2005).

CHAPTER IV

Presented in the following chapter are the results of Phase I and II of the research. Phase I Results includes all findings from secondary research regarding logistics costs and competitive advantage as well as industry and market trends. Phase II shows all primary data collected during information interviews along with an analysis of all findings in terms of each research objective.

RESULTS

Sample

The research sample consisted of 18 companies from US Retailers, US/US Manufacturers, US/US-Offshore Manufacturers and Sourcing Agents, who currently are involved in either the Bed-bath or Bottom weight markets. The total includes two auxiliary companies who are not involved in either market but are successful textile and apparel firms with important information on subject of global economic competitiveness. There were 33 total respondents and within that sample five held the title of Chief Executive Officer or President, nine held Vice President, and six held Managing Director within their respective firms. The entire group of sample respondents averaged 24.8 years of experience in the textile and apparel industry. Table 12 provides detailed information about the sample including: market involvement, company type, location and reason each was chosen.

Table 12. Sample Description

Market	Company Category	Company Name	Location	Reason Chosen
Bed-bath	US/US-Offshore Manufacturer	**Company A**	Southern United States	Above Average Sales
Bed-bath	US/US-Offshore Manufacturer	**Company B**	Southern United States	Below Average Growth Rate
Bed-bath	Retailer	**Company C**	Northeastern United States	Above Average Sales & Growth Rate
Bed-bath	Retailer	**Company D**	Southern United States	Niche Market Share
Bed-bath	Retailer	**Company E**	Southern United States	Above Average Sales
Bed-bath	Retailer	**Company F**	Northern United States	Above Average Growth Rate
Bottom weights	US/US Manufacturer	**Company G**	Southern United States	Market Leadership
Bottom weights	US/US Manufacturer	**Company H**	Southern United States	Market Leadership
Bottom weights	US/US Manufacturer	**Company I**	Southern United States	Above Average Sales & Below Average Growth Rate
Bottom weights	US/US-Offshore Manufacturer	**Company J**	Southern United States	Below Average Growth Rate
Bottom weights	US/US-Offshore Manufacturer	**Company K**	Central United States	Above Average Growth Rate
Bottom weights	US/US-Offshore Manufacturer	**Company L**	Southern United States	Niche Market Share
Bottom weights	US/US-Offshore Manufacturer	**Company M**	Southern United States	Above Average Sales
Bottom weights	Retailer	**Company N**	Western United States	Above Average Sales
Bottom weights	Retailer	**Company O**	Central United States	Above Average Sales
Both	Sourcing Agent	**Company P**	Asia	Above Average Sales
Auxillary	Global Manufacturer	**Company Q**	Asia	Niche Market Share
Auxillary	Label, Tags & Printing Suppliers	**Company R**	Northeastern United States	Niche Market Share

Source: Adapted by L. Cesca, (2004) from Business Source Elite, Hoovers Company Profiles, Lexis Nexis Company Financial Reports, S&P Net Advantage and company website.

Using the method (Table 5) outlined in Chapter 3 the results regarding Phase I are provided.

Phase I

Step 1: Defined Terms

In order to determine the type of study to be conducted, it was necessary to assess how academia defined logistics, competitive advantage and economic competitiveness. The definition of logistics was found to be “the process of planning, implementing and controlling the efficient flow and storage of goods, services and related information as they travel from point of origin to point of consumption” (Stock, Greis, & Kasarda, 1999, pg. 232). From this definition, the six most common categories used in logistics costing were found. These cost categories were Administration, Customs Charges, Handling & Packaging, Inventory Holding, Risk & Damage, and Transportation (Zeng & Rossetti, 2003). For better understanding, these categories are further defined in Table 13, adapted from Zeng and Rosetti.

Table 13. Logistics Cost Categories Defined

Logistics Cost Category	Brief Definition
Administration	Order processing, Communication & Overhead
Customs Charges	Customs clearance, Brokerage fees & Allocation fees
Handling & Packaging	Terminal handling, Material handling, In/out handling, Disposal charges, Packaging/supplies materials, & Storage
Inventory Holding	Pipeline holding & Safety stock
Risk & Damage	Damage/loss/delay & Insurance
Transportation	Freight charges, Consolidation, Transfer fees & Pickup and delivery

Source: Adapted by L. Cesca, 2005, from Zeng & Rossetti, 2003

Once the cost categories were identified through secondary data collection, a definition of competitive advantage was found from research conducted in economic literature. A competitive advantage can be defined as resource-based, in that it emphasizes that a firm utilizes its *resources* and *capabilities* to create competitive advantage that ultimately results in superior value creation (Quick.com, 2004, online).

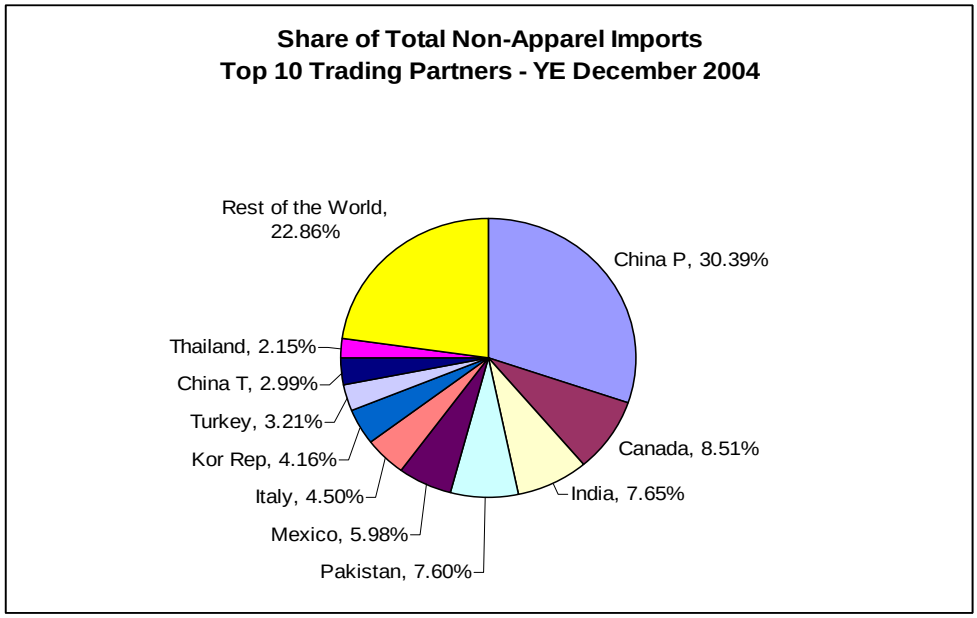
The final part of Step 1 was to find found an academic definition for economic competitiveness. The competitive environment includes "the demands made by the market, including the price, characteristics, and features of the product; the location of the customers, the time requirements of customers; and the variability in demand" (Stock, Greis & Kasarda, 1999, pg. 226).

Step 2: Textile and Apparel Industry Trends

The major trends in both industries are illustrated in the following text.

Textiles

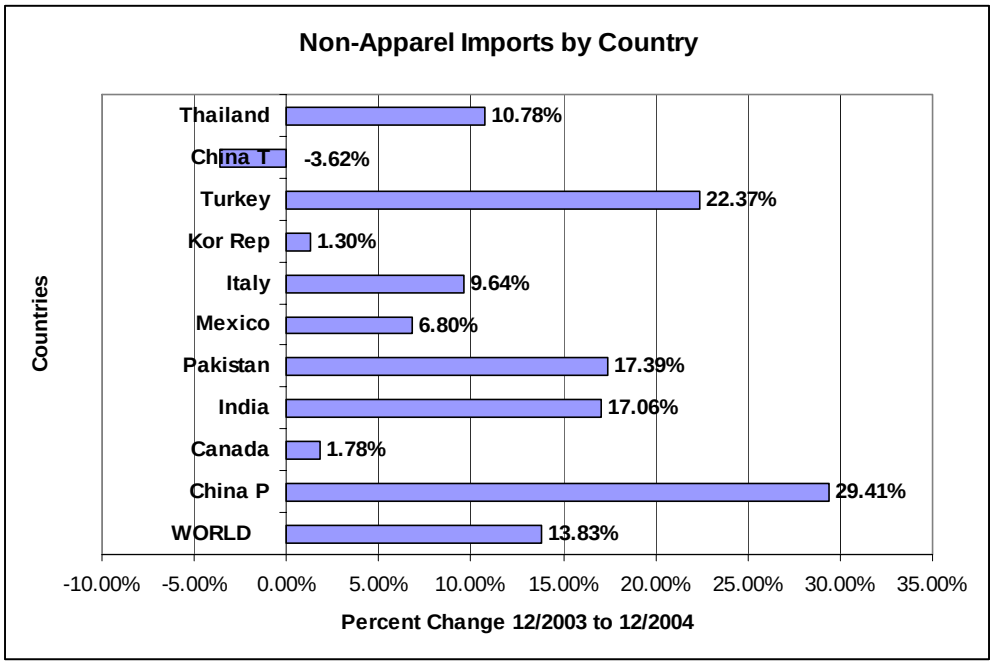
As of the year end in December 2004, the US' top ten trading partners accounted for 77.14% of the textile imports. However, out of these ten nations, only three were located in the Western Hemisphere and accounted for 18.99% of the US' textile trade. The remaining seven were located in the Eastern Hemisphere and accounted for 58.15%.



NOTE: China P is China – People's Republic & China T is China - Taiwan

Figure 27. Share of Total Non-Apparel Imports from US' Top Ten Trading Partners

Source: OTEXA (online). Major Shippers Report of Non-Apparel Imports, All MFA Fiber. February, 2005.



NOTE: China P is China – People's Republic & China T is China - Taiwan

Figure 28. Change in Non-Apparel Imports by Country from December 2003 to December 2004

Source: OTEXA (online). Major Shippers Report of Non-Apparel Imports, All MFA Fiber. February, 2005.

Though textile import penetration is an important trend, the growth rates of each country from December 2003 to December 2004 should also be noted (Figure 28). The imports from Mexico, Canada and Italy rose by 6.80%, 1.78% and (9.64%), respectively. Overall, the countries in the Eastern Hemisphere showed considerable growth. Textile imports rose from China P (29.41%), Turkey (22.37%), Pakistan (17.39%), India (17.06%), Thailand (10.78%), the Korean Republic (1.30%), and decreased for China T (-3.62%). The countries of Turkey, Pakistan, India and China T experienced an increase in their textile exports larger than the world's growth average at 13.83%.

Apparel

Imports from Asia showed an increase of approximately 20% from 1992 to 2003, as can be seen in Figure 29. From the same figure, it can also be seen that Mexico and the CBI seem to be losing a portion of their share in the market, dropping approximately 5% from 2001 to 2003 (Glaser, 2005).

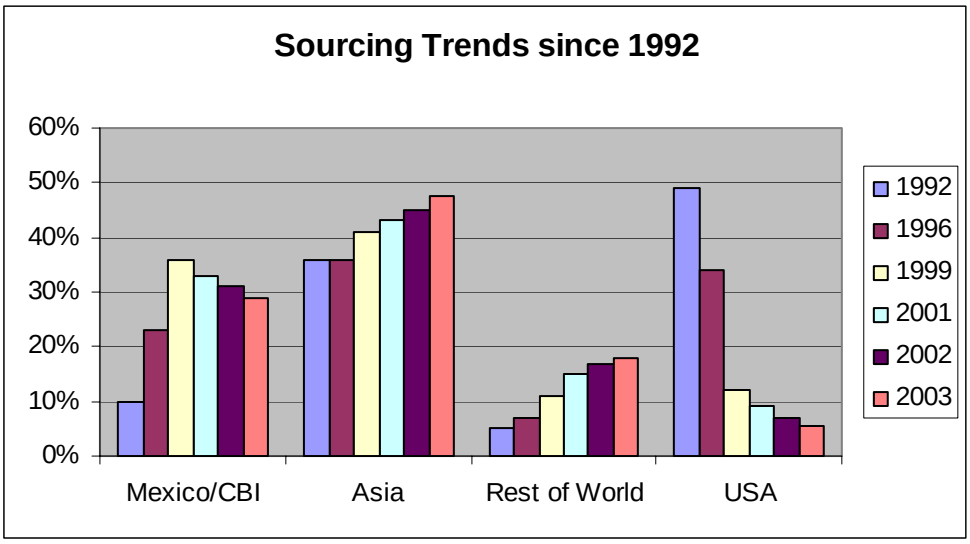


Figure 29. Global Sourcing Trends since 1992

Source: Adapted by T. Glaser, 2005.

Upon seeing this movement, it was necessary to analyze these regions and their apparel trade with the US (Figure 30).

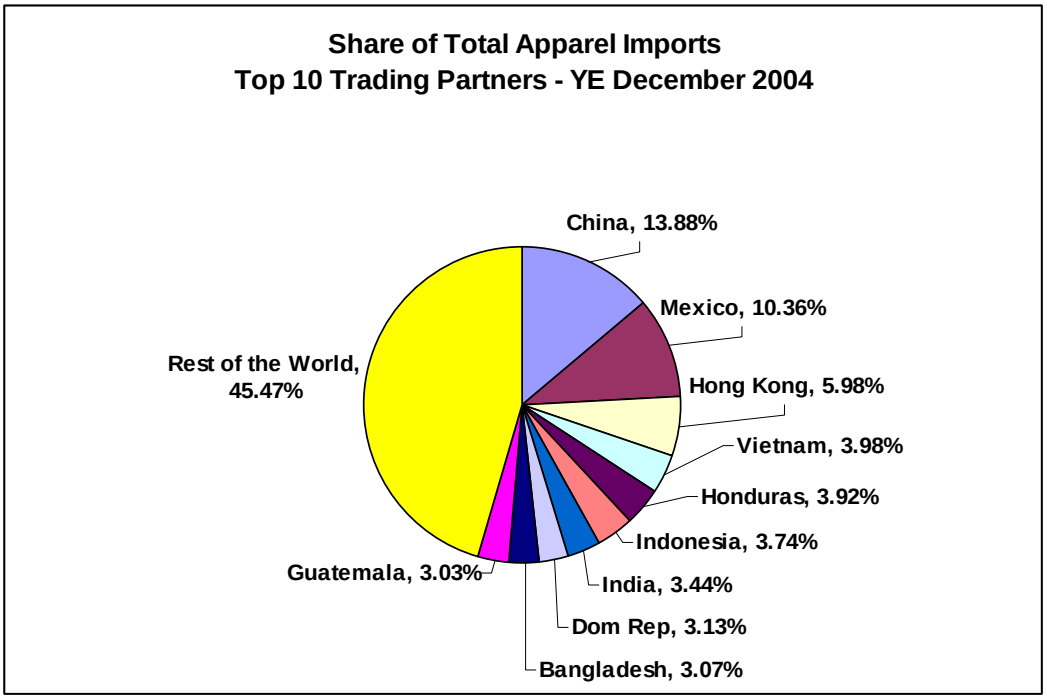


Figure 30. Share of Total Apparel Imports From US' Top Ten Trading Partners

Source: OTEXA (online). Major Shippers Report of Apparel Imports, All MFA Fiber. February, 2005.

As of the year end in December 2004, these ten nations accounted for more than half, 54.53%, of the apparel imports coming into the US. However, out of these ten nations, only four were found to be in the Western Hemisphere and made up 20.44% of the total apparel imports. At the same time, the six nations in the Eastern Hemisphere composed about 34.09% of apparel imports.

Though apparel imports from other countries are important as a trend, it is just as significant to look at their growth rates from December 2003 to December 2004 (Figure 31).

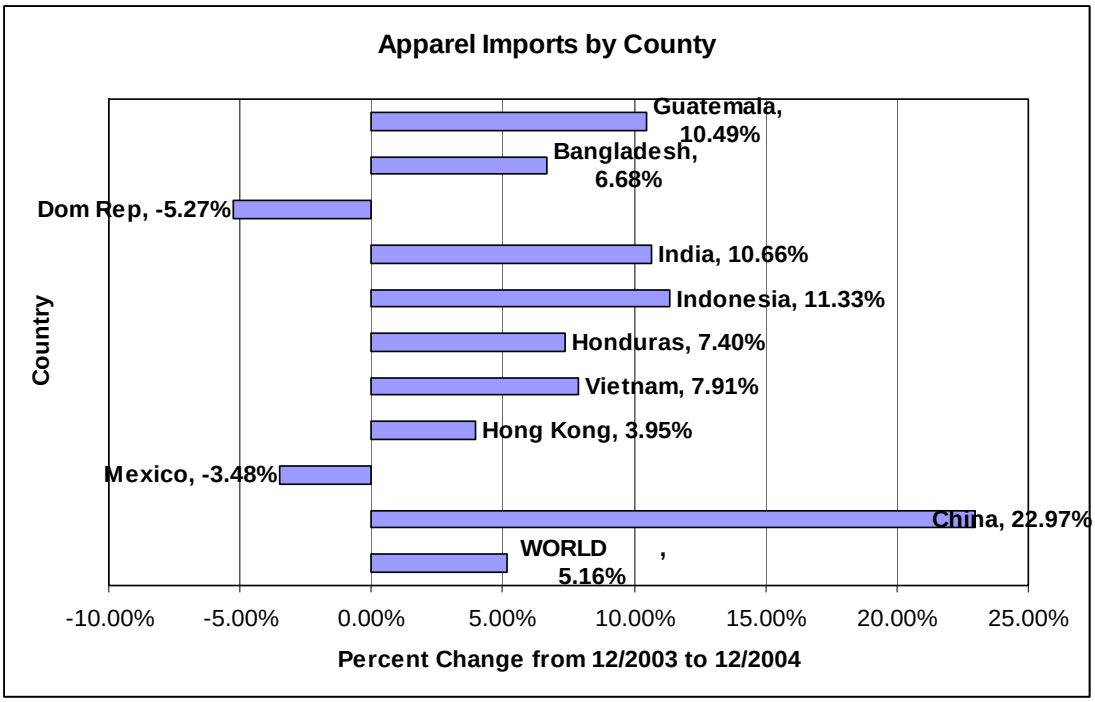


Figure 31. Change in Apparel Imports by Country from December 2003 to December 2004

Source: OTEXA (online). Major Shippers Report of Apparel Imports, All MFA Fiber. February, 2005.

In regards to the top ten trading partners, an obvious trend can be seen. The imports from Mexico and the Dominican Republic decreased by 3.48% and 5.27%, respectively, and Honduras and Guatemala grew by 7.40% and 10.49%. The Eastern Hemisphere countries' apparel imports rose for China (22.97%), Indonesia (11.33%), India (10.66%), Vietnam (7.91%), Bangladesh (6.68%) and Hong Kong (3.95%). The world growth average was 5.16% with a majority of the top ten trading partners seeing a higher rate than the average.

Along with a rapid increase in imports of both textiles and apparel, there has also been a downshift in production in the US (Figures 32 & 33).

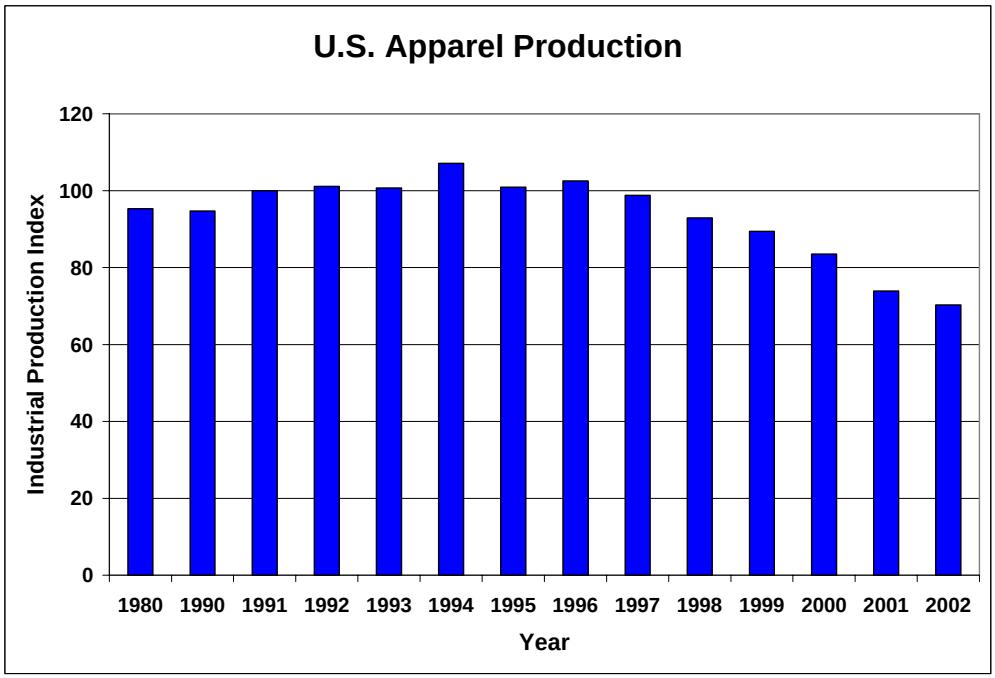


Figure 32. US Apparel Production 1980-2002

Source: American Apparel and Footwear Association. *Trends - A Semi-Annual Compilation of Statistical Information on the U.S. Apparel and Footwear Industries* (Online). 2003.

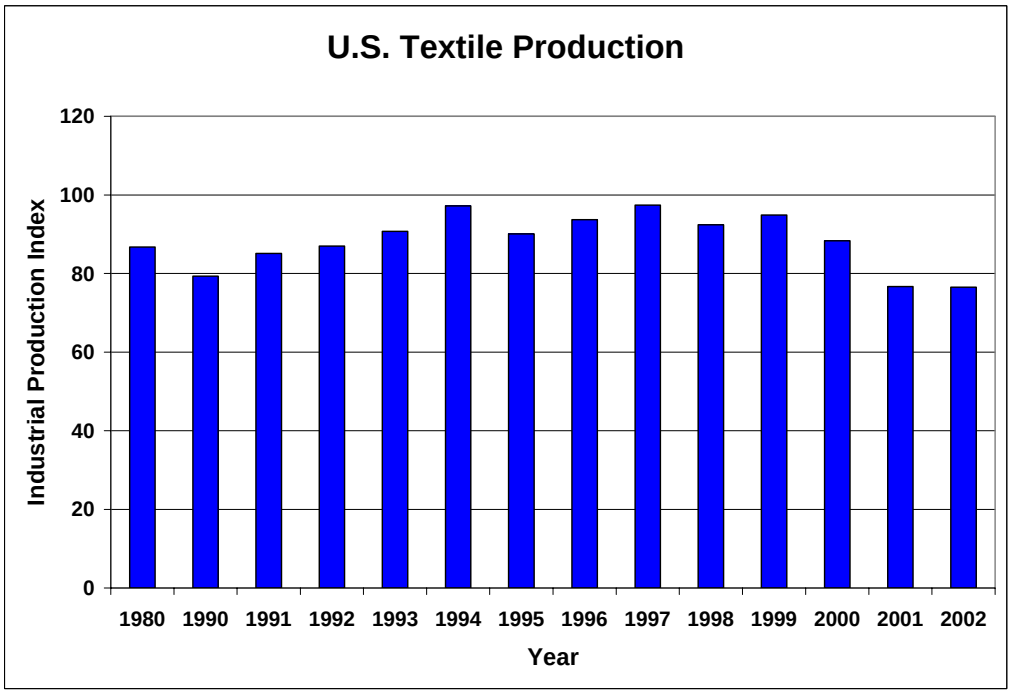


Figure 33. US Textile Production 1980-2002

Source: American Apparel and Footwear Association. *Trends - A Semi-Annual Compilation of Statistical Information on the U.S. Apparel and Footwear Industries* (Online). 2003.

As more imports flood the US market, they are replacing US products. The industry trends show that the US' ability to compete in the manufacturing of apparel as well as textiles is diminishing.

With the surge of imports as well as the decrease in production, the textile and apparel supply chain is evolving. What used to be a very simple domestic supply chain is now spreading itself out over the globe. The earlier US textile and apparel supply chain may have resembled the one found in Figure 34 below.

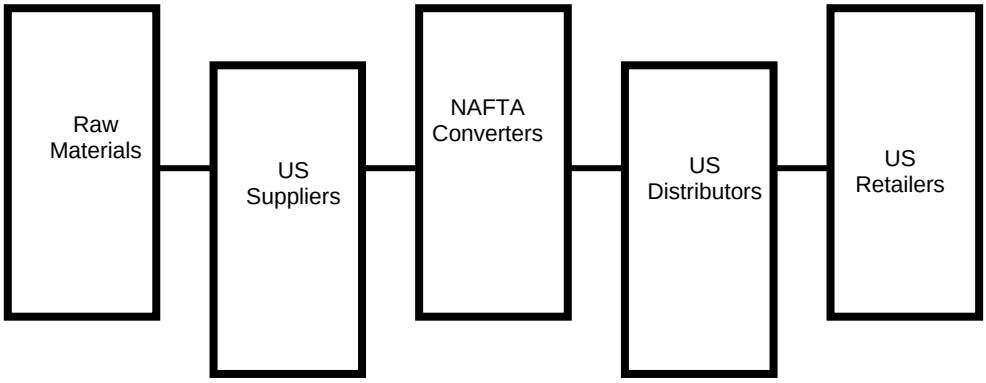


Figure 34. Previous US Textile and Apparel Supply Chain

Source: Adapted by L. Cesca from Cokins, 2003.

Now the textile and apparel chain is highly complex with more suppliers. From the research, a good example of the new Global-US Textile and Apparel Supply Chain can be found in Figure 35.

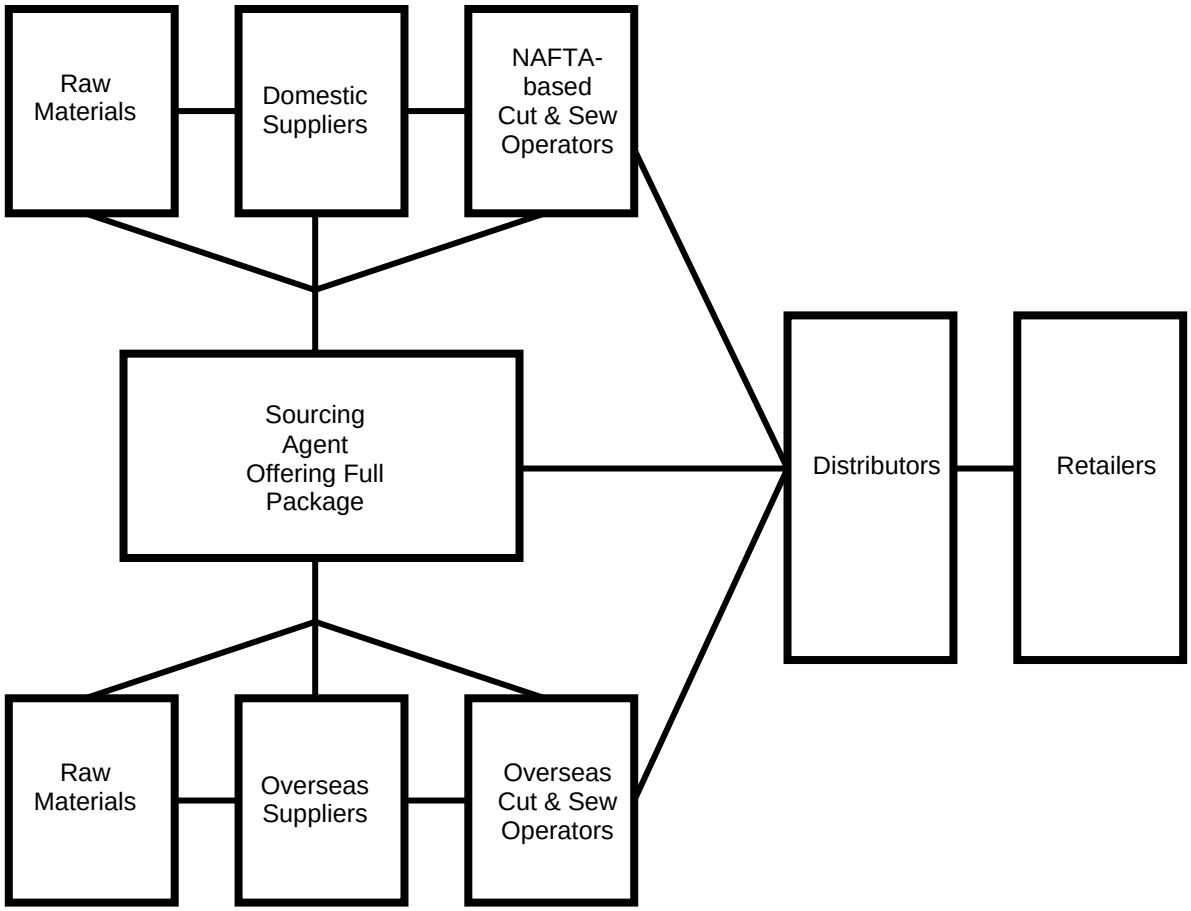


Figure 35. Global-US Textile and Apparel Supply Chain

Adapted by L. Cesca from Cokins, 2003.

Due to this evolution of the supply chain, there are many areas from where the US retailers can acquire their finished goods. Thus, logistics becomes even more of an integral part of the global supply chain. The logistics portion of obtaining the goods from point of origin to point of consumption is considered to be the "Distribution link" found in Figure 34. This section was once a small, easily controlled piece of the supply chain. However, with the more global supply chain, there are more choices when trying to contend with the costs, including decisions such as:

- Use of ocean freight versus air freight or rail versus trucking

- Terms of the contract when dealing with the freight and supplies such as whether to ship FOB or CIF
- Assessing the strength of the credit of the supplier
- Selection of port and associated customs compliance issues
- Use of new technology, such as RFID, and groups, such as 3rd Party Logistics Coordinators

Effective management and optimization of these costs would be a competitive advantage to any retailer, manufacturer or sourcing agent. It would also serve as a value-added service from the manufacturer or sourcing agent to the retailers.

Step 3: Bed-Bath Market and Bottom Weight Market Trends

From the initial literature, two common trends were found in the US Bed-bath and Bottom weights markets. The first was that imports in both of these markets have been on the rise since 1997, like most other textile and apparel product categories.

The second trend that was found was that US fabric production in the Bed-bath and Bottom weights markets has been on a steady decline since 1997. A review of industry trends provided by S&P Net Advantage found seven key trends:

1. Increased offshore sourcing
2. Advanced technology
3. Shorter cycles
4. Diversification
5. New shopping trends

Trend 1-Offshore Sourcing Increase

In both markets, an increase in offshore sourcing has been seen. "In an ongoing search to cut expenses US manufacturers have increasingly moved their production facilities to lower-cost regions outside of the US, notably Mexico, the Carribbean, Central America, Asia and Sub-Saharan Africa" (Driscoll & Wagle, 2004, pg. 3). Proximity, speed and cost have all become important factors in choosing where to set up facilities offshore. Currently, due to the North American Free Trade Agreement (NAFTA), an increase in apparel manufacturing has been seen in Mexico and the Caribbean due to proximity to the US market as well as the low cost of production (Driscoll & Wagle, 2004, pg. 3). However, as can be seen in the following sections, proximity and shipping speed are the not the only factors; cost is just as important. Due to retailers and manufacturers seeking low cost labor, a shift has occurred in import penetration and production of products within the Bed-bath and Bottom weights market.

Bed-Bath Market

High import penetration as well as a decrease in US production was found in the Bed-bath market as indicated in Figure 36. From 1997 to 2003, imports of Bed-bath products have increased from 70 million units to approximately 150 million units. Conversely, the production of these goods has decreased from 80 million units in 1997 to 50 million units in 2003.

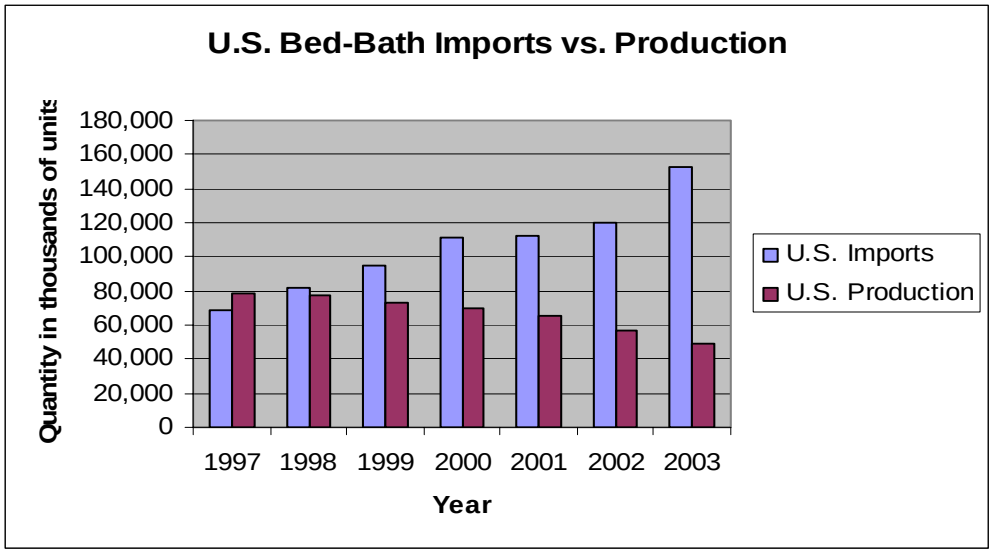


Figure 36. US Bed-Bath Imports and Production

Source: 1997-2003. Current Industrial Reports: Bed and Bath Furnishings. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

It is important to look at both trends to understand the full meaning. First, the US production has decreased specifically for sheets, pillowcases and terry towels. Sheets began to slow production in 1996, with a small gain in production in 1999. However, the decline remained steady from 1999 to 2003 ending the year with approximately 12 million dozen units. Pillowcases saw a similar rise and fall ending 2003 with 11 million dozen units. Terry towels has seen the biggest change with peak production in 1995 at almost 50 million dozen units and then reducing by almost half at the end of 2003 with 26 million dozen units (Figure 37).

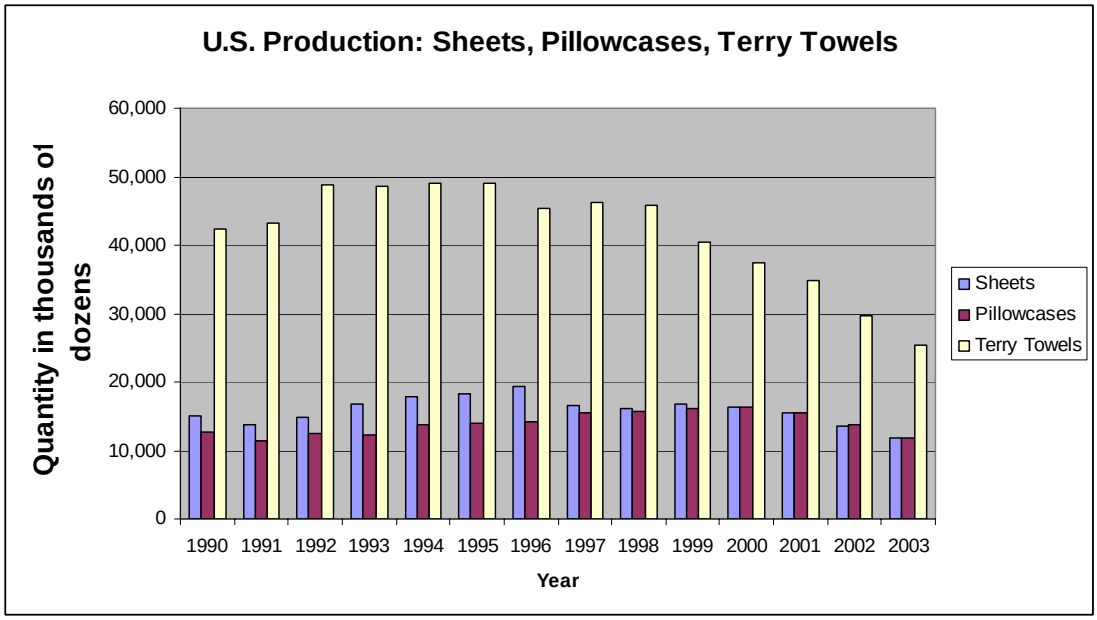


Figure 37. US Production: Sheets, Pillowcases & Terry Towels

Source: 1997-2003. Current Industrial Reports: Bed and Bath Furnishings. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

Equally as important is the amount of home textile products being imported by US companies and, as indicated by Figure 38, many US manufacturers have begun to import a percentage of their goods. The general trend from 2003 to 2004 is that companies in the US are increasing the amount of goods that they import per year. This trend can be seen when looking at key industry players like Springs Industries and Franco as well as the smaller players like CHF and Revman.

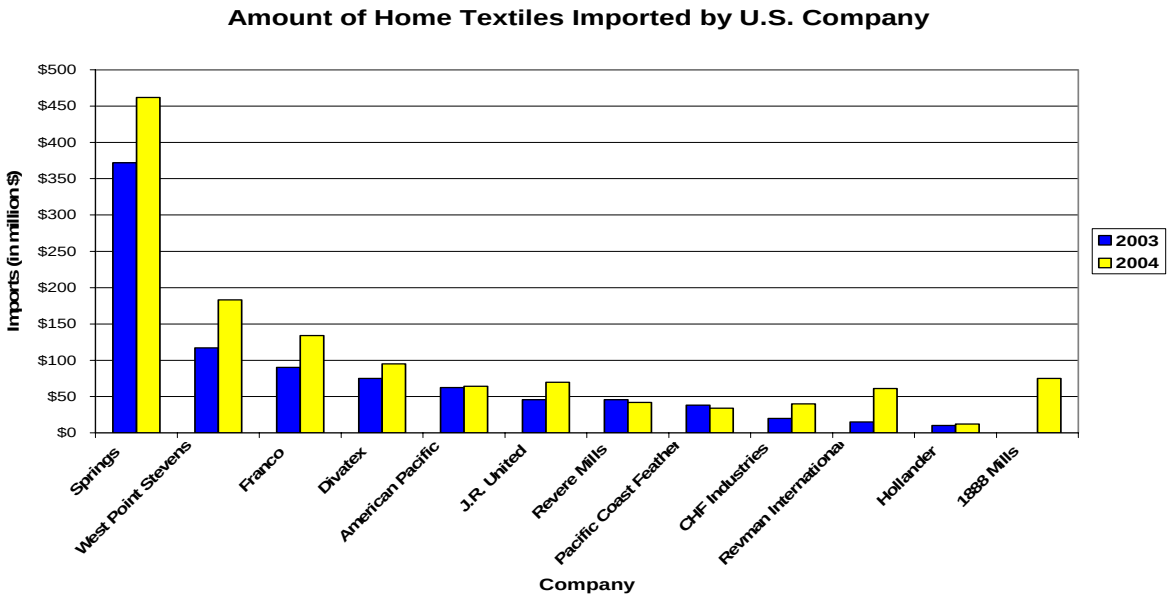


Figure 38. Amount of Home Textiles Imported by US Company

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. HomeTextiles Today. http://hometextilestoday.com

Once this trend was seen, it was important to understand the origin of home textile imports. It can be seen in Figure 39 that the major exporters of home textiles to the US are India, Pakistan, Brazil, Turkey and China. They were the top five exporters of Bed-bath products in 2003 and have increased their share in 2004. India increased their exports by 13%, Pakistan by 19%, Brazil by 18%, and Turkey by 20%. China had the highest increase in home textiles exports at 77%.

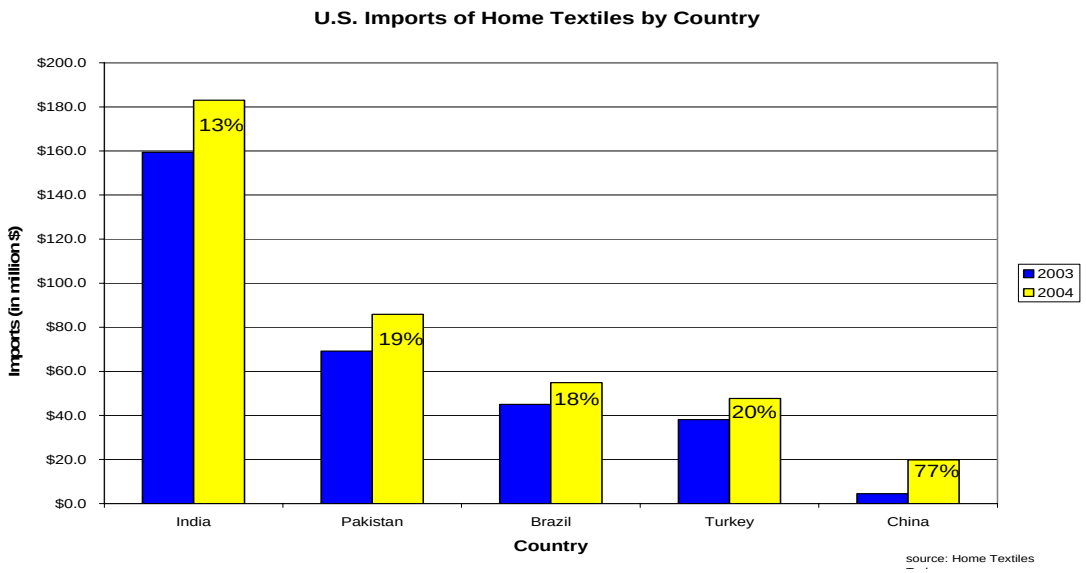


Figure 39. US Imports of Home Textiles by Country

Source: February 17, 2004. Top 15 Vendors – 2003. (Online), August 30, 2004. *Home Textiles Today.* http://hometextilestoday.com

Though it is important that these countries are the largest exporters to the US of home textiles, they do not necessarily hold the world's largest market share. For example, though China had the largest growth rate from 2003 to 2004, they actually produce less home textiles than Pakistan. Pakistan produces 1,082,074,553 square meter equivalents, which is approximately one third of the world's home textiles. However, each county that exports to the US may not be a significant world supplier; such is the case with Brazil being responsible for 2.44% of the world's production.

Table 14. Top 10 Cotton Bed-bath Producing Countries by Square Meter Equivalent (SME)

Country	SME	% Share of World Production
World	3,877,301,263	100.00%
Pakistan	1,082,074,553	27.90%
Portugal	427,304,905	11.00%
China	413,664,258	10.70%
Turkey	372,615,243	9.60%
India	366,396,720	9.40%
Philippines	132,342,750	3.40%
Mexico	120,540,377	3.10%
Bangladesh	116,518,718	3.00%
Israel	95,883,083	2.50%
Brazil	94,686,317	2.40%

Source: Cotton, Inc. 2004.

The most important statistic that can be seen is that the top five exporters of home textiles to the US produce approximately 60% of the world production of these goods. Table 14 shows the ten countries that produce the most square meter equivalents in the world for this market which comprises 83% of the entire market.

Bottom weights Market

The same high US import penetration along with diminishing production was found in the Bottom weights market for the US. Figure 40 shows that US production of Bottom weights has steadily declined from a little over 1 billion units in 1997 to just under 750 million units in 2003. On the contrary, imports have more than doubled from under 1.5 billion units in 1997 to 3 billion units in 2003.

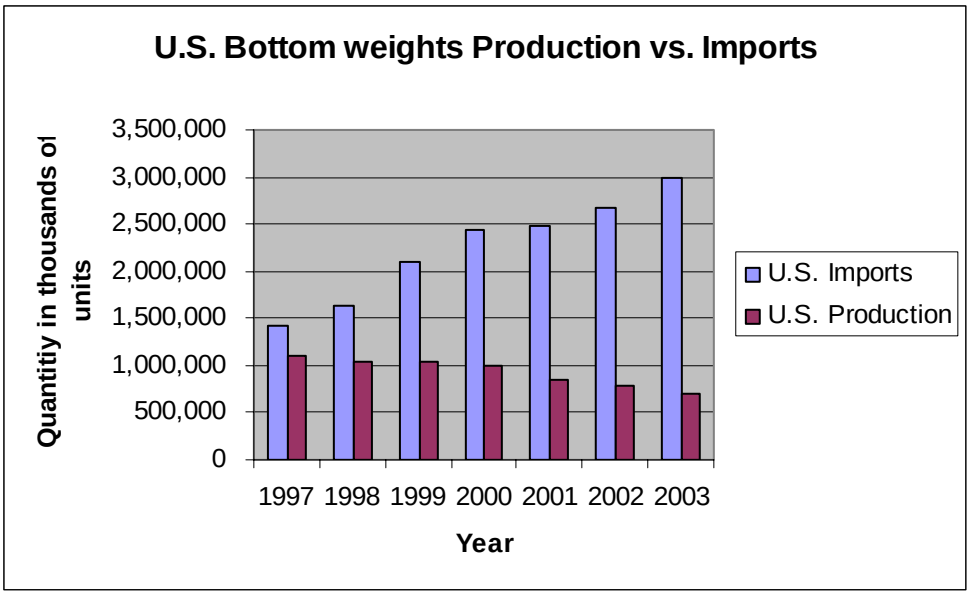


Figure 40. US Bottom Weights Imports and Production

Source: 1997-2003. Current Industrial Reports: Apparel. (Online), September 20, 2004. U.S. Census Bureau. http://www.census.gov/cir/www/

However these shipments were not coming from the same countries as the home textiles imports, as can be seen in the following figures. It can be seen in Figure 41 that the concentration of cotton Bottom weights exports came from Mexico, Dominican Republic, Hong Kong, Vietnam, Guatemala, Honduras. Mexico leads the group with over 30 million dozen units shipped to the US in 2003. The Dominican Republic and Vietnam follow with about ten million dozen units each. Hong Kong, Guatemala and Honduras shipped about five million dozen each in 2003.

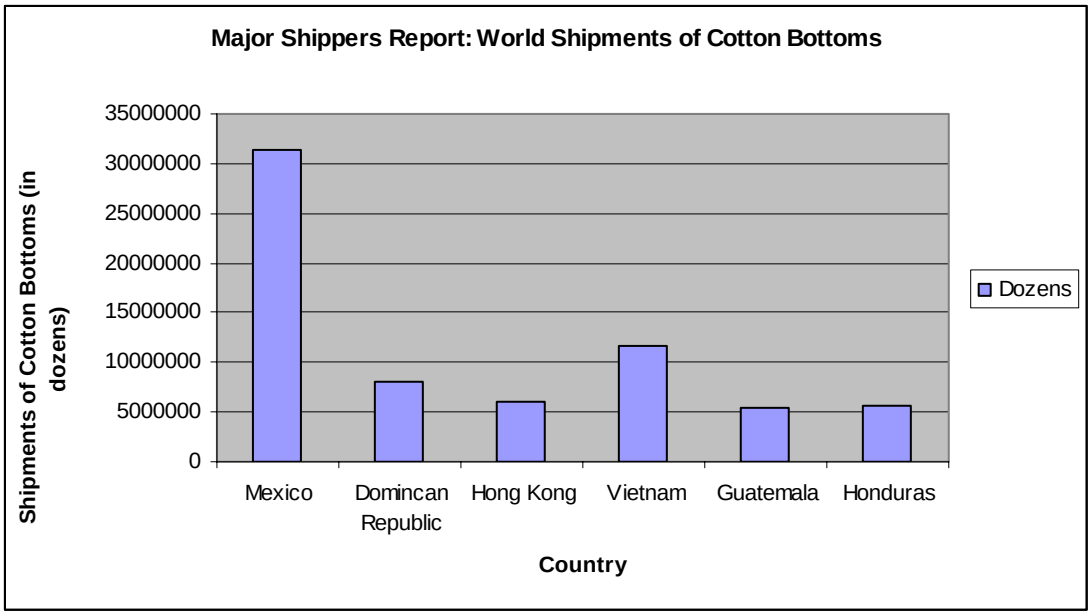


Figure 41. Top Countries Shipping Cotton Bottoms

Source: Office of Textile and Apparel: Major Shippers Report, 2004

In Figure 42 shipments for man-made fiber bottoms are shown for 2004. Similar countries can be seen sending their bottom to the US like Mexico, Guatemala and the Dominican Republic. However, this figure shows some other key players in the Bottom weights market such as Indonesia, China and Bangladesh. Indonesia and China shipped over four million dozen man-made bottoms each to the US with Bangladesh following with almost three million dozen units.

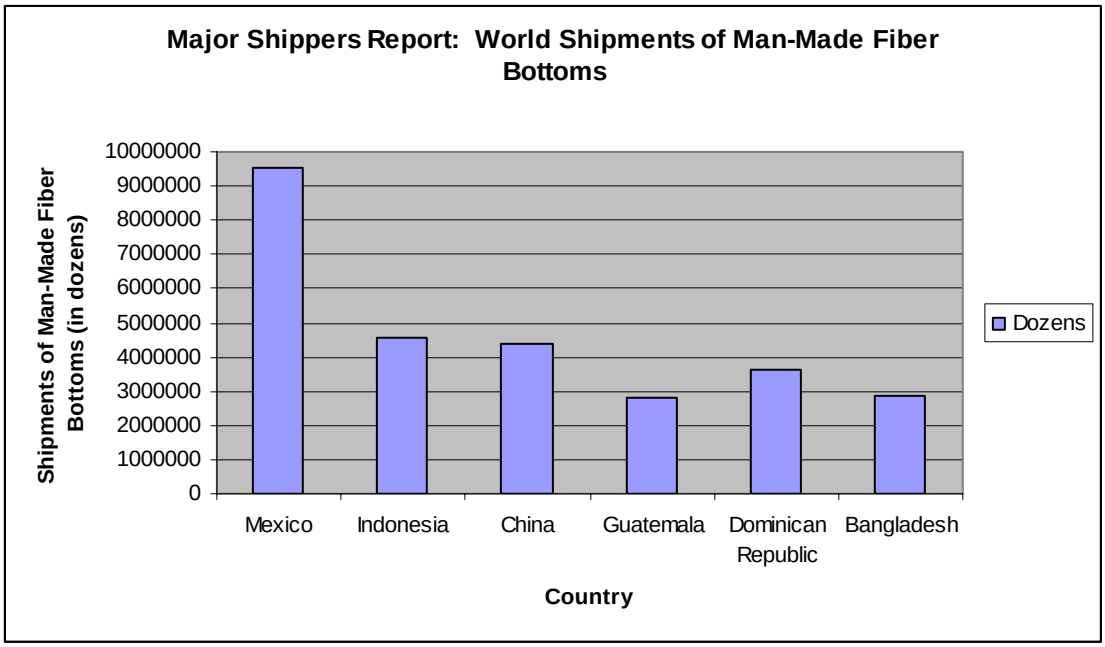


Figure 42. Top Countries Shipping Man-Made Fiber Bottoms

Source: Office of Textile and Apparel: Major Shippers Report, 2004

With the information provided by the Major Shippers Report, the main countries exporting their bottoms, cotton and man-made fiber, into the US are the following: Mexico, Dominican Republic, Hong Kong, Vietnam, Guatemala, Honduras, China, Indonesia and Bangladesh.

The competition between the Western and Eastern Hemisphere for production of both Bed-bath and Bottom weights products is increasing. Countries like Mexico and ones within Central America were thought to have a competitive advantage over Asian countries due to their quick turnaround time. However, their proximity will "prove less significant than China's lower costs" due to streamlined logistics operations that will make production and shipping seem effortless (Driscoll & Wagle, 2004, pg. 4).

Trend 2-Advanced Technology

Due to the introduction of new technology, the competitive landscape for manufacturers and retailers is changing. There have been two major technological developments in the past decade: automatic replenishment using Point of Sales (POS) data and customization.

Automatic replenishment through the use of Point of Sales (POS) data is an innovation that is being used throughout the retail community. Companies like Wal-Mart are already using it to streamline their inventory management practices. POS computer technology records each sale, updates inventory and shares the information between the retailer and supplier (Driscoll & Wagle, 2004, pg. 2). Within these markets, it is improving the relationship between suppliers and retailers is taking place because the suppliers are now able to plan production and logistics accordingly to real-time sales information.

Customization focuses more on the apparel side and the Bottom weights market has responded. Companies like Levi Strauss & Co. and Land's End have offered bottoms customized to fit and with specialized features in order to create a value-added service to their customers. Customization is usually produced domestically, or in close proximity to the market, due to time constraints in offshore production. Therefore, it "may be the saving grace for domestic producers" by influencing manufacturers and retailers to rethink their offshore sourcing strategies (Driscoll & Wagle, 2004, pg. 1). Both technological advances are serving to add-value to the Bed-bath and Bottom weights markets.

Trend 3-Shorter Cycles

Retailers have become more vigilant in keeping their inventories down because it results in less mark downs and unsold products (Asaeda, 2004). However, being out-of-stock on items can cause a loss of sales and therefore decreased revenues and profits. Unfortunately, manufacturers are the ones left holding the inventory for the retailers which increases their inventory carrying cost and lowers their profit. Shorter seasons have begun to emerge with retailers trying to keep less stock, which has resulted in manufacturers needing to shorten design, development, production and distribution cycles. These shorter cycles have forced retailers and suppliers to rethink their manufacturing strategies, whether it helps or hinders to be offshore. From this situation, the concept of "80/20" production has emerged. In order to keep prices low, 80% of goods are manufactured offshore. However, in order to respond quickly to market trends and demands, 20% is manufactured domestically. Both markets use this concept of offshore sourcing in order to "maintain a certain level of domestic production to fulfill small orders and those for seasonal and special items" (Driscoll & Wagle, 2004, pg. 1).

Trend 4-Diversification

Average selling prices have been declining with contributing factors including: import penetration, retail promotions and market share gains by discounters (Driscoll & Wagle, 2004). The mounting pressure on retailers to decrease their prices in order to compete has forced them to pressure their suppliers to lower their production costs. This has caused retailers and manufacturers, alike, to look for off-shore sourcing alternatives, as mentioned in Trend 1. It has also resulted in

strategic alliances being formed between manufacturers and discounters in order to boost profitability by selling in such large volumes. The emerging trend of price deflation and strategic partnering has led to companies to rely on diversification in order to survive.

Companies have learned that “relying on a single product line, market segment or sales channel can lead to failure” (Driscoll & Wagle, 2004, pg. 5). In order to remain competitive, companies have diversified themselves through the acquisitioning of other companies and brands as well as licensing and private label.

Corporate and brand acquisitions can eliminate current or potential competitors, while adding to the acquirer’s profit and market share (Driscoll & Wagle, 2004). As more and more textile and apparel companies consolidate, it gives the larger companies the advantage with smaller suppliers which can lead to continued consolidation. This is happening in both the Bed-bath and Bottom weights markets with corporate mergers and brand acquisitions. In the Bed-bath market, Wal-Mart has bought the Springmaid brand from Springs. While, consolidation within the Bottom weights market includes VF Corporation acquiring the Nautica brand and Kellwood buying Phat Fashions in 2004 (Driscoll & Wagle, 2004). By diversifying in this manner, companies have been able to boost sales, increase profit and lower risk due to market new market involvement.

The arrangement of a license agreement benefits both parties in that it provides a new source of revenue for the licensee as well as extends the brand and provides royalties for the licensor (Driscoll & Wagle, 2004). Therefore, licensing

enhances the portfolio for retailers and manufacturers while providing additional profit margins and cost savings in manufacturing and distribution.

Private labels, however, work differently than licensing arrangements. Retailers have now learned of the benefits of owning a private label: establish a unique identity in the market place and increase customer loyalty (Asaeda, 2004). Retailers have found that with private label brands, for either market, they can be more reactionary to market trends and have better quality control. Manufacturers have found by offering exclusive production of private label brands to retailers, more effective strategic alliances can be formed. All three areas of diversification can lead to enhanced profitability and performance in the marketplace.

Trend 5-Cross Shopping

Cross shopping can be defined as "the practice of patronizing stores across the economic spectrum to best meet one's needs" (Asaeda, 2004, pg. 9). It is a trend that has emerged alongside the rising popularity of mass merchants, such as Wal-Mart. Consumers are finding themselves shopping at high-end departments stores like Nordstrom and places like Target and Wal-Mart for basic needs, as well as in between at JC Penney or Bed Bath & Beyond. This shift in shopping behavior has occurred in both markets and makes the all the trends discussed of greater importance. Because of cross-shopping, it more important than ever to have a competitive advantage in the form of product diversification or cost leadership.

Step 4: Sample Background Information

In order to determine the leaders in both the Bed-bath and Bottom weights markets, the NAICS, SIC and SITC codes were determined (Chapter 2, Tables 2 &

3). From this information, it was now possible to find the companies that were involved in all manufacturing and sourcing aspects, as well as retailing, of the product codes. Using the methodology laid out in Chapter 3, these companies were identified and then narrowed to a more feasible sample. Research was conducted on this sample regarding the following: sales, growth rates, corporate information and performance factors. Letters and emails were then sent out asking for the company to commit to an information interview. Those that declined were dropped from the sample. Those companies that agreed were further researched in order to gain background information to fully prepare for the industry interviews.

Step 5: Analyze Results

Once Steps 1 – 4 were completed, it was then feasible to conduct information interviews in order to obtain primary data. Phase II shows the results of these information interviews.

Phase II

Sample Description

Data regarding logistics costs, competitive advantage, strategy and performance was obtained from each of the sample companies. The information was analyzed and a visual depiction of each company's logistics chain, or how they move their goods from fiber to a finished product for the end consumer, was determined.

Comparison of Interviewees Information for the Bed-bath and Bottom Weights Markets Regarding Logistics

Within and Across Group Results

The results of the information interviews were analyzed in relation to each research objective. First, each company's logistics chain was compared to others and commonalities were found. Then the logistics chains were categorized into three groupings. A description of the three categories and the corresponding companies can be found in Figures 43-45 and Tables 15-17.

Logistics Chain 1

Logistics Chain 1 represents a global logistics chain for US/US-Offshore suppliers and sourcing agents involved in both product categories. Considered to be Tier 1 suppliers, these firms produced finished products. These companies were involved in a blended sourcing strategy which meant that they either owned or had partnerships with multiple textile manufacturing facilities, including cut and sew operations, in other areas of the world such as Asia and South/Central America as well as facilities within the US. However, it should be noted that the facilities within

the US were used for either replenishment or for the storage and packaging of manufactured goods sourced offshore. There were ports being used to ship goods from the offshore manufacturing component to the US port and then the goods were either trucked or railed to the customers' distribution center or retail outlet. Companies involved in Logistics Chain 1 almost always held the responsibility of getting the finished products to the US port. There were also many occasions when the inbound procedures, such as trucking or railing, were also their responsibility. The responsibility of shipping the goods can be quite costly, especially on a global basis, and therefore Logistics Chain 1 experienced higher costs.

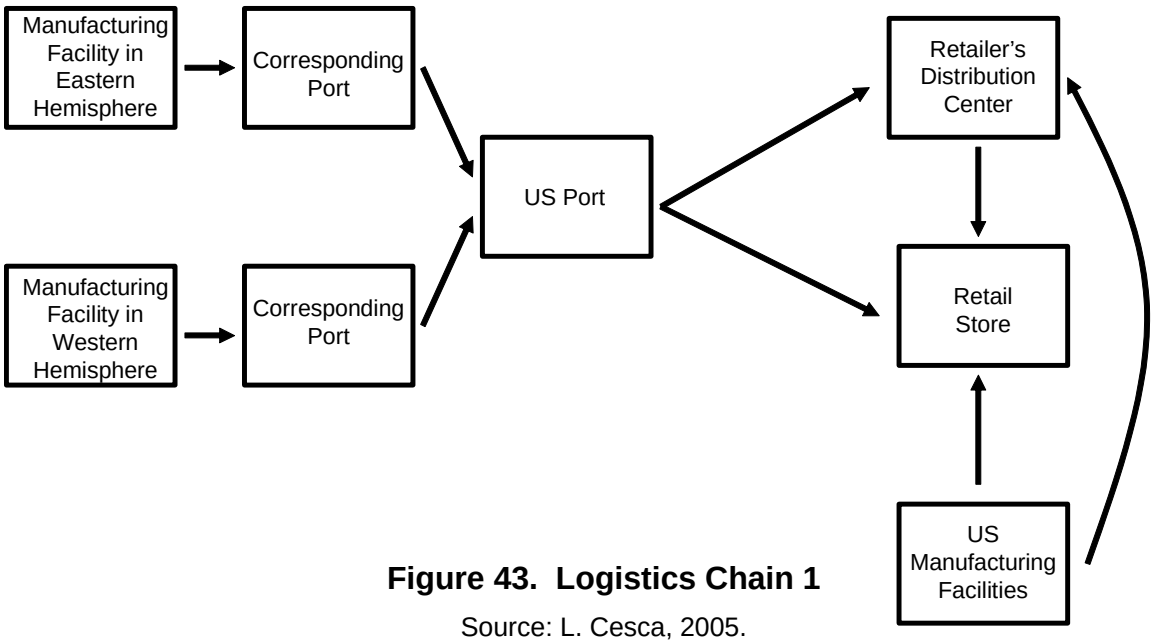


Figure 43. Logistics Chain 1

Source: L. Cesca, 2005.

Table 15. Logistics Chain 1: Companies, Categories and Markets Involved

Company	Company Category	Market
A	US/US-Offshore Manufacturer	Bed-Bath
B	US/US-Offshore Manufacturer	Bed-Bath
J	US/US-Offshore Manufacturer	Bottom Weights
K	US/US-Offshore Manufacturer	Bottom Weights
L	US/US-Offshore Manufacturer	Bottom Weights
M	US/US-Offshore Manufacturer	Bottom Weights
P	Sourcing Agent	Both

Source: L. Cesca, 2005

Companies A, B, J, K, L, M and P shared similar logistics chains and were from both markets.

Logistics Chain 2

Logistics Chain 2 represented the method used by the retailer in order to obtain their products.

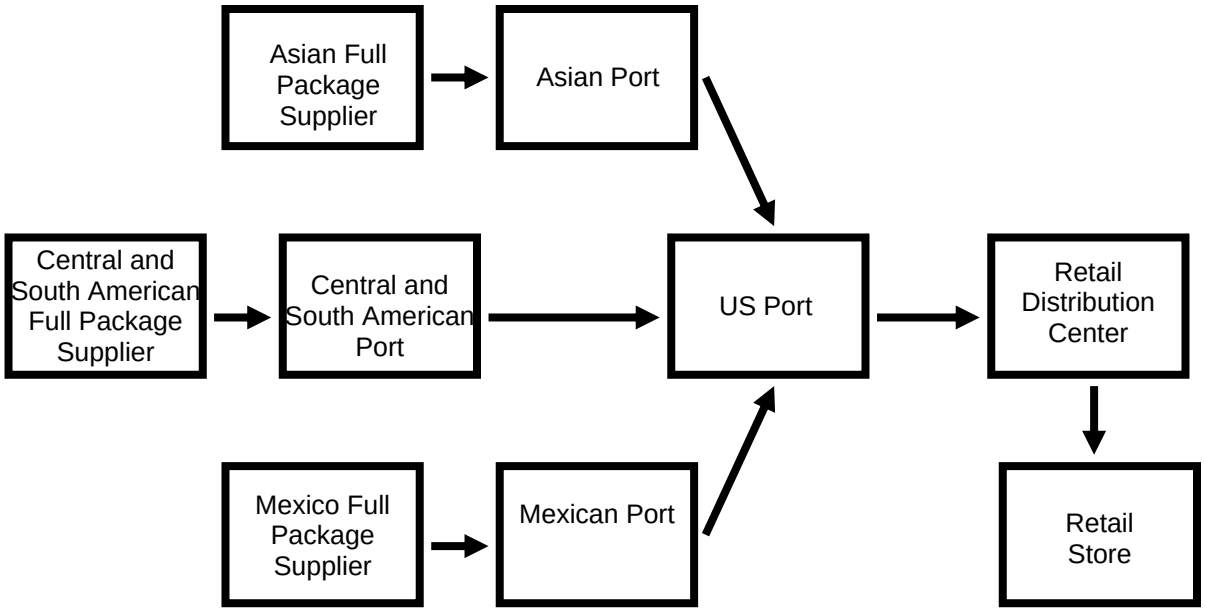


Figure 44. Logistics Chain 2

Source: L. Cesca, 2005

Table 16. Logistics Chain 2: Companies, Categories and Markets Involved

Company	Company Category	Market
C	Retailer	Bed-Bath
D	Retailer	Bed-Bath
E	Retailer	Bed-Bath
F	Retailer	Bed-Bath
N	Retailer	Bottom Weights
O	Retailer	Bottom Weights

Source: L. Cesca, 2005

Companies C, D, E, F, N, and O share similar logistics chains, were from both markets and were mainly retailers. It is important to note that Logistics Chains 1 and 2 are very similar due to the global nature however there was one main difference: responsibility of goods. This was defined as the point at which the company has responsibility for the goods during formation and movement from fiber to finished good. As mentioned on page 94, Logistics Chain 1 usually had responsibility up to the US Port and there were times when they had the duty of getting the products from the port to the "door"; meaning to either the distribution center or the retail

outlet. The retailers were very rarely burdened by the logistics process of getting the goods from overseas to their stores and were therefore able to minimize costs. In some instances, the retailers would have to air freight the products in order to meet a due date but "charge back" the manufacturers in order to make up for the increased expense and the loss of time.

Logistics Chain 3

The logistics chain of US/US manufacturers, or textile manufacturers, is represented by Logistics Chain 3. These companies mainly manufactured fabric, finished in some cases, and were thought of as Tier 2 and 3 suppliers. The chain represents the movement of goods from US factory to US factory, usually by truck. Because of the domestic nature of their supply chain, these companies do not use a port in their logistics chain.

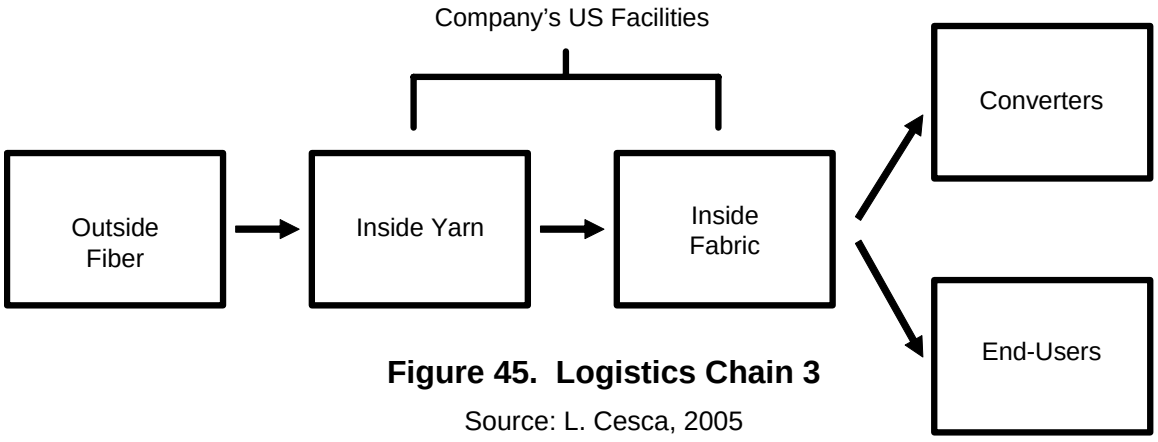


Figure 45. Logistics Chain 3

Source: L. Cesca, 2005

Table 17. Logistics Chain 3: Companies, Categories and Markets Involved

Company	Company Category	Market
G	US/US Manufacturer	Bottom Weights
H	US/US Manufacturer	Bottom Weights
I	US/US Manufacturer	Bottom Weights

Source: L. Cesca, 2005

Logistics Chain 3 was applicable to all of the US Bottom weights manufacturers that did not use off-shore operations in order to supplement their business. Perhaps the most simplistic without an off-shore component, these chains are still difficult to manage and can be rather costly.

Once the sample companies were categorized into different chains, the objectives presented in Chapter 1 are shown and the findings follow. When feasible, the results for each research objective are presented in the following format:

1. Comparison of all companies involved within the Bed-bath market
2. Comparison of all companies involved within the Bottom weights market
3. Comparison across the two markets

Additional findings are presented following the results for the research objectives.

Logistics Costs

RO1A Examine logistics costs in terms of the percentage they represent in the finished product cost.

The companies in both the Bed-bath and Bottom weights markets were asked what percent of the total cost of the product logistics represented. The proprietary nature of the question yielded little response from the interviewees. The Bed-bath sample size was seven however; Company B was the only company to reply. Only four companies answered out of a sample size of ten for the Bottom weights market. Due to the low response rates of 14% and 40% respectively, a comparison within each market was not made. However, enough information was obtained in order to draw a comparison among the US manufacturers, global manufacturers and

retailers. Table 18 shows the type of company, logistics chain, and response for each company.

Table 18. Comparison of Both Markets Logistics Percentages

Company	Type of Company and Market Involvement	Logistics Chain	Logistics as a Percent of Total Cost of the Product
Company A	US/US-Offshore Manufacturer Bed-Bath	1	18-25%
Company B	US/US-Offshore Manufacturer Bed-Bath	1	20-25%
Company J	US/US-Offshore Manufacturer Bottom Weights	1	20%
Company K	US/US-Offshore Manufacturer Bottom Weights	1	38%
Company O	Retailer Bottom Weights	2	7%
Company H	US/US Manufacturer Bottom Weights	3	2%

Source: L. Cesca, 2005

Finding 1

It can be seen from Table 18 that independent of the product category, companies with Logistics Chain 1 had higher logistics costs. The companies with Logistics Chain 2 had a much lower logistics cost relative to Chain 1 companies. This is important because these two types of chains have similar structures with different responsibility for the goods being shipped. For example Companies A and B have responsibility for their products until they reach the retailer (FOB US) which increases their costs for lower the cost for firms such as Company O. On the contrary, Company H's logistics cost remain the lowest for a number of reasons.

First, is that they are a US/US manufacturers meaning that they only need to ship their goods within the US. Second, because this is the standard way of business, Company H has its own transportation line and therefore is able to minimize trucking costs.

RO1B Examine logistics costs in terms of the global textile and apparel supply chains.

From secondary research, the six main cost categories were identified to be administration, customs costs, handling & packaging, inventory holding, risk & damage and transportation. Each company in the sample was asked to discuss the percent allocation of these costs along their company specific supply chain. The Bed-bath sample (n=7) and the Bottom weights sample (n=10) were asked to give percent allocations regarding their logistics costs. This question was considered proprietary in nature, and therefore two companies and five companies answered from each market, respectively. Because the answers did not differ by market, the results are presented in conglomeration in Table 19.

Table 19. Comparison of Logistics Costs Allocations Along the Supply Chain

Company	Administration	Customs Costs	Handling & Packaging	Inventory Holding	Risk & Damage	Transportation
Company A	17%	11%	5 %	63%	0 %	4%
Company B	5%	4%	26%	4-5%	0%	60%
Company G	0%	0%	1-2%	Did not answer	0.50%	Less than 1%
Company H	0%	0%	0%	40%	0%	60%
Company K	Not significant	19%	5%	Did not answer	Part of Adminstration	6%
Company M	7%	3%	10%	5%	3%	72%
Company O	Not significant	15%	Not significant	Not significant	Not significant	82%

Source: L. Cesca, 2005

Finding 1

Table 20. Comparison of Companies' Inventory Holding Costs as a Percentage of the Total Logistics Cost

Company	Company Category	Logistics Chain	Inventory Holding
Company A	US/US-Offshore Manufacturer Bed-Bath	1	63%
Company H	US/US Manufacturer Bottom Weights	3	40%
Company O	Retailer Bottom Weights	2	Not Significant

Source: L. Cesca, 2005

Inventory holding costs were large for Company A and Company H at 63% and 40% of the logistics cost, respectively. Company O is a retailer with a minimal inventory holding cost (Table 20). Company A is a US/US-Offshore, full package supplier while Company H is more upstream, producing fabric strictly in the US. Both companies are manufacturers with different sourcing and production strategies; yet they both service the retailers, whether directly or indirectly. Therefore, inventory holding cost is a function of where the company is located along the supply chain. Primary research said that retailers have been trying to slim down their inventories in order to look more profitable and become more flexible. Therefore, the burden of holding inventory falls on the companies located upstream, such at Companies A and H.

Finding 2

Though Company A and H hold inventory for their customers, Company A's cost is almost 23% higher. This is due to the proximity to market and lead-time.

Because all of Company H's manufacturing, fiber to finished fabric, facilities are in the US, the lead-time for processing goods is shorter. Therefore less safety stock needs to be held and inventory holding costs are lower. However, Company A sources globally and needs to hold excess inventory on-site, or safety stock, in order to counteract any issues that arise in overseas production or transport of their goods. It should be noted that Company A follows a 50% domestic and 50% off-shore strategy. Its inventory costs would be higher than 62.9% but due to its 50/50 strategy, it has the ability to use the quick replenishment strategy like Company H.

It should be noted that Companies B and M are upstream suppliers but that their inventory holding costs are lower than Companies A and H. This is due to most of their goods constantly being in transit and therefore the inventory holding cost is partially incorporated into the transportation costs.

Finding 3

Table 21. Comparison Companies Transportation Costs as a Percentage of the Total Logistics Cost

Company	Company Category	Logistics Chain	Transportation
Company B	US/US-Offshore Mfgr	1	60%
Company H	US/US Mfgr	3	60%
Company M	US/US-Offshore Mfgr	1	72%
Company O	Retailer	2	82%

Source: L. Cesca, 2005

Transportation costs were over 50% of the logistics cost for Companies B, H, M and O (Table 21). Companies H, M and O are involved in the Bottom weights market which is considered a fashionable market. Therefore, when a trend hits the market and becomes popular very quickly, each company must react. It is more

difficult to manage their transportation costs because they cannot hold inventory for high fashion goods; they must be made to order. However, because Company H is a fabric manufacturer, they can prepare for a trend by holding fabric inventory shipping out immediately. Company M's transportation costs are higher because they mainly source their goods off-shore. When an unpredicted trend hits the market, Company M must react immediately in order to supply their customers with fashionable bottoms and gain a share of the profit. Transportation becomes a function of time and therefore many different measures are taken in order to get their goods to their customers. Air freighting is one such measure and can be rather costly. Out of the nineteen companies interviewed, including the auxiliary companies, seven companies claimed to use air freighting in dire occasions and it was anywhere from 2% to 5% of their costs. These companies were all manufacturers using an off-shore sourcing strategy with little domestic textile or apparel manufacturing. Two retailers also used air freight as a means to get their goods faster but did not pay the cost; pushing it back on their suppliers instead. Primary research showed that air freighting one container of goods could increase the cost of those goods up to three or four times the ocean freighted amount.

RO1C Ascertain how the identified costs RO1B are managed into different structures.

In order to draw comparisons of how the six cost categories are arranged into different cost structures, it was necessary to average the logistics costs by chain.

Table 22. Comparison Each Logistics Cost, as a Percent of Total Logistics Costs, for Each Logistics Chain

Company	Administration	Customs Costs	Handling & Packaging	Inventory Holding	Risk & Damage	Transportation
Overall Average	5.86%	6.12%	9.26%	35.97%	0.72%	40.34%
Logistics Chain 1	11.15%	7.35%	15.65%	62.90%	0.05%	31.85%
Logistics Chain 2	Not significant	15.00%	Not significant	Not significant	Not significant	82.00%
Logistics Chain 3	0.00%	0.00%	0.00%	40.00%	0.25%	60.00%

Source: L. Cesca, 2005

Finding 1

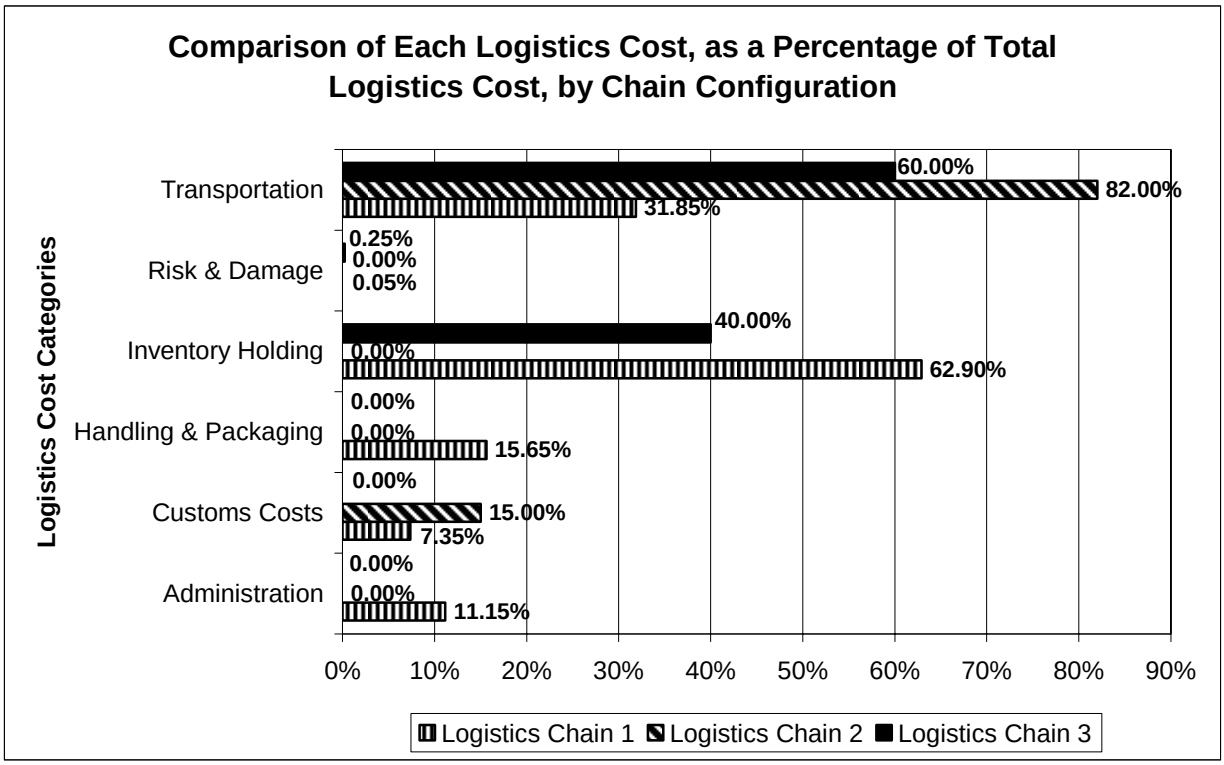


Figure 46 Comparison of Logistics Costs by Chain Configuration

Source: L. Cesca, 2005

All sample companies, regardless of market, were more inclined to spend their money on transportation and inventory holding costs. Companies involved in Logistics Chain 1 found that inventory holding costs weighted more heavily for them

than transportation costs. Logistics Chains 2 and 3 found the opposite to be true, spending more on their transportation costs.

Finding 2

Logistics Chain 1 cost structure is represented in Figure 47. All costs are considered to be important to the overall logistics cost structure; however inventory holding and transportation are clearly the highest costs for these companies. Handling and packaging was considered the third largest cost in their supply chain at 13.77%. Administration costs and customs costs followed at 9.77% and 5.90%. Risk and damage was considered to be less important and only represented approximately 1% of the total logistics cost structure

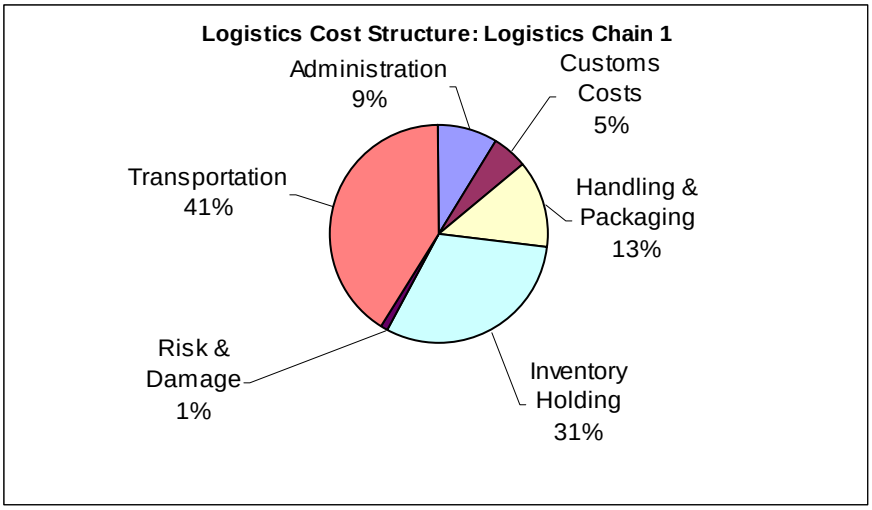


Figure 47. Cost Structure for Logistics Chain 1

Source: L. Cesca, 2005

Finding 3

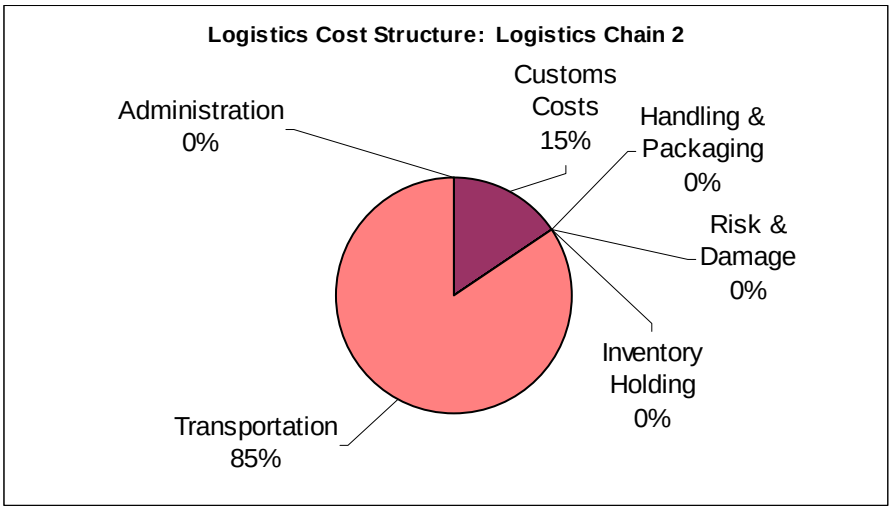


Figure 48. Cost Structure for Logistics Chain 2

Source: L. Cesca, 2005

Logistics Chain 2 mainly focused on transportation (82%) and customs charges (15%), while the other four costs made up the leftover 3% and were considered to be insignificant.

Finding 4

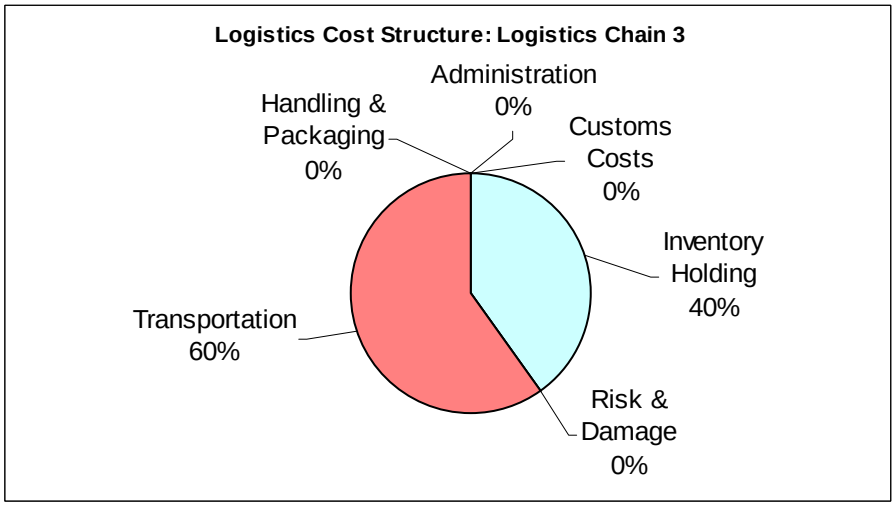


Figure 49. Cost Structure for Logistics Chain 3

Source: L. Cesca, 2005

Companies classified into Logistics Chain 3 spent most of their finances on inventory holding (40%) and transportation (60%). All other logistics costs represented less than 1% of the total logistics cost structure and therefore were not relevant.

Competitive Advantage

RO2A. Find and verify a definition of competitive advantage.

Secondary research found that "competitive advantage can be defined as resource-based, in that it emphasizes that a firm utilizes its ***resources*** and ***capabilities*** to create competitive advantage that ultimately results in superior value creation" (Quickmba.com, 2004, online). The interviewees were asked to verify that definition as well as state whether logistics could be used as a competitive advantage (Table 23).

Table 23. All US/US Manufacturers, US/US-Offshore Manufacturers & Retailers Response to Competitive Advantage Definition and Usage

Company	Agreed with Definition of Competitive Advantage	Did Not Agree with Definition Competitive Advantage	Logistics as a Competitive Advantage: YES	Logistics as a Competitive Advantage: NO
A	X		X	
B	X		X	
C	X		X	
D	X		X	
E	X		X	
F	X		X	
G	X			X
H	X			X
I	X		X	
J	X		X	
K	X			X
L	X		X	
M	X		X	
N	X			X
O	X		X	
P	X		X	

Source: L. Cesca, 2005

Finding 1

100% of the executives agreed with the definition of competitive advantage. This was important in order to ensure that all the sample companies were talking about the same concept in the same manner.

Finding 2

A total of 75% of the respondents agreed that logistics could be used in order to gain competitive advantage. This was a key finding because it meant that tangible companies felt that logistics was essential to their business and therefore had experiences in order to compel them to think in this way.

RO2B. Determine what competitive advantages are the results of certain supply chain configurations and logistical cost structures.

Once the definition of competitive advantage was verified, the interviewees were asked to discuss the advantages that their company had due to logistics. Table 24 shows the 13 most commonly reported competitive advantages that resulted from their logistics operations and costs. Tables 25 and 26 discuss the most commonly reported competitive advantages that were brought up during the in-depth interviews for the Bed-bath market. Tables 27 and 28 show the results from the Bottom weights sample. Then the answers are compared across markets (Table 29) and across logistics chains (Table 30). Tables 29 and 30 show the percentage of companies, from each market or chain, which responded affirmatively to utilizing each idea in order to possess a competitive advantage. A discussion of the findings from the primary research follows.

Table 24. Most Common Competitive Advantages due to Logistics Operations and Costs

	Competitive Advantage
1	Good relationships with freight lines
2	Ports utilized
3	Sourcing from Asia in terms of speed for a specific product
4	Sourcing from South/Central America in terms of speed for a specific product
5	Sourcing within the US in terms of speed for a specific product
6	Sourcing from Asia in terms of cost for a specific product
7	Sourcing from South/Central America in terms of cost for a specific product
8	Sourcing within the US in terms of cost for a specific product
9	Using the 80/20 rule of sourcing
10	Using First Cost as a means of sourcing products
11	Using Total Cost as a means of sourcing products
12	Having an internal logistics department
13	Using a 3rd Party Logistics supplier

Source: L. Cesca, 2005

Bed-Bath

Table 25. Comparison of the Bed-Bath Sample's Competitive Advantages due to Logistics

Competitive Advantages Results From:	Company						
	Company A	Company B	Company C	Company D	Company E	Company F	Company P
Good relationships with freight lines	1	1		1			
Ports utilized		1			1	1	1
Sourcing from Asia in terms of speed for a specific product					1	1	1
Sourcing from South/Central America in terms of speed for a specific product					1	1	1
Sourcing within the US in terms of speed for a specific product			1		1	1	
Sourcing from Asia in terms of cost for a specific product		1			1	1	1
Sourcing from South/Central America in terms of cost for a specific product					1	1	1
Sourcing within the US in terms of cost for a specific product					1	1	
Using the 80/20 rule of sourcing	1				1		
Using First Cost as a means of sourcing products	1						
Using Total Cost as a means of sourcing products	1	1			1		1
Having an internal logistics department	1				1	1	1
Using a 3rd Party Logistics supplier							

* The numeral 1 indicates that the company answered affirmatively that they felt that they had the corresponding competitive advantage due to their logistics

Source: L. Cesca, 2005

Table 26. Comparison of Bed-Bath US/US-Offshore Manufacturers', Sourcing Agents' and Retailers' Competitive Advantages due to Logistics

Competitive Advantages Results From:	US/US-Offshore	Sourcing Agents	Retailers	TOTAL
Good relationships with freight lines	2	0	1	3
Ports utilized	1	1	2	4
Sourcing from Asia in terms of speed for a specific product	0	1	2	3
Sourcing from South/Central America in terms of speed for a specific product	0	1	2	3
Sourcing within the US in terms of speed for a specific product	0	0	3	3
Sourcing from Asia in terms of cost for a specific product	1	1	2	4
Sourcing from South/Central America in terms of cost for a specific product	0	1	2	3
Sourcing within the US in terms of cost for a specific product	0	0	2	2
Using the 80/20 rule of sourcing	1	0	1	2
Using First Cost as a means of sourcing products	1	0	0	1
Using Total Cost as a means of sourcing products	2	1	1	4
Having an internal logistics department	1	1	2	4
Using a 3rd Party Logistics supplier	0	0	0	0

* The numeral in each is the number of companies in each category that claimed to have the corresponding competitive advantage due to their logistics

Source: L. Cesca, 2005

In the Bed-bath sample, there were five main competitive advantages that the companies felt that they had acquired:

- Good relationships with freight lines
- The ports they utilized
- Sourcing with Asia in terms of cost
- Using total cost in order to source
- Having an internal logistics department

Bottom Weights

Table 27. Comparison of the Bottom Weights Sample's Competitive Advantages due to Logistics

Competitive Advantages Results From:	Company									
	Company G	Company H	Company I	Company J	Company K	Company L	Company M	Company N	Company O	Company P
Good relationships with freight lines			1		1		1		1	
Ports utilized					1		1	1	1	1
Sourcing from Asia in terms of speed for a specific product						1	1	1	1	1
Sourcing from South/Central America in terms of speed for a specific product				1		1	1	1		1
Sourcing within the US in terms of speed for a specific product	1	1								
Sourcing from Asia in terms of cost for a specific product					1				1	1
Sourcing from South/Central America in terms of cost for a specific product										1
Sourcing within the US in terms of cost for a specific product										
Using the 80/20 rule of sourcing										
Using First Cost as a means of sourcing products						1			1	
Using Total Cost as a means of sourcing products					1		1	1		1
Having an internal logistics department		1			1	1				1
Using a 3rd Party Logistics supplier				1						

* The numeral 1 indicates that the company answered affirmatively that they felt that they had the corresponding competitive advantage due to their logistics

Source: L. Cesca, 2005

Table 28. Comparison of Bottom Weights US/US Manufacturers', US/US-Offshore Manufacturers', Sourcing Agents' and Retailers' Competitive Advantages due to Logistics

Competitive Advantages Results From:	US/US	US/US-Offshore	Sourcing Agents	Retailers	TOTAL
Good relationships with freight lines	1	3	0	1	4
Ports utilized	0	2	1	2	5
Sourcing from Asia in terms of speed for a specific product	0	2	1	2	5
Sourcing from South/Central America in terms of speed for a specific product	0	3	1	1	5
Sourcing within the US in terms of speed for a specific product	2	0	0	0	2
Sourcing from Asia in terms of cost for a specific product	0	1	1	1	3
Sourcing from South/Central America in terms of cost for a specific product	0	0	1	0	1
Sourcing within the US in terms of cost for a specific product	0	0	0	0	0
Using the 80/20 rule of sourcing	0	0	0	0	0
Using First Cost as a means of sourcing products	0	1	0	1	2
Using Total Cost as a means of sourcing products	0	2	1	1	5
Having an internal logistics department	1	2	1	0	4
Using a 3rd Party Logistics supplier	0	1	0	0	1

* The numeral in each is the number of companies in each category that claimed to have the corresponding competitive advantage due to their logistics

Source: L. Cesca, 2005

The Bottom weights sample companies felt that they held competitive advantages in:

- Good relationships with freight lines
- The ports they utilized
- Sourcing with Asia in terms of speed and cost
- Sourcing with South/Central America only in terms of speed
- Using total cost in order to source
- Having an internal logistics department

Table 29. Comparison of Competitive Advantages due to Logistics across the Bed-Bath & Bottom Weights Markets

Competitive Advantages Results From:	Bed-Bath	Bottom-weights
Good relationships with freight lines	42.9%	40.0%
Ports utilized	57.1%	50.0%
Sourcing from Asia in terms of speed for a specific product	42.9%	50.0%
Sourcing from South/Central America in terms of speed for a specific product	42.9%	50.0%
Sourcing within the US in terms of speed for a specific product	42.9%	20.0%
Sourcing from Asia in terms of cost for a specific product	57.1%	30.0%
Sourcing from South/Central America in terms of cost for a specific product	42.9%	10.0%
Sourcing within the US in terms of cost for a specific product	28.6%	0.0%
Using the 80/20 rule of sourcing	28.6%	0.0%
Using First Cost as a means of sourcing products	14.3%	20.0%
Using Total Cost as a means of sourcing products	57.1%	50.0%
Having an internal logistics department	57.1%	40.0%
Using a 3rd Party Logistics supplier	0.0%	10.0%

Source: L. Cesca, 2005

Table 30. Comparison of Competitive Advantages Held by Different Logistics Chains

Competitive Advantages Results From:	Logistics Chain 1	Logistics Chain 2	Logistics Chain 3
Good relationships with freight lines	85.7%	33.3%	33.3%
Ports utilized	71.4%	66.7%	0.0%
Sourcing from Asia in terms of speed for a specific product	57.1%	66.7%	0.0%
Sourcing from South/Central America in terms of speed for a specific product	57.1%	50.0%	0.0%
Sourcing within the US in terms of speed for a specific product	14.3%	50.0%	66.7%
Sourcing from Asia in terms of cost for a specific product	57.1%	50.0%	0.0%
Sourcing from South/Central America in terms of cost for a specific product	14.3%	33.3%	0.0%
Sourcing within the US in terms of cost for a specific product	0.0%	33.3%	0.0%
Using the 80/20 rule of sourcing	14.3%	16.7%	0.0%
Using First Cost as a means of sourcing products	42.9%	16.7%	0.0%
Using Total Cost as a means of sourcing products	85.7%	33.3%	0.0%
Having an internal logistics department	57.1%	33.3%	33.3%
Using a 3rd Party Logistics supplier	14.3%	0.0%	0.0%

Source: L. Cesca, 2005

Finding 1

An advantage lies in the relationships formed with the freight forwarder, whether it is an ocean, air, truck or rail freighting company. Companies involved in Logistics Chain 1, mainly off-shore manufacturers, felt that this relationship was the one of the most important advantages they could possess (66.7%). However Logistics Chain 2 companies, or the retailers, did not feel that this was a strong competitive advantage. One out of the three US/US manufacturers, or Logistics

Chain 3 companies, felt that this was an important competitive advantage because they dealt with off-shore cutters.

Many US/US-Offshore companies interviewed held strong relationships due to the size and volume of their shipments which resulted in lower prices and better service which they felt helped increase their profit margin. Better service was enjoyed through preferential treatment in terms of:

1. Container availability during peak seasons
2. Long term contract negotiations

Container availability during peak seasons was a key advantage for the off-shore manufacturers. For example, companies that had strong relationships with their ocean freighters found that during peak season they had access to as many containers as needed. They found that their ocean freighters would hold containers for them, and deny other companies, knowing that the containers would be needed eventually. Therefore, during peak season, these companies were able to get their goods to their customers on-time for a lower cost than their competitors. This usually resulted in better service to the customer, increased future business and higher returns.

A long term contract negotiation goes along with container availability. Some companies would include a clause that ensured containers during high volume seasons. The contracts would also include clauses the guaranteed on-time delivery and the most cost effective strategy for business.

Finding 2

Another significant competitive advantage was which ports being used for ocean shipments. This was very important to Logistics Chain 1 and semi-important to Logistics Chain 2. Port utilization as a competitive advantage was not applicable to Logistics Chain 3 because goods were not being shipped in from other countries to these companies.

Many examples were given by both US/US-Offshore Manufacturers and Retailers as to what ports they used and why it was important. The most important ports were considered to be Los Angeles and New York and the choice was not product specific. A noted trend was the increasing volume of shipments into other West Coast ports such as Seattle and Vancouver as well as Southeastern ports such as Charleston, Savannah, New Orleans and Houston. This was mainly due to the fact that LA is becoming increasingly congested and companies are having problems getting their goods into port and unloaded quickly. One company specifically said that three years ago, goods spent an average of three days at the port. Now, due to inspection and congestion, containers spend from eleven to fourteen days at the ports waiting on the water, being unloaded at the dock, and then heavily inspected. The company also claimed that during the peak time prior to Christmas, it would take anywhere from twenty-five to thirty days to get their goods through the LA port. This has caused companies to look elsewhere to ship their containers considering the cost of time in their decision.

In primary research, companies indicated that when taking the time value of money into consideration, it was less costly to ship through the Panama Canal to the

East Coast ports. This was compared to the process of shipping goods into the LA port, waiting the eleven to fourteen days for unloading and then the six to twelve days to truck their goods to their distribution centers or customer's retail outlets. The companies felt that it was more time efficient and cost effective to ship to the Southern deep-water ports: Charleston, Savannah, New Orleans and Houston. These ports had less congestion and therefore were able to unload the ships at a faster rate. There are also more centrally located and therefore the trucking or rail costs were offset.

These were the methods being employed by the larger companies that were ship over one thousand containers per year. Other, smaller companies cited examples of using smaller ports for their container traffic. One company ocean freights $4 million dollars yearly in containers uses a small port on the East Coast. Though they may only ship small volumes, by using a smaller port they become a large part of the port's business therefore becoming vital to the port's economy. The company enjoys preferential treatment like all the larger companies in the large ports.

Finding 3

Logistics decisions on whether to source from Asia, South/Central America and the US were based on speed and cost.

Table 31. Comparison of Sourcing Regions Chosen in terms of Speed and Cost by Logistics Chain

	Logistics Chain 1	Logistics Chain 2	Logistics Chain 3
Sourcing from Asia in terms of speed for a specific product	57.1%	66.7%	-
Sourcing from South/Central America in terms of speed for a specific product	57.1%	50.0%	-
Sourcing within the US in terms of speed for a specific product	14.3%	50.0%	66.7%
Sourcing from Asia in terms of cost for a specific product	57.1%	50.0%	-
Sourcing from South/Central America in terms of cost for a specific product	14.3%	33.3%	-
Sourcing within the US in terms of cost for a specific product	-	33.3%	-

Source: L. Cesca, 2005

Logistics Chain 1 felt that South/Central America was best region from which to source, in terms of speed. Asia was regarded as beneficial for both speed to market and logistics cost. The US manufacturers, outside of the company's own facilities, were not considered to be assets within the supply chain. Logistics Chain 2, or the retailers, also felt that Asia offered speed and cost effectiveness over South/Central America and the US. They held South/Central American and US manufacturers in the same regard; slow and too expensive. Logistics Chain 3 chose to source within the US due to speed for the products. Therefore, the choice of sourcing regions was based on the speed and cost of logistics for the product. It should be noted that when interviewing the companies, speed was not associated with proximity. South and Central American countries were not chosen over Asia due to their location in reference to the US. Company K claimed that transit time and cost were the same for their goods to be shipped from Hong Kong to the Los Angeles port as shipping from Guatemala to the port of Miami. Since there are better logistics systems in place, proximity is starting to become less of a benefit.

Finding 4

Choosing to source from Asia or South/Central America is based on cost and speed but also is a function of product type; fashion or basic. Asia is used for more fashion based goods because of their cost and ease of logistics. South/Central America is being used for more basic items such as t-shirts, underwear and socks. The region is not being used as a means for replenishment of fashion goods, as expected. This is due to the different focuses of Asia and South/Central American production. Asian suppliers are set up mainly for product innovation and short lots with greater flexibility. South/Central American production is set up for basic textile manufacturing with long runs. Because of the different focuses, a standard called the "80/20 Rule" came into effect many years ago. The 80/20 rule states that 80% of sourcing for an item should be done off-shore and 20% should be sourced in close proximity to the market.

This is where the Logistics Chains 1 and 2 differed in opinion based on their market involvement. For companies within the Bottom weights market the 80/20 rule has not worked effectively for them. Company N claims that they do 100/0 with all sourcing being done off-shore. Bed-bath companies are having an easier time with this type of sourcing because they are not as affected by fashion trends. Company A has the ability to source their goods in Asia and South/Central America as well as the US. They use Asia to source their more fashionable lines and South/Central America for their basic lines. Company A then uses their US facilities in order to fill in where necessary. For example, if an item that was manufactured in Asia and not predicted to be popular sells out, they would then turn to their US facility in order to

do a short run for replenishment. Company A has found that an adaptation of the 80/20 rule has worked to their advantage.

Finding 5

Full package ability has become more of a competitive advantage that off-shore suppliers are offering to retailers. The Asian companies have more of an ability to do so because within countries, such as China, production is a completely vertical operation which makes sourcing a seamless process. For South/Central American suppliers, full package offering becomes more difficult. This is because of a lack of fabric supply in these countries which causes them to become more dependent on US fabric suppliers. The logistics chain for a US full package supplier using Chinese suppliers (Figure 50) is much less complicated than the chain using South/Central American suppliers (Figure 51).

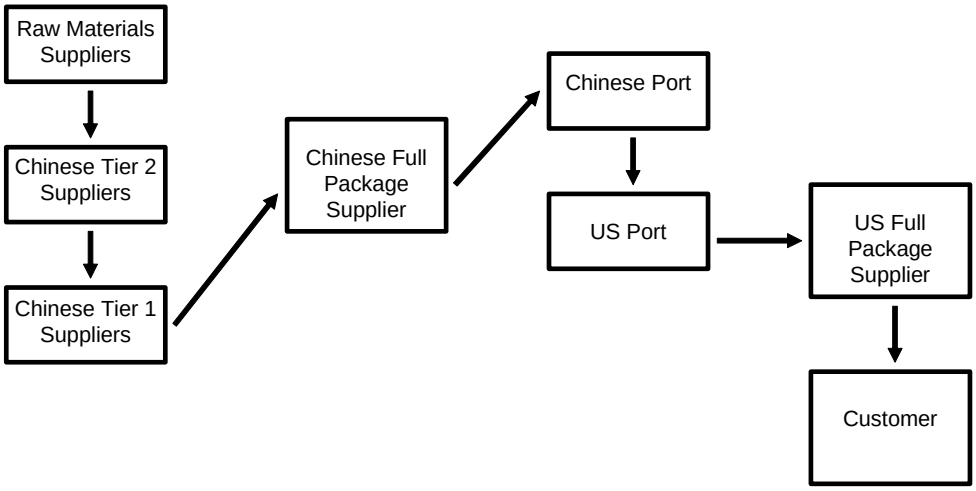


Figure 50. Logistics Chain of a Chinese Full Package Supplier

Source: L. Cesca, 2005

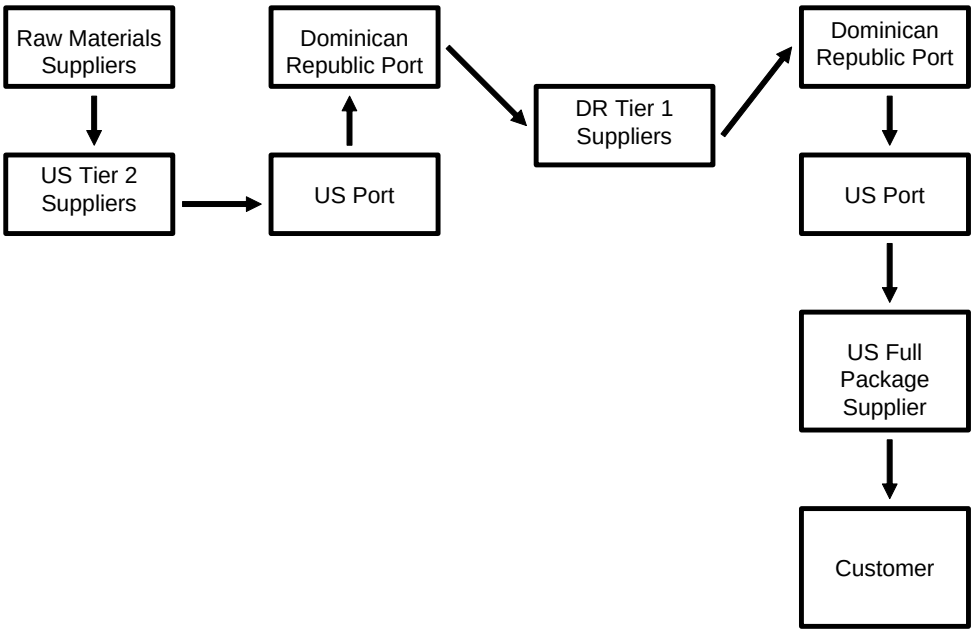


Figure 51. Logistics Chain of a Dominican Republic Full Package Supplier

Source: L. Cesca, 2005

In order to produce full package items, South/Central American suppliers have four extra steps than the Chinese supplier. They have to partner with a US textile supplier and then have the fabric shipped from the US to the port in South/Central America and then transported to the Tier 1 supplier. The fabric is then cut and sewn and the goods are transported back to the port and sent to the US full package supplier. Fewer steps decrease costs and time which could result in lower prices and more on-time deliveries being offered by the Chinese suppliers making it more difficult for the South/Central American full package suppliers to compete.

Finding 6

The issue of looking at first cost versus total cost has also become a means for competitive advantage for some firms and is regardless of market. The first cost is the product's initial cost offered by the supplier to their customer, without logistics costs factored in. The total is cost is the cost of the product with logistics costs

added. Table 32 shows the percent of companies from each logistics chain that looked at first cost or total cost when sourcing.

Table 32. Comparison of First Cost vs. Total Cost Sourcing by Logistics Chain

	Logistics Chain 1	Logistics Chain 2	Logistics Chain 3
Using First Cost as a means of sourcing products	42.9%	16.7%	0.0%
Using Total Cost as a means of sourcing products	85.7%	33.3%	0.0%

Source: L. Cesca, 2005

For Logistics Chain 1, sourcing by looking at the total cost is much more important to them then sourcing by first cost. Many of the US/US-Offshore manufacturers review total cost of goods when they are sourcing. This way they are able to maximize their costs and also offer their customer a lower first cost in order to stay competitive.

Logistics chain 2 looked at both types of costing when sourcing their goods. For example, Company O always looks at first cost and then at total cost. They know that the transportation cost is a function of where they are producing the good and is therefore considered a fixed cost. If the transportation cost is too high, the first cost can be negotiated to a lower cost in order to decrease the total cost. As a retailer, they are much more fixated on the first cost than the total cost. However, Company N claims that they have shifted their focus from first cost to total cost of the goods to become more competitive.

A key finding within this issue was how companies were positioning themselves in order to thwart the competition. Company A and Company L are US/US-Offshore manufacturers and have Logistics Chain 1. They review their first cost, along with the total cost, because they feel that is what the retailer, their main

customer, always focuses on. They have determined that in order to be competitive they must use both methods of costing their goods. Initially offering a reasonable first price gets them noticed by the retailer and their low total cost is what secures the retailers' business.

Another sub-finding was how total cost is a function of sourcing region. Company B cited an example where two suppliers, one from India and one from China, quoted them a specific first cost. They went with the Indian company over the Chinese because the initial cost was lower. However, when the production run was finished, it was less that a full container and therefore was impossible to get out of the country due to India's strict regulations on container traffic. Therefore, they had to have the goods air freighted out of India to their customer in the US and the cost of the goods went up by two fold.

Finding 7

Companies are starting to use third party logistics (3PL) suppliers for their shipping needs. The need for a 3PL is a function of company size, number of suppliers and sourcing areas. Company J is finding that as they are growing in size and utilizing more suppliers around the world, there is a need for an outside company that is more knowledgeable about logistics. However, Company A and Company H already have their own transportation office within their corporate structure. Company A claims that it is because they have already seen the growth that Company J is experiencing which initially necessitated the use of a 3PL. Moreover, as they grew to the size they are today, they began to narrow suppliers in order to build better relationships. Company A concentrated on those suppliers in

certain regions of the world and learned to do business more efficiently. There was no longer a need to have an outside source manage their logistics for them; it made more sense to do it internally. Company H is a US/US manufacturer who is a large firm but does not see a need for an outside logistics supplier. They truck their goods only within the US and feel that the people within their company know their business best. All three companies in Logistics Chain 3 were private companies which did not use want an outside company to aid in their logistics strategy.

While companies are in the earlier stages of growth, there is a need for a third party logistics supplier. As they progress and know their business well, they begin to manage their logistics operations on their own.

RO2C. Determine the relationship of competitive advantage to logistics and economic competitiveness.

A definition regarding economic competitiveness and manufacturing was found in the model presented by Stock, Greis and Kasarda in 1999. The competitive environment was described to encompass "the demands made by the market, including the price, characteristics, and features of the product; the location of the customers, the time requirements of customers; and the variability in demand" (Stock, Greis & Kasarda, 1999, pg. 226). From this definition, it can be inferred that if these factors can be used in order to enhance a company's economic performance. From the information interviews with researchers C. Hope Nowell and Michael A. Jones, a definition of economic competitiveness, more applicable to the textile and apparel industry, was formed from the date and opinions obtained. Economic competitiveness can be defined as the ability to sustain and grow a

business within the global textile and apparel environment, through optimization of products, processes, and strategies to gain a competitive advantage. Logistics is a process that connects the products, processes and strategies together in order to create competitive advantage; therefore sustaining and growing business. As can be seen previously in Table 23, 75% of the total respondents felt that logistics could be used in this manner; 100% of the Bed-bath sample and 60% of the Bottom weights sample. Due to the special link that logistics represents within the supply chain, cost optimization of logistics could be used in order to increase a company's economic competitiveness.

Strategy and Performance

RO3A. Determine if there is a relationship between logistical cost structures, economic competitiveness and strategy.

Each market segment was asked the following question: Are logistics taken into consideration when formulating your corporate strategy? If they answered yes, each company was also asked which, out of the six cost categories, were used in developing their strategy.

Bed-Bath

All of the Bed-bath companies that responded took logistics into consideration when developing their corporate strategies.

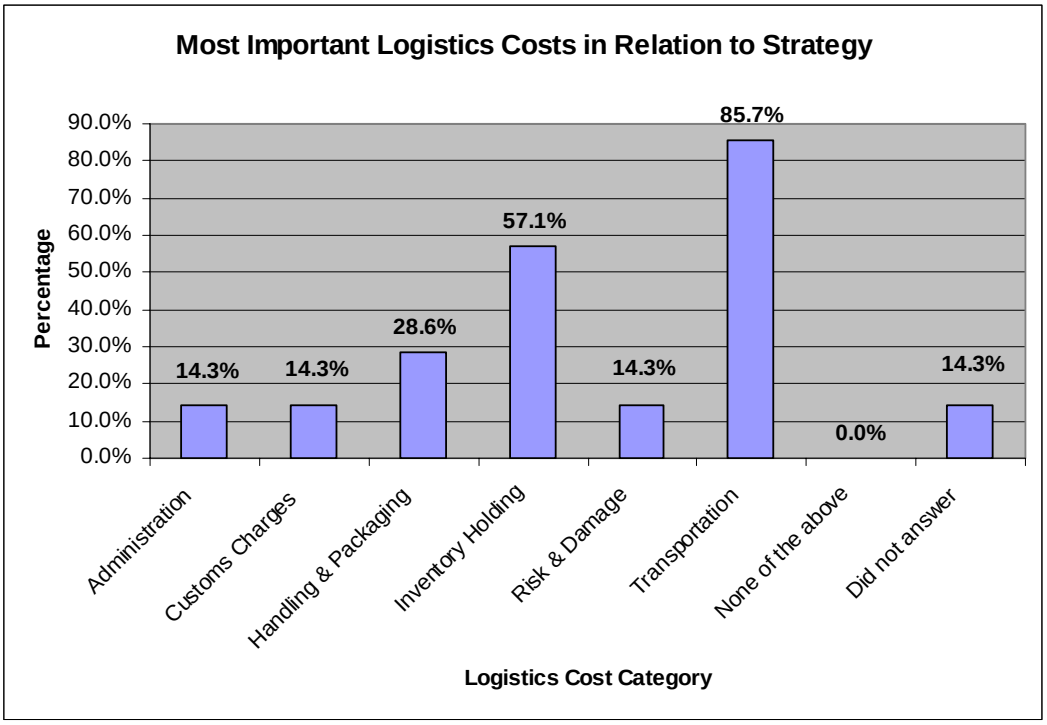


Figure 52. Logistics Costs in Relation to Strategy: Bed-Bath Sample

Source: L. Cesca, 2005

The percentages in Figure 52 represent the number of Bed-bath companies that claimed to use each logistics cost when determining their corporate strategy. The most important costs involved in strategy development for the Bed-bath sample were transportation and inventory holding.

Bottom Weights

In a sample size of ten companies, nine Bottom weights companies responded and claimed that logistics was part of their corporate strategy.

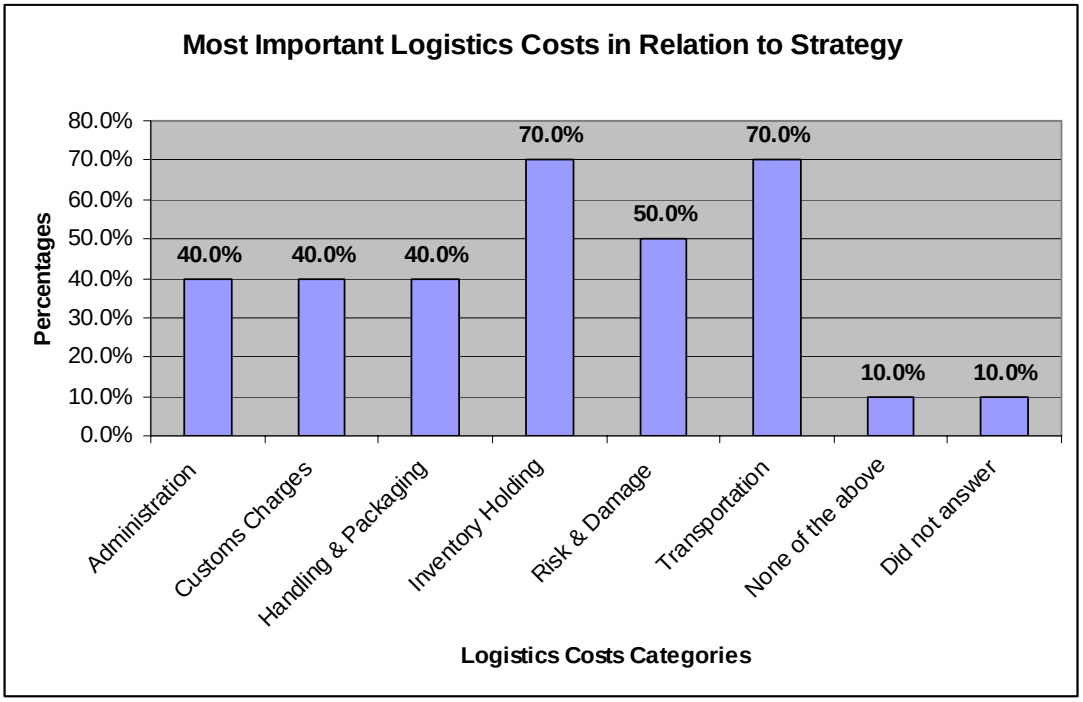


Figure 53. Logistics Costs in Relation to Strategy: Bottom Weights Sample

Source: L. Cesca, 2005

The percentages in Figure 53 represent the number of Bottom weights companies that claimed to use each logistics cost when determining their corporate strategy. For the market, the companies sampled felt that transportation and inventory holding costs were always considered in their corporate strategy. Risk and damage was considered by half of the sample companies to be a main factor.

Across Markets

Both markets reflected that inventory holding and transportation costs were vital to their corporate strategy. Table 33 compares the importance of these costs to each type of company interviewed. The percentages in Table 33 represent the number of companies that claimed to use inventory handling or transportation when determining their corporate strategy.

Table 33. Relationship of Inventory Holding and Transportation Costs to Strategy and Company Category

	US/US	US/US-Offshore	Sourcing Agents	Retailers
Inventory Holding	66.7%	100.0%	0.0%	50.0%
Transportation	33.3%	100.0%	100.0%	66.7%

Source: L. Cesca, 2005

Finding 1

Two out of the three US/US manufacturers felt that inventory holding was important to their strategy. All US/US Offshore and Sourcing Agents determined inventory holding to be a key cost. Only half of the Retailers felt it to be significant during planning. This is important because all manufacturers and sourcing agents, whether sourcing domestically or globally, felt that inventory holding cost was a key factor when strategizing. This is due to the fact that inventory holding costs are a function of where a company is located in the supply chain (RO1B-Finding 1). The manufacturers tend to hold more inventories further up the chain as suppliers. Inventory holding can result in high costs therefore; it is vital to manufacturers to consider it during their planning stages.

Finding 2

The same results were found for transportation and strategy with one difference; US/US manufacturers. They felt that transportation was less important to their corporate strategy than inventory holding costs. This is because transportation costs are based on two factors; position of company in the supply chain and sourcing strategy. Since the US/US manufacturers were producing their goods within the US only, they did not have to consider such large freight costs. Off-shore manufacturers along with sourcing agents found transportation to be very important

to their corporate strategy. Since the cost of shipping goods usually falls on manufacturer, retailers were less concerned with transportation cost strategies.

Finding 3

Table 34. Relationship of Inventory Holding and Transportation Costs to Strategy and Logistics Chain

	Logistics Chain		
	1	2	3
Inventory Holding	85.7%	50.0%	66.7%
Transportation	100.0%	66.7%	33.3%

Source: L. Cesca, 2005

In Table 34, each percentage represents the number of companies in that Logistics Chain sample that claimed to use each logistics cost when determining their corporate strategy. Overall, Logistics Chain 1 and 2 companies felt that transportation costs were more important than inventory holding costs to their corporate strategy. This was because each company in these chains dealt on a global basis. Conversely, Logistics Chain 3 companies regarded inventory holding to be more significant. Inventory holding becomes more important to these companies because they are all US/US manufacturers. Therefore, they are further upstream than companies involved in chains 1 or 2 and the burden of holding goods falls on them.

RO3B. Determine if there is a relationship between logistical cost structures, economic competitiveness and performance.

Each market segment was asked the following question: Has logistics cost and procedure optimization enhanced your corporate performance? Then they were asked to name the specific cost categories that helped improve their performance.

Bed-Bath

Table 35. Percent of Bed-Bath Companies that Relate Logistics to Enhanced Performance

	Company A	Company B	Company C	Company D	Company E	Company F	Company P	%
Yes	1	1		1	1	1	1	85.7%
No								0.0%
Did not answer			1					14.3%

Source: L. Cesca, 2005

Of the six Bed-bath sample companies that answered, all felt that logistics had helped enhance their corporate performance (Table 35).

The percentages in Figure 54 represent the number of Bed-bath companies who claimed certain logistics costs had helped to improve their corporate performance. Out of the seven companies interviewed for this market, four and three claimed that inventory holding cost and transportation cost optimization had increased their company's performance, respectively.

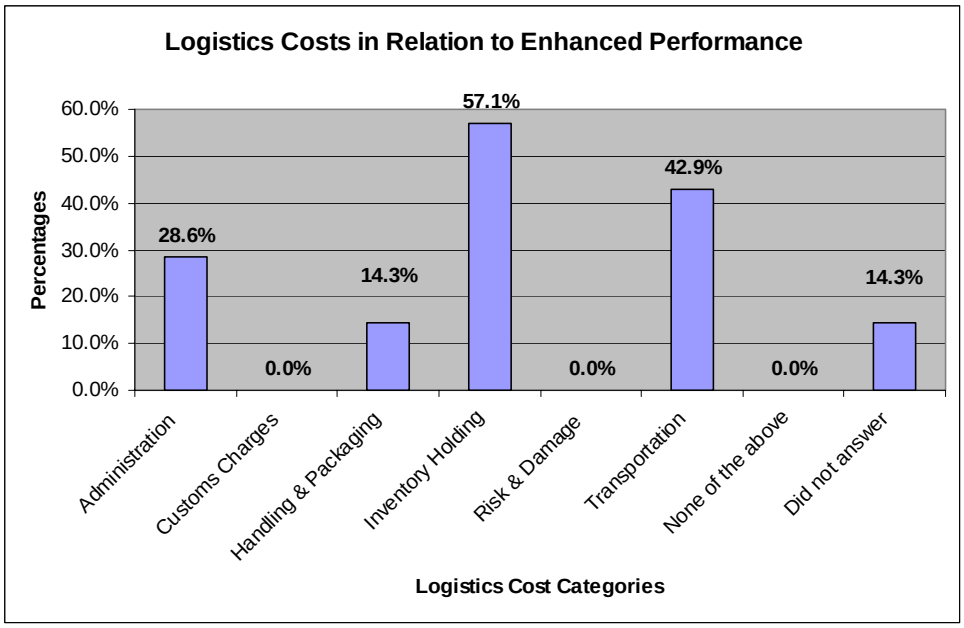


Figure 54. Logistics Costs in Relation to Enhanced Performance: Bed-Bath Sample

Source: L. Cesca, 2005

Bottom Weights

Table 36. Percent of Bottom Weight Companies that Relate Logistics to Enhanced Performance

	Company G	Company H	Company I	Company J	Company K	Company L	Company M	Company N	Company O	Company P	%
Yes	1	1	1		1	1	1	1	1	1	90.0%
No				1							10.0%
Did not answer											0.0%

Source: L. Cesca, 2005

Nine of the ten Bottom weights companies said that their performance was improved through logistics cost and operations optimization (Table 36).

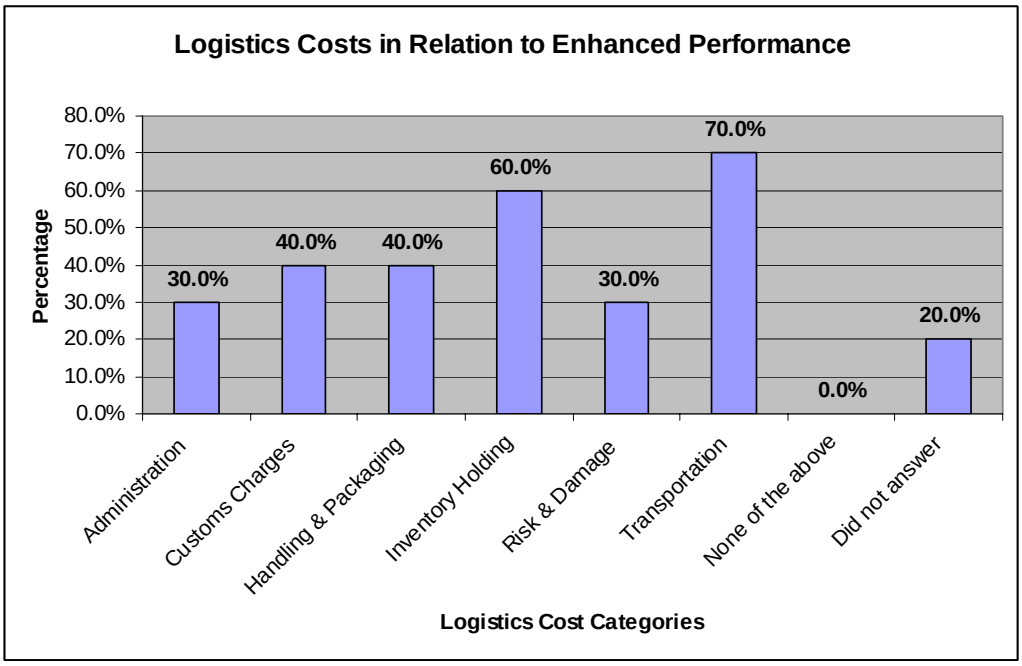


Figure 55. Logistics Costs in Relation to Enhanced Performance: Bottom Weights Sample

Source: L. Cesca, 2005

The percentages in Figure 55 represent the number of Bottom weights companies who claimed certain logistics costs had helped to improve their corporate performance. In this market, inventory holding costs and transportation costs were most often cited to have enhanced each company's performance.

Across Markets

Inventory holding and transportation costs were commonly used to increase corporate performance for both markets. Table 37 shows, as a percentage, the number of companies who claimed certain logistics costs had helped to improve their corporate performance.

Finding 1

US/US and US/Offshore manufactures cited optimization of inventory holding costs to be incredibly important to their performance while retailers did not. As

discussed in RO1B-Finding 1, inventory holding costs are based on where that company is within the supply chain. All companies located in the upstream can benefit from optimizing these costs as they pushed back on them by the retailers. The sourcing agent interviewed had not found inventory holding to enhance their performance. This is significant because they tend to function more as a retailer in this respect. They do not hold inventories; instead it is held by their suppliers.

Finding 2

Conversely, the transportation cost category was ranked more important to increased performance by the sourcing agents and retailers than the manufacturers. This is because as they have pushed the responsibility of transportation onto the manufacturers; therefore lowering their costs. The manufacturers have not seen as big of an increase in their performance in relation to transportation because they are now dealing with more responsibility. As they begin to optimize these costs, as noted in RO3A-Finding 2, they will enhance their performance.

Table 37. Relationship of Inventory Holding and Transportation Costs to Enhanced Performance and Company Category

	US/US	US/US-Offshore	Sourcing Agents	Retailers
Inventory Holding	66.7%	83.3%	0.0%	50.0%
Transportation	66.7%	50.0%	100.0%	50.0%

Source: L. Cesca, 2005

Finding 3

Table 38 shows the relationship of inventory holding and transportation costs to enhanced performance to the specified logistics chain for each company. It has percentages which represent the number of companies within each Logistics Chain

sample who claimed certain logistics costs had helped to improve their corporate performance.

Logistics Chain 1 and 3 saw inventory holding costs having a bigger effect on performance than transportation costs. This is significant because Chain 1 is mainly made up of US/US-Offshore manufacturers and sourcing agents and Chain 3 is mainly US/US manufacturers. All have seen enhanced performance because of inventory holding process and cost optimization. This is because they hold more inventory than the retailers so there was more room for improvement.

Logistic Chains 1 and 3 also cited optimized transportation procedures and costs having a great impact on their performance. This is because with these processes being streamlined, there is less room for error. With fewer errors, the retailers are not able to administer as many charge-backs as in the past. Logistics Chain 2 companies did not see as great an impact from costs.

Table 38. Relationship of Inventory Holding and Transportation Costs to Enhanced Performance and Logistics Chain

PERFORMANCE	Logistics Chain		
	1	2	3
Inventory Holding	71.4%	50.0%	66.7%
Transportation	57.1%	50.0%	66.7%

Source: L. Cesca, 2005

ADDITIONAL FINDINGS

Preliminary Benchmarking System

Table 39. Preliminary Benchmarking System

	(US$Millions)						
	Sales 2003	Operating Income 2003	Total Assets 2003	2003 OIROI	2003 Gross Margin %	ROS	Logistics Configuration
Company A							
Company B							
Company C							

Source: L. Cesca, .2004

Table 39 shows an example of the proposed preliminary benchmarking system that can be used by other companies within these two markets and beyond. The table presents the Logistics Chain being used by each company. It also shows, where feasible, each company's performance measures: 2003 sales, operating income, total assets, operating income return on investment (OIROI), gross margin and return on sales in order to draw comparisons. Sales represent the 2003 sales' performance for each company. Operating Income represents the money that each company generated from its own operations and can be used to gauge the general health of the business. Total Assets represents the total assets held by each company in 2003 and are important in calculating a firm's Operating Income Return on Investment (OIROI). Operating Income Return on Investment represents the company's finances on an operating level and reflects product pricing and the company's ability to keep the costs down. Return on Sales (ROS) is a comparison of a company's after tax profit to sales and is significant because it show's the each company's profitability on an even level. These factors were determined to be the

most important in terms of financial performance and the supply chain because they show each company's performance based on an operating level.

Model

The model used as the conceptual framework was modified in order to encompass the findings from the research. Figure 56 shows the original model proposed by Stock, Greis and Kasarda in 1999.

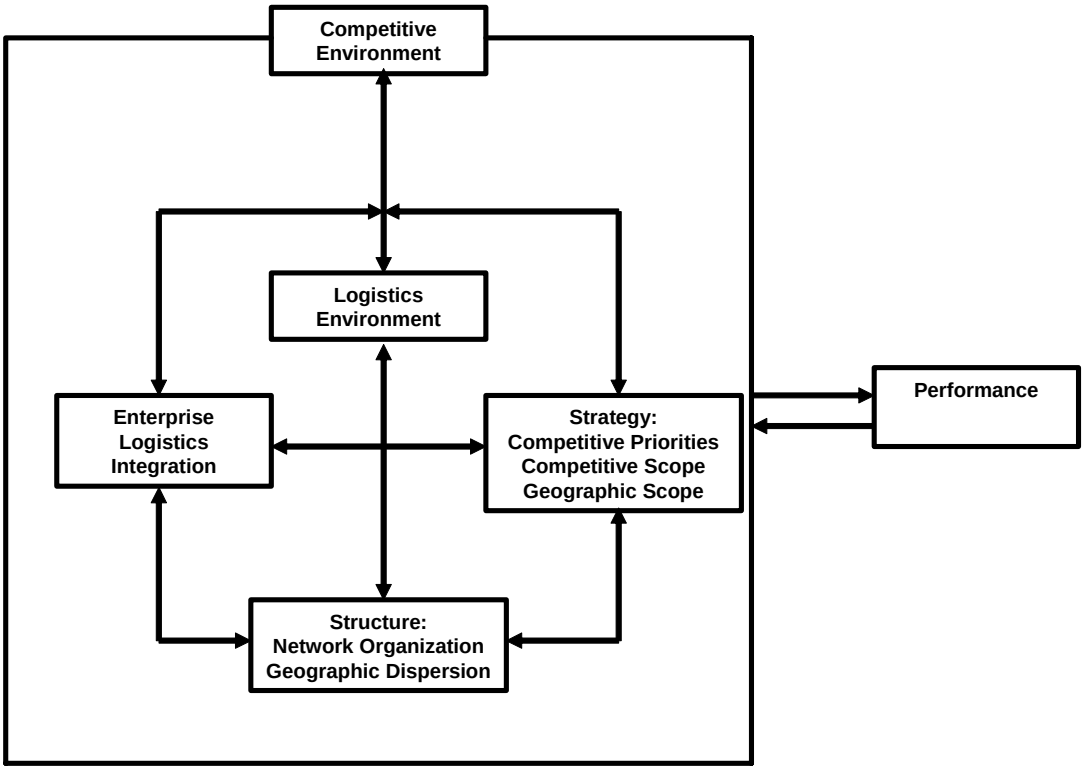


Figure 56. Proposed Framework for Logistics with Strategy and Structure

Source: Stock, Greis and Kasarda, 1999, pg. 224.

Figure 57 shows the adapted model which proposes to focus on logistics in terms of operations and costs in order to enhance performance and increase economic competitiveness. From the research it was determined that the logistics environment should consider the following: structure in terms of logistics chain configuration, competitive advantages, logistics costs and strategy. The four

concepts were shown to interact closely within the logistics environment in order to enhance corporate performance. Therefore, when corporate performance encompasses these factors within the logistics environment, economic competitiveness is increased.

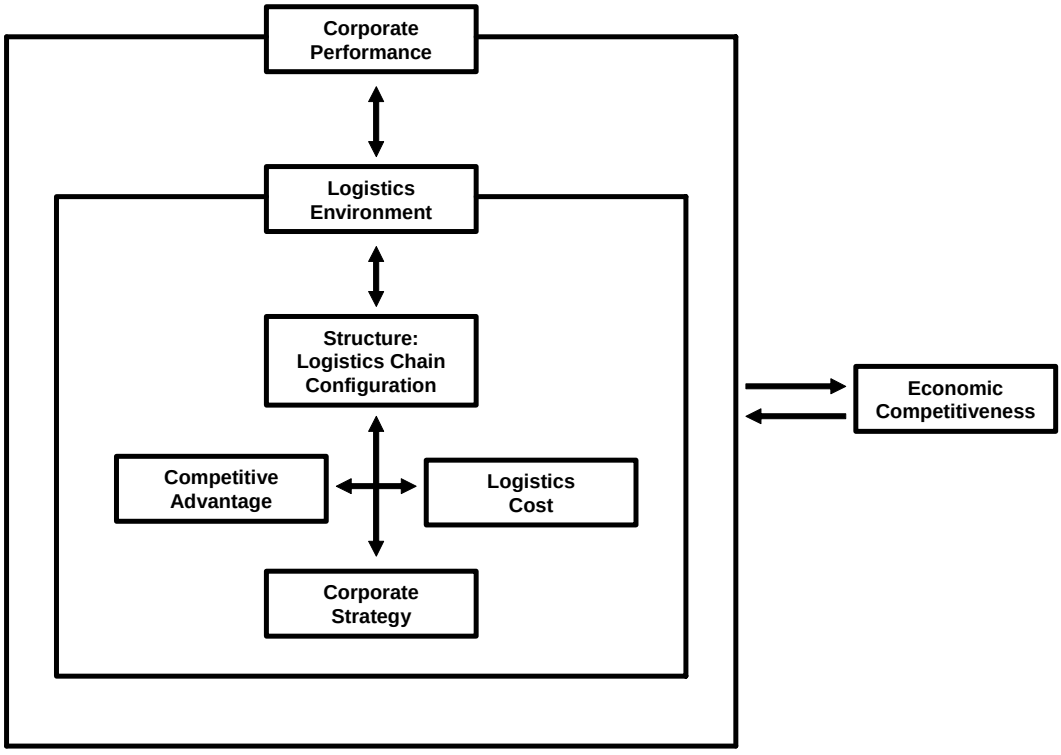


Figure 57. Adapted Model for Logistics Costs in Relation to Performance and Economic Competitiveness

Source: Adapted by L. Cesca, 2004 from Stock, Greis and Kasarda, 1999, pg. 226.

CHAPTER V

CONCLUSION, IMPLICATIONS, AND RECOMMENDATIONS

Summary

The purpose of this research was to examine the logistical cost structures along the global textile and apparel supply chain and their relationship to competitive advantage, strategy, performance and overall economic competitiveness. The topics were developed in accordance with the model proposed in Logistics, Strategy and Structure: A Conceptual Framework written by Stock, Greis and Kasarda in 1999. The research focused on the supply chains within the US Bed-bath and Bottom weights markets with companies using purely domestic, global and mixed strategies. A sample group involving US retailers, US/US manufacturers, US/US-Offshore manufacturers and sourcing agents was chosen for each market. An economic competitiveness questionnaire with questions from three different researchers was developed (Appendix F) and administered during information interviews to the selected sample. Section II of the survey posed questions directly dealing with logistics costs, competitive advantage, strategy and performance.

With regard to logistics costs, the research sought to determine the most significant costs, as pertaining to the textile and apparel supply chain, as well as define them. It also examined each logistics cost structure and its relation to the finished product cost. Regarding competitive advantage, the research was used to provide and verify a definition. It also determined the advantages resulting from the use of specific logistical chains and cost optimization plans with their relationship to economic competitiveness. The research was also used in order to determine

whether there was a relationship between logistical cost structures and economic competitiveness in terms of strategy and performance.

Companies used for the information interview process were selected on the basis of annual sales and growth rates from 1999-2003, reputation, sourcing strategies and product mixes. The finalized sample contained 18 companies with 33 total respondents. Within the sample respondents, five held the title of Chief Executive Officer or President, nine held Vice President, and six held Managing Director within their respective firms with the remaining respondents holding other important titles. The entire group of sample respondents averaged 24.8 years of experience in the textile and apparel industry. Four trips were made in order to individually interview executives from each sample company. When a personal interview was not feasible, a phone interview was utilized.

Summary of Results

Logistics Chains

Logistics Chain 1

- Involved in both markets
- US/US-Offshore manufacturers and Sourcing Agents (Tier 1 Suppliers)
- Blended sourcing strategy
    - Partnerships with global manufacturers
    - Domestic component used for replenishment or for storage and packaging
- Produced finished products
- Responsible for goods until US port

- Frequently responsible for inbound freight costs

Logistics Chain 2

- Involved in both markets
- US retailers only
- Bought only finished products
- Seldom responsible for the goods overseas
- Occasionally responsible for inbound freight costs
- Use of ports and distribution centers

Logistics Chain 3

- Involved in Bottom weights market only
- US/US manufacturers only (Tier 2 and 3 Suppliers)
- Textile manufacturers
- Produced greige fabric, sometimes finished
- Responsible for inbound procedures only
- No use of ports

Logistics Costs

RO1A Examine logistics costs in terms of the percentage they represent in the finished product cost.

US/US-Offshore manufacturers (Logistics Chain 1) had higher logistics costs than US retailers (Logistics Chain 2) and US/US manufacturers (Logistics Chain 3), regardless of market.

RO1B Examine logistics costs in terms of the global textile and apparel supply chains.

Inventory Holding Costs

Regardless of market, inventory holding costs were determined to be a function of location within the supply chain, proximity to market and lead-time. Manufacturers had higher inventory holding costs than retailers because retailers are attempting to scale down their carrying costs and therefore demanding their suppliers to hold inventory for them. Manufacturers that were considered "Tier 1 suppliers" were directly told by the retailers to hold inventory for them who, in turn, passed the inventory and the costs along to their upstream manufacturers. However, the upstream manufacturers' (US/US) costs were lower than US/US-Offshore manufacturers' due to shortened lead times and less safety stock due to proximity to marketplace.

Transportation Costs

Transportation costs are a function of market type, location within the supply chain and proximity to the market. Companies involved in the more fashionable markets, such a Bottom weights, had higher transportation costs due to market fluctuations. Companies located further along the supply chain, as well as those located close to the marketplace, found they had lower transportation costs because they were better prepared for an unexpected trend. Upstream companies (US/US manufacturers) were able to hold greige fabrics that could be sent immediately to the finisher or cut and sew operators in order to quickly react to emerging trends. The further

downstream a company was, the harder it was to react in a cost efficient manner. With the same idea in mind, the closer the company's manufacturing facilities were to the market, the more cost efficient it was to get goods in a timely manner.

RO1C Ascertain how the identified costs RO1B are managed into different structures.

All sample companies, regardless of market, focused their spending on transportation and inventory holding costs. Companies involved in Logistics Chain 1 found that inventory holding costs weighted more heavily for them than transportation costs. Logistics Chains 2 and 3 found the opposite to be true, spending more on their transportation costs.

Competitive Advantage

RO2A. Find and verify a definition of competitive advantage.

Definition

"Competitive advantage can be defined as resource-based, in that it emphasizes that a firm utilizes its ***resources*** and ***capabilities*** to create competitive advantage that ultimately results in superior value creation" (Quickmba.com, 2004, online).

Verification

100% of all respondents agreed with the definition of competitive advantage. A total of 75% of the respondents agreed that logistics could be used in order to gain competitive advantage.

RO2B. Determine what competitive advantages are the results of certain supply chain configurations and logistical cost structures.

Good Relationships with Freight Lines

Good relationships with freight forwarders were important to companies in Logistics Chain 1, but not as important to companies in Chains 2 and 3. Strong relationships were due to size and volume of shipments resulting in lower prices and better service. Better service was experienced in two distinct ways:

1. Container availability during peak season
2. Long term contract negotiations

Port Utilization

Port utilization was seen as important to Logistics Chains 1 and 2 and was not applicable to Chain 3. Due to congestion at other ports such as Los Angeles, it was critical for companies to understand the effects of their port utilization. Companies needed to understand their own business in order to create competitive advantages through their port selection. The methods used to counteract port congestion and decrease lead times were the following: use of other West Coast ports, going through the Panama Canal to the East Coast ports, shipping to Southern deep-water ports and using smaller ports with less traffic.

Sourcing from Asian, South/Central American and US Regions

The choice of sourcing regions was based on the speed and cost of logistics for the product. Logistics Chain 1 felt that South/Central America and Asia

were the best regions from which to source, in terms of speed for both regions and logistics costs specifically for Asia. The US manufacturers, outside of the company's own facilities, were not considered to be assets within the supply chain. Logistics Chain 2 felt that Asia offered speed and cost effectiveness over South/Central America and the US and held the manufacturers in those regions in the same regard; slow and too expensive. Logistics Chain 3 chose to source within the US due to speed for the products.

Proximity

It should be noted that when interviewing the companies, speed was not associated with proximity. Due to new and innovative logistics systems being utilized, proximity is starting to become less of a benefit offered by US and South/Central American suppliers.

Fashion and Basic Items

Asia was being used for more fashion-based goods because of their cost and ease of logistics. South and Central America utilization was for more basic items; not as a means for replenishment of fashion goods. This was due to the different focuses of Asian and South/Central American production. Asian suppliers are set up mainly for product innovation and short lots with flexibility while South/Central America companies are set up for basic soft good manufacturing with long runs.

80/20 Rule

The 80/20 rule states that 80% of sourcing for an item should be done off-shore and 20% should be sourced in close proximity to the market. Logistics Chain 1, US/US-Offshore manufacturers, and Logistics Chain 2, US retailers, differed in opinion based on their market involvement. For companies within the Bottom weights market, the 80/20 rule has not worked effectively for them. Bed-bath companies are having an easier time with this type of sourcing because they are not as affected by fashion trends.

Full Package

Full package sourcing has become a competitive advantage being offered to retailers by Asian, specifically Chinese, suppliers because production is more of a vertical operation in that region. For South/Central American suppliers, full package production is more difficult because of a lack of fabric supply causing them to become more dependent on US suppliers. The logistics chain for full package Asian suppliers is less complicated than for South/Central American suppliers which results in lower prices offered to their customers.

First Cost and Total Cost

For Logistics Chain 1, US/US-Offshore manufacturers, sourcing by total cost is more important than by first cost because they were able to minimize all of their costs and therefore, offer their customer a lower first cost. Logistics Chain 2 reviewed both types of costing when sourcing their goods however

they were much more fixated on the first cost. However, some retailers had shifted their focus to total cost to become more competitive. A key finding was that manufacturers had determined that, in order to compete, they had to use both methods of costing their goods. Initially offering a reasonable first price gets them noticed by the retailer and their low total cost is what secures the business. Another sub-finding was how total cost is a function of sourcing region. The first cost was usually lower when dealing with a lesser developed region. However, the total cost was usually higher due to lack of infrastructure (paved highways, functioning ports, etc.) which had increased logistics costs.

3rd Party Logistics (3PL) Suppliers

Regardless of market, the need for a 3PL is a function of company size, number of suppliers and sourcing area. As companies in Logistics Chains 1 and 2 found they were growing in size and suppliers, they saw a need for an outside company that was more knowledgeable about logistics. Moreover, more mature companies believed that they needed their own transportation office because they had already experienced growth and narrowed their supplier base which initially necessitates the use of a 3PL. They concentrated on suppliers in certain regions of the world in order to build better relationships therefore learning to conduct their business more efficiently. Overall, US/US manufacturers (Logistics Chain 3) dealt within the US and were private companies which did not want an outside company to aid in their logistics strategy.

RO2C. Determine the relationship of competitive advantage to logistics and economic competitiveness.

Definition

Economic competitiveness can be defined as the ability to sustain and grow a business within the global textile and apparel environment, through optimization of products, processes, and strategies to gain a competitive advantage.

Verification

A total of 75% of the total respondents felt that logistics could be used to increase a company's economic competitiveness; 100% of the Bed-bath sample and 60% of the Bottom weights sample.

Strategy and Performance

RO3A. Determine if there is a relationship between logistical cost structures, economic competitiveness and strategy.

By Market

Six of the seven Bed-bath companies and nine of the ten Bottom weights companies took logistics into consideration when developing their corporate strategies. The most important costs involved in strategy development for the Bed-bath sample were transportation and inventory holding. The Bottom weights market considered the same costs well as risk and damage.

Across Markets: Finding 1

All manufacturers and sourcing agents, whether sourcing domestically or globally, felt that inventory holding cost was a key factor in their corporate

strategy. This was important because inventory holding costs were determined to be a function of location of a company within the supply chain. Manufacturers tend to hold more inventories, the further they are up the chain, and it can result in higher costs therefore making it an important consideration.

Across Markets: Finding 2

US/US manufacturers felt that transportation was less important to their corporate strategy than US/US-Offshore Manufacturers and Sourcing Agents. This is because transportation costs are based on two factors; position of company in the supply chain and sourcing strategy. US/US manufacturers did not have freight costs as large as offshore manufacturers and sourcing agent.

Across Markets: Finding 3

Logistics Chain 1 and 2 companies felt that transportation costs were more important than inventory holding costs in terms of their corporate strategy because they dealt on a global basis. Logistics Chain 3 companies regarded inventory holding costs to be more significant to their strategy because they were all US/US manufacturers and further upstream; therefore the carrying costs fell on them.

RO3B. Determine if there is a relationship between logistical cost structures, economic competitiveness and performance.

By Market:

Six of the seven Bed-bath companies and nine of the ten Bottom weights companies said that their performance had been improved through logistics

cost and operations optimization. In the both markets, inventory holding costs and transportation costs were cited most often to have enhanced each company's performance.

Across Markets: Finding 1

All manufacturers cited optimization of inventory holding costs to be incredibly important to their performance while retailers did not. Inventory holding costs are based on the location of that company within the supply chain; therefore companies located in the upstream benefit from optimizing these costs. Conversely, sourcing agents did not cite inventory holding to enhance their performance because they tend not to hold inventories; instead it is held by their suppliers.

Across Markets: Finding 2

Transportation costs were found to have increased performance for the sourcing agents and retailers due to transferring the responsibility of transportation to their suppliers in order to lower their costs. The manufacturers have not seen as large an increase in their performance, in terms of transportation, due to the increase in responsibility.

Across Markets: Finding 3

Logistics Chain 1 and 3 (US/US-Offshore manufacturers, US/US manufacturers and Sourcing agents) indicated that inventory holding costs could have more of effect on performance than transportation costs. This was because they hold more inventory than the retailers so there was more opportunity for cost optimization. The same chains cited optimized

transportation procedures and costs as having a great impact on their performance. With manufacturers streamlining their transportation processes, the retailers were not able to administer as many on-time delivery charge-backs as in the past. This has enhanced the financial performance of the manufacturers because they are no longer losing money due to a lack of on-time deliveries. Logistics Chain 2 companies saw enhanced performance through lower costs for both logistics categories.

Additional Findings

Preliminary Benchmarking System

A preliminary benchmarking system that can be used by other companies, within these two markets and beyond, was formulated. It enables the company to compare themselves to their competitors by Logistics Chain and performance measure in the form of financial data. These performance measures were the sales, operating income, total assets, operating income return on investment (OIROI), gross margin and return on sales in order to draw comparisons for a specific year.

Model Adaptation

The model by Stock, Greis and Kasarda in 1999, used as the conceptual framework, was modified in order to encompass the findings from the research. The adapted model proposed to focus on logistics in terms of operations and costs in order to enhance performance and increase a company's overall economic competitiveness.

Conclusions

1. There are three major Logistics Chains that can be used to classify each US/US manufacturer, US/US-Offshore manufacturer, Sourcing Agent and US retailer.
2. Regardless of market, US/US-Offshore manufacturer's logistics costs will always be higher than US/US manufacturers and US retailers.
3. Overall, the most important logistics costs, in terms of cost and optimization, are inventory holding costs and transportation costs. Handling and packaging costs, customs costs and administration costs were all important but considered to be fixed costs. Risk and damage costs were considered insignificant in most cases.
4. Inventory holding costs are a function of location within the supply chain, proximity to market and lead time.
5. Transportation costs are a function of market type, location within the supply chain and proximity to market.
6. "Competitive advantage can be defined as resource-based, in that it emphasizes that a firm utilizes its ***resources*** and ***capabilities*** to create competitive advantage that ultimately results in superior value creation" (Quickmba.com, 2004, online).
7. Good relationships with freight lines result in lower prices and container availability during peak season.
8. Competitive advantages can be gained by skillful port selection in terms of a company's business operations.

9. Speed to market is slightly more important than cost when choosing a sourcing region; however, due to new and innovative logistics systems, proximity is starting to become less of a benefit offered by US and South/Central American suppliers.
10. The 80/20 rule works more effectively for companies involved in a basic commodity market rather than for a more fashion-driven commodity market.
11. Companies need to analyze *both* the first cost and total cost of a good before choosing a supplier for sourcing.
12. Economic competitiveness can be defined as the ability to sustain and grow a business within the global textile and apparel environment, through optimization of products, processes, and strategies to gain a competitive advantage.
13. Overall, inventory holding costs are a key factor in corporate strategy and enhanced performance for all manufacturers, whether sourcing domestically or globally.
14. Overall, transportation costs are key factor in corporate strategy and enhanced performance for off-shore manufacturers and sourcing agents.
15. Overall, transportation and inventory holding costs are important factors in a retail company's strategy; however only minimization of inventory holding costs enhances its performance.

Implications for the US Industry

1. US/US-Offshore companies must use their blended sourcing strategies as a competitive advantage in order to minimize the logistics costs. They must

use their domestic component to decrease transportation costs and shorten lead times. They must utilize their offshore component to lower domestic inventory holding costs.

2. As retailers continue to push their logistics costs back onto their suppliers, they may find that some of these suppliers are unwilling or unable to do business with them. Strong partnerships with suppliers will become critical for retailers in the evolving US textile and apparel industry.
3. Companies involved in Logistics Chain 3 have had the lowest logistics costs. When trying to partner with other suppliers, this concept could be used as a marketing tool for the US greige manufacturers. They could propose to be the domestic component in a blended sourcing strategy.
4. Competitive advantage was defined as being resource based. Therefore, US manufacturing companies, including those with a blended sourcing model, must begin to look at their location as a resource they can offer their partners, including retailers, in terms of decreased logistics costs and lead times.
5. There are many competitive advantages that can result from logistics. US textile and apparel companies must review these opportunities and determine which ones best fit their business model and adapt accordingly.

Recommendations

Future Research

1. Further studies could assess whether Logistics Chains 1, 2 & 3 can be generalized across all textile and apparel markets.

2. A study could be done assessing the first cost, the added costs and the total cost of goods for a specific market, Bottom weights for example, from the main sourcing regions.
3. An in-depth, quantitative analysis of logistics costs could be conducted in order to determine what entity along the supply chain is absorbing various costs.
4. Further research could be conducted on how US/US manufacturers, US/US-Offshore manufacturers, sourcing agents and US retailers manage their inventories. The study could see what competitive advantages result from specific inventory management strategies and programs as well as their influence on economic competitiveness for each group.
5. The logistics infrastructure of the United States could be examined. An analysis of port, container, trucks, rail, and road capacity could be performed in order to determine the capability of the country in terms of the growing imports of goods in a post-quota world.
6. An analysis could look at niche strategies regarding either the Bed-bath or Bottom weights markets. The study could use the competitive advantages found, due to logistics, and determine how they could fit with a niche market focus for either product category.
7. A future study could be conducted on the carpet market in terms of sourcing strategies, competitive advantage and costs. Currently, carpet is still being manufactured competitively in the United States. Research could be

conducted in order to determine why manufacturing in the US has remained a very viable option for the carpet industry.

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APPENDICES A – F

Appendix A. Bed-Bath Retailer Population

Company	Description	Company Category	Avg. sales last 5 years	Avg. growth rate last 5 years	Home Textiles as a % of Retail Sales 2002	Home Textiles as a % of Retail Sales 2003
Wal-Mart	Bentonville, AR	Mass	$2,642	7.65%	1.90%	1.80%
JC Penney	Plano, TX	Chain	$2,461	1.60%	13.30%	14.00%
Target Stores	Minneapolis, MN	Mass	$1,973	11.58%	5.90%	5.90%
Bed Bath & Beyond	Union, NJ	Specialty	$1,643	22.43%	57.80%	51.00%
Kmart	Troy, MI	Mass	$1,645	-8.15%	5.10%	5.30%
Linens 'n Things	Clifton, NJ	Specialty	$1,028	12.75%	54.80%	53.60%
Kohl's	Menomonee Falls, WI	Chain	$525	19.05%	7.00%	7.10%
Sears	Hoffman Estates, IL	Chain	$781	-4.90%	3.30%	2.90%
TJX	Framingham, MA	Off-Price	$483	6.35%	5.50%	5.50%
Mervyn's	Hayward, CA	Stores	$378	-3.90%	9.60%	9.60%
Big Lots	Columbus, OH	Off-Price	$298	9.23%	8.10%	8.20%
Family Dollar	Matthews, NC	Off-Price	$279	9.63%	6.70%	6.50%
Luxury Linens	Burlington, NJ	Specialty	$266	8.50%	11.00%	10.40%
(Williams-Sonoma)	San Francisco, CA	Specialty	$274	29.90%	NA	NA
Macy's East	New York, NY	Stores	$237	-1.35%	4.90%	4.80%
The Company Store	Edgewater, NJ	Direct Mail	$198	7.23%	82.00%	83.10%
Pier 1 Imports	Fort Worth, TX	Specialty	$192	14.03%	14.20%	14.60%
Macy's West	San Francisco, CA	Stores	$211	0.33%	4.90%	5.00%
Brylane Home	New York, NY	Direct Mail	$168	7.37%	11.60%	11.70%
Ross	Newark, CA	Off-Price	$160	17.23%	5.20%	5.50%
Meijer	Grand Rapids, MI	Chain	$163	7.33%	1.60%	NA
Eddie Bauer	Redmond, WA	Specialty	$159	0.83%	11.60%	11.80%
Costco	Issaquah, WA	Mass	$154	10.02%	0.04%	0.04%
IKEA	Plymouth Meeting, PA	Specialty	$144	13.63%	11.90%	12.00%
Spiegel	Downers Grove, IL	Direct Mail	$205	-8.33%	29.20%	NA
Lowe's	Morrisville, NC	Specialty	$131	40.90%	46.50%	0.05%
Strouds	City of Industry, CA	Specialty	$178	-6.50%	63.80%	NA
Stein Mart	Jacksonville, FI	Off-Price	$124	7.68%	10.00%	9.50%
Value City	Columbus, OH	Stores	$139	3.95%	8.30%	8.00%
Bloomingdale's	New York, NY	Stores	$146	-0.65%	7.80%	7.70%
Fred Meyer	Portland, OR	Chain	$133	0.20%	NA	NA
Dollar General	Goodlettsville, TN	Off-Price	$112	3.63%	1.90%	1.70%
Hecht's	Arlington, VA	Stores	$109	0.73%	4.60%	4.50%
Carson Pirie Scott	Milwaukee, WI	Stores	$90	30.25%	NA	NA
smith's	Atlanta, GA	Stores	$104	-1.05%	5.10%	5.00%
Foley's	Houston, TX	Stores	$92	-1.05%	4.60%	4.40%
Service	Chicago, IL	Direct Mail	$94	7.93%	53.60%	NA
Burdines	Miami, FL	Stores	$84	4.68%	6.20%	7.10%
Exchange Svc.	Dallas, TX	Other	$76	-0.07%	1.20%	NA
Linen Source	Tampa, FL	Specialty	$81	11.80%	95.00%	94.40%
Hardware	Corte Madera, CA	Specialty	$60	49.65%	16.50%	20.10%
HomeGoods	Framingham, MA	Off-Price	$134	5.50%	NA	17.30%
Anna's Linens	Costa Mesa, CA	Specialty	$107	36.36%	NA	98.20%
QVC	Westchester, PA	Other	$150	NA	NA	3.10%
Sam's Club	Bentonville, AR	Mass	$122	8.06%	NA	0.04%
Tuesday Morning	Addison, TX	Off-Price	$114	11.01%	NA	16.30%
Dillard's	Little Rock, AR	Stores	$137	-4.65%	NA	1.60%
ShopKo	Green Bay, WI	Off-Price	$123	-3.82%	NA	3.50%
Marshall Field's	Minneapolis, MN	Stores	$133	-3.69%	NA	4.60%
Robinson's-May	North Hollywood, CA	Stores	$98	9.06%	NA	4.70%
: Home Textiles only, NOT TOTAL SALES						

Appendix B. Bottom Weights Retailer Population

Company	Description	Store Category	Avg. sales last 5 years ($Mill)	Avg. growth rate last 5 years
Wal-Mart	Bentonville, AR	Mass merchant	$191,260	15.49%
Target	Minneapolis, MN	Mass merchant	$37,062	9.14%
Sears	Hoffman Estates, IL	National Chain	$41,115	0.03%
JCPenney	Plano, TX	National Chain	$32,172	1.05%
Kmart	Troy, MI	Mass merchant	$34,708	-1.88%
Federated	Cincinnati, OH	Dept.	$16,909	-0.19%
Gap, Inc	San Francisco, CA	Specialty	$12,533	12.92%
May	St. Louis, MO	Dept.	$14,163	0.41%
TJX	Framingham, MA	Off Price	$9,803	10.81%
Kohl's	Menomonee Falls, WI	National Chain	$6,200	25.57%
Limited	Columbus, OH	Specialty	$9,397	-2.30%
Dillard's	Little Rock, AR	Dept.	$8,033	-2.98%
Nordstrom	Seattle, WA	Dept.	$5,458	4.44%
Saks	Birmingham, AL	Dept.	$6,301	-1.10%
QVC	West Chester, PA	Other	$4,900	NA
Ross	Newark, CA	Off Price	$2,776	12.84%
Neiman Marcus Group	Dallas, TX	Dept.	$3,023	5.08%
Burlington Coat Factory	Burlington, NJ	Off Price	$2,372	7.98%
Retail Ventures	Columbus, OH	Off-price	$1,996	7.31%
Belk	Charlotte, NC	Dept.	$2,242	-0.07%
Home Shopping Network		Other	$2,002	NA
Abercrombie & Fitch	New Albany, OH	Specialty	$1,211	18.43%
American Eagle Outfitters	Warrendale, PA	Specialty	$1,069	26.28%
Chico's	Fort Myers, FL	Specialty	$286	49.71%
Urban Outfitters	Philadelphia, PA	Specialty	$310	19.60%
Ann Taylor	New York, NY	Specialty	$1,187	11.10%
Men's Wearhouse	Houston, TX	Off Price	$1,171	16.02%
Talbot's	Hingham, MA	Specialty	$1,447	9.15%
LL Bean	Freeport, ME	Direct Mail	$1,070	NA
Land's End	Dodgeville, WI	Direct Mail	$1,544	4.64%
J. Crew	New York, NY	Specialty	$790	-3.65%
CATO	Charlotte, NC	Specialty	$654	8.34%
Dress Barn	Suffern, NY	Off Price	$678	3.56%
Goody's	Knoxville, TN	Specialty	$1,182	2.39%
J. Jill	Quincy, MA	Specialty	$302	11.12%
Steinmart	Jacksonville, FL	Off Price	$1,272	3.19%
Christopher & Banks	Plymouth, MN	Specialty	$215	32.70%
Gymboree	Burlingame, CA	Specialty	$479	4.77%
Hot Topic	City of Industry, CA	Specialty	$262	44.55%
Pacific Sunwear Calif	Anaheim, CA	Specialty	$576	27.69%
Too, Inc	New Albany, OH	Specialty	$525	14.63%
Wet Seal	Foothill Ranch, CA	Specialty	$560	5.88%
Charming Shoppes	Bensalem, PA	Specialty	$1,649	23.74%
Aeropostale	New York, NY	Specialty	$380	43.58%

Appendix C. Bed-Bath Manufacturers Population

Company	Description	Avg. sales last 5 years	Avg. growth rate last 5 years	Product mix
CHF Industries	New York, NY	$147.3	19.23%	Fashion bedding and accessories, decorative bathroom items, and window coverings
Franco Mfg.	Metuchen, New Jersey	$185.0	13.18%	Engaged in the manufacturing, importing and marketing of decorative home furnishing products including kitchen, bath, beach, bedding products and decorative pillows
Pacific Coast Feather	Seatle, WA	$307.8	11.63%	Basic bedding including pillows, comforters, sheets, and feather beds
Maples Rugs	Scottsboro, AL	$189.6	9.60%	Manufactures accent, bath, and kitchen rugs
Mohawk Home	Calhoun, GA	$582.8	7.10%	Commercial and residential carpets and rugs; other products include bath rugs, blankets, decorative throws and pillows, doormats, printed and woven nylon rugs, wall hangings, woven and tufted rugs, and woven bedspreads
Springs Industries	Fort Mill, SC	$1,958.4	6.73%	Home Furnishings (rugs, ceramic bath accessories, comforters, infant bedding, sheets, shower curtains, and towels)
Hollander Home Fashions	Boca Raton, FL	$210.8	3.30%	Produces about 30 million pillows a year; In addition, they make bedspreads, blankets, comforters, mattress pads, pillows, sheets, and shams
Croscill	New York, NY	$300.4	0.98%	Coordinated home furnishings, including linens for bedrooms, bathrooms, and windows
WestPoint Stevens	West Point, GA	$1,787.2	-3.08%	Bed pillows, Bedskirts, Bedspreads, Blankets, Comforters, Designer sheets and accessories, Drapes, Duvet covers, Mattress pads, Private-label sheets and towels, Sheets and towels for institutions, Shower curtains, Table covers, Throw pillows, Valances;
Dan River	Danville, VA	$437.0	-3.63%	Apparel fabrics, including material for men's shirts, and home fashion items such as comforters, draperies, pillowcases, and sheets
Glenoit	New York, NY	$215	-9.13%	Designs and manufactures decorative home furnishings through its subsidiary, Ex-Cell Home Fashions, and manufactures rugs and welcome mats through its Glenoit Consumer Products division
Crown Crafts	Gonzales, LA	$229	-26.51%	Products include bathing accessories, bibs, blankets, burp clothes, comforters, crib bedding, diaper stachers, hooded towels, mobiles, pillowcases, receiving blankets, sheets, throws, and washclothes.
Sure Fit	Allentown, PA	$154	19.65%	Slipcover manufacturer; In addition to its chair, futon, ottoman, and sofa slipcovers, the company also offers bedding and window treatment collections; bedding products include duvet covers and shams
Louisville Bedding	Louisville, Kentucky	$175	4.03%	Manufactures textiles for bedrooms and dining rooms including mattress pads, pillows, bedskirts, table linens, and more
Brentwood Originals	Carson, CA	$156	9.65%	Producer of decorative pillows
Fab Industries	New York, NY	$88	-20.18%	The Home Fashions and Accessories segment uses its own textile fabrics internally to produce flannel and satin sheets, blanket products, comforters, and other bedding products.
Burlington Industries	Greensboro, NC	$281	-8.65%	Burlington's interior furnishing fabrics unit makes woven jacquard mattress ticking and jacquard used in residential bedding, office, hospitality, and health care goods
Woolrich	Woolrich, PA			Men and women's wear, home furnishings, and accessories; home furnishings include beddings, throw blankets, throw pillows, rugs, and table linens
Thomaston Mills	Wyncote, PA			
Keeco, LLC	South San Francisco, CA	$169	33.10%	Textiles for the bedroom, bathroom, living and dining areas, and kitchen
Revman Industries	Greenville, SC			Manufactures and distributes fine bed and bath products for Laura Ashley, Tommy Hilfiger, Di Lewis, Echo, and Revman Studio Collections

Appendix D. Bottom Weights Manufacturers Population

Company	Description	Avg. sales last 5 years	Avg. growth rate last 5 years	Product mix
Kellwood	St. Louis, MO	$2,145	12.70%	Produces womenswear, menswear, lingerie, and childrenswear
Cintas Corp.	Cincinatti, OH	$2,255	12.34%	Uniform manufacturer
Tropical Sportswear Int'l.	Tampa, FL	$436	-1.41%	Men's and women's casual and dress clothes that are sold under company-owned and licensed brands (including John Henry and Bill Blass) and private labels
VF Jeanswear	Greensboro, NC	$5,422	-1.48%	#1 jeans maker's bevy of brands includes its Lee, Rustler, Brittania, Chic, H.I.S., Wrangler, Gitano, Earl Jeans, and Riders jeans brand
Hartmarx Corporation	Chicago, IL	$628	-6.16%	Best known for tailored clothing under its Hart Schaffner & Marx and Hickey-Freeman labels, the company also produces golf wear, slacks, and women's suits and separates
Galey & Lord	New York, NY	$668	-13.89%	Woven cotton fabrics, blended cotton fabrics, and corduroy. Through the company's Swift Denim unit, Galey & Lord is also one of the US's largest producers of denim.
Burlington	Greensboro, NC	$1,417	-16.10%	It makes wool worsted and worsted-blend fabrics, denim, cotton and cotton-blend fabrics, and waterproof synthetics for the apparel market
Cone	Greensboro, NC	$500	-9.30%	World's #1 maker of denim
Avondale Mills	Monroe, GA	$675	-12.54%	Makes apparel fabrics (cotton and cotton-blend piece-dyed fabrics, indigo-dyed denim), greige fabrics (undyed, unfinished cotton and cotton blends), specialty fabrics (such as coated materials for awnings, boat covers, and tents), and yarns
Delta Woodside	Greenville, SC	$226	-13.03%	Produces woven textile fabrics in its Delta Mills unit, which makes cotton, wool, and synthetic finished fabrics for use in the production of apparel
Milliken & Co.	Spartanburg, SC			Produces finished fabrics for rugs and carpets, as well as other synthetic fabrics used in such goods as apparel, automobiles, tennis balls, and specialty textiles
Mount Vernon Mills	Greenville, SC			Denim producer
Greenwood Mills	Greenwood, SC			Manufactures broadwoven fabrics
Carhartt, Inc.	Dearborn, MI			Rugged overalls, flame-resistant work wear, outerwear, sweatshirts, sportswear, and work pants
Williamson-Dickie Mfg	Fort Worth, TX			Dickies-brand khaki pants, bib overalls, jeans, women's and children's apparel, and Workrite safety uniforms
Koos Manufacturing	South Gate, CA			Koos Manufacturing is engaged in the manufacturing and distribution of denim outerwear
Inman Mills	Inman, SC			Manufacturers cotton and polyester fabrics
Levi Strauss & Co.	San Francisco, CA	$4,462	-5.51%	Sells jeans and sportswear under the Levi's, Dockers, and Levi Strauss Signature names
Oxford Industries	Atlanta, GA	$803	-2.02%	Men's, women's, and children's clothing: dresses, golfwear, shirts, slacks, and suits

Appendix E. Initial Contact Letter

Date

Contact Name
Company
Address
City, State Zip

Dear Contact Name:

<Reference name, company>, suggested that we contact you regarding our research study. Our study focuses on the textile supply chain and examines the issues of global trade, supply chain structures, performance measures, and logistics cost structures. Your company has been selected to participate in this study, and your confidentiality will be secured.

We will be conducting information interviews in your area the week __. We would like to set up a time to meet with members of your company in the given areas during this week if possible. If an on-site visit is not possible during this week we would like to arrange a conference call when convenient. The questionnaire to be administered during the information interview is attached for your review. We will follow-up with you via email or by phone to discuss a possible meeting time. Please let us know when you will be available during this time or if there is someone else that we should contact.

Your cooperation is greatly appreciated. If you have any questions concerning the studies, please contact us via email at one of the addresses below.

Sincerely,

Hope Nowell Graduate Student NCSU/ITT chnowell@unity.ncsu.edu	Lynsey Cesca Graduate Student NCSU/ITT lacesca@unity.ncsu.edu	Michael Jones Graduate Student NCSU/ITT majones6@unity.ncsu.edu
Nancy L. Cassill, Ph.D. Professor – NCSU Nancy_Cassill@ncsu.edu	George Hodge, Ph.D. Professor-NCSU George_Hodge@ncsu.edu	Michelle Jones, Ph.D. Professor-NCSU Michelle_Jones@ncsu.edu

Appendix F. Phase II Survey Instrument: Questionnaire

Interview Topics

NCSU College of Textiles/ITT Fellows Research

Research Team: Lynsey Cesca, Hope Nowell, and Michael Jones

Topic: Global Competitiveness

Introduction

Global competitiveness for the textile supply chain is a vital component of a company's strategy. The global supply chain is changing at an unprecedented rate. This study aims to analyze supply chain configurations and vendor performance, logistics cost structures, and international/governmental trade factors that impact companies' ability to be competitive. Information provided by companies will be used to provide a current, and even future, "picture" of the textile and apparel supply chain. With this knowledge, companies will be better equipped to make strategic business decisions on a global scale.

(Note: Identification of company information will NOT be included in the final thesis project; the researchers will, however, agree to provide your company with a final copy of the thesis).

Section I

1. Where do you see global textile supply chains going? Why?
2. What are the drivers of the global textile supply chain today? The future?
3. What are the advantages of doing business with China rather than other countries in this hemisphere?
4. What advantages do manufacturers in Asia have over U.S. manufacturers besides costs?
5. In your experience working with U.S. retailers, what criteria do you believe is most important to them when choosing a vendor?

6. How important are partnerships with the retailers to the manufacturers in Asia? Where do you see this going in the future?

7. From your experience, what sourcing strategies are preferred today U.S. retailers and brand marketers?

Section II

1. When looking at the cost structure associated with the sourcing of textile and/or apparel products, what percent would you say is dedicated to their logistics costs?

2. In your experience, when sourcing to various areas of the world, does the cost of logistics change by region? For example, how do the logistics costs change when sourcing in Asia as compared to South America?

3. When looking at logistics cost structure for the general sourcing of textile & apparel products, what percent is allocated to the following areas:

	Textile	Apparel
i. Administration	_____	_____
ii. Customs Charges	_____	_____
iii. Handling & Packaging	_____	_____
iv. Inventory Holding	_____	_____
v. Risk & Damage	_____	_____
vi. Transportation	_____	_____
vii. Other	_____	_____

   a. Does the above cost allocation change when dealing with different regions, ie. Asia and South America? If so, how?

   b. Within the textile and apparel supply chain, has there been any unexpected logistics costs or issues that have arisen in the past 5 years? If so, how were they optimized or overcame?

4. A competitive advantage can be defined as resource-based, in that it emphasizes that a firm utilizes its ***resources*** and ***capabilities*** to create competitive advantage that ultimately results in superior value creation. Based on that definition, are there different competitive advantage that Global manufacturing companies, US manufacturing companies, Sourcing agents and Retailers possess due to their logistics costing or logistics operations? If so, what are they?

   a. How do you feel that optimization of logistics within the supply chain can create added value? Can this optimization be used to enhance performance or influence corporate strategy?

b. Have you seen any models for investigation that different companies use when reviewing their logistics costs?

Section III

1. How do currency exchange rates affect your business?
2. Do exchange rates impact your decisions while investing overseas?
3. Has your company been impacted by IP theft?
    a. Do you feel like it is a problem overseas?
4. What country is most favorable for you to include in your supply chain?
    a. Why?
5. With your products, why would it benefit you to go overseas?
6. Do government laws limit your success in certain regions of the world?
7. What are the benefits of using Asia or Latin America in your supply chain model?
8. Which of the following countries have you been involved with, in terms of the product markets heading the column?

Bed/Bath		Bottom Weights	
Pakistan		Mexico	
China		D.R.	
Turkey		Hong Kong	
India		Honduras	
Brazil		Guatemala	

9. Provide a weight score for each trade factor. The total weight should total 1.0, or 100%. For instance, if all factors are to be considered equal, then each factor would receive a score of .2, or 20% of the total.

Trade Factor	Weight
Currency Exchange Rates	
Environmental Regulations	
Federal Subsidies	
Employee Benefits Plans	
Intellectual Property Theft	