THE USE OF FOREIGN TRADE ZONES IN INTERNATIONAL LOGISTICS SYSTEMS: AN EMPIRICAL STUDY OF IMPORT/EXPORT FIRMS IN THE U.S.

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CHAPTER I

INTRODUCTION

International marketing/logistics activities include rules, regulations, practices and many environmental factors which are new to most U.S. firms. In many cases, firms decide not to enter the international arena because of this unfamiliarity. This problem has been labeled lack of knowledge (Cavusgil and Nevin 1981), fear of the unknown (Okeafor 1982; Schelby 1984), and psychic distance (Johanson and Vahle 1977). Similarly, Thomchick and Rosenbaum (1984) also mentioned lack of knowledge of foreign markets and/or fear of the export process as important reasons for the lack of export activity by small-and medium-sized U.S. companies. Fortunately, there are now several types of government and private organizations that play a more active consulting role or provide useful information to help firms gain expertise in marketing their products overseas as well as in sourcing goods efficiently from foreign origins. A relatively new development can also be seen from the enactment of the Export Trading Company Act 1982, which represents recognition of the importance of combining flow of goods expertise with finance and marketing in international trade" (Thomchick and Rosenbaum 1984, p. 102). The export trading companies will be able to provide financial as well as logistical assistance to small-and medium-sized firms more fully without the fear of an antitrust suit (Kaikati 1984; Thomchick and Rosenbaum 1984).

Beyond this assistance, there exists a network of foreign trade zone

zone operations around the world to provide services and facilities that help smooth firms' logistics systems, (i.e., the flow of goods into and out of a country with a minimum of trade restrictions). Unfortunately, in the U.S. foreign trade zone operations have not gained adequate attention from practitioners, and have received almost no attention from academicians. This study explores the issues related to foreign trade zone-usage decisions and also investigates factors influencing U.S. import/export firms in making the decision to use services of this sort.

Foreign Trade Zones and Their Role in International Logistics

A foreign trade zone (FTZ) is "A fenced off or otherwise secured area within the United States that is located in or adjacent to a customs port of entry...Foreign and domestic goods may enter a zone to be stored, distributed, combined with other foreign and domestic products, or used in manufacturing operations" (The U.S. General Accounting Office 1984, p. ii). Permission for a zone operation may be granted to a private or a public corporation by the Foreign Trade Zones Board of the Department of Commerce. There are two types of such zones: general purpose zones and subzones. General purpose zones are located in or adjacent to ports of entry. They generally have multiple users and are primarily used for warehousing and distributing, although some assembling or small-scale manufacturing is occasionally done. Subzones, on the other hand, are special purpose zones. They are technically part of, but physically removed from, a sponsoring general purpose zone and have a single user to whom the facilities located within the subzone belong.

There were more than 200 foreign trade zone facilities in operation throughout the world in 1980 (Cateora 1983). In the U.S., foreign trade zone operations have grown rapidly; from 1976 to the end of November 1983, the number of general-purpose zones authorized to operate grew from 21 to 91 and subzones increased from 5 to 30 (The U.S. International Trade Commission 1984). Yet, there is little awareness of the potential contribution which foreign trade zones can make to domestic and international trade (Calabro 1983; Widdifield 1983).

Foreign trade zones have much potential to offer in facilitating firms' international logistics systems, both in the in-bound materials management and the out-bound physical distribution subsystems. Foreign trade zones may be regarded as "the secret agents of international logistics" (Heydt 1982). They enable firms to operate behind national borders with the flexibility of movement of goods to and from foreign origins, undermining high production costs by sourcing cheaper materials and components abroad while eliminating import duties if the products are exported to foreign markets. Accordingly, the decision whether to use such a zone seems to be significantly influenced by logistics/marketing-related factors. This is particularly true for manufacturing firms which can gain fully from foreign trade zone benefits rather than just having duty savings as its primary advantage.

Purpose of the Study

The ultimate goal of the research on this international logistics issue is to present a more complete model of the decision to use foreign trade zones. Currently, zone usage has been looked at only from the financial benefit approach without considering logistics and

marketing factors such as transportation access and costs, proximity to foreign and domestic markets, proximity to domestic and foreign suppliers, the customer service level, distance between a zone and the firm's location, and availability of warehousing facilities. This dissertation provides the intermediate step of uncovering the variables or factors important to a firm's decision to use a foreign trade zone before incorporating them in a more comprehensive model. In other words. emphasis is placed on the logistics/marketing advantages provided by foreign trade zones to enhance more efficient import/export activities by firms.

The specific objectives of the research are:

1. To identify factors involved in the decision to use foreign trade zones and to investigatetheir relationships.
2. To compare current users and non-users in terms of their awareness of and attitude toward foreign trade zone benefits and service quality, as well as their firm characteristics.
3. To propose and to test a model of foreign trade zone usage representing the relationships among relevant factors or variables.

Scope and Limitation of the Research

For the purposes of this research, a foreign trade zone is viewed as providing a bundle of duty-related, warehousing, and facility services to facilitate importing of foreign materials to be sold and/or used for manufacturing in the U.S., some of which may be reexported to foreign markets. In terms of purchasing from foreign sources, the study includes only import channels and international sourcing where goods actually flow across national borders, as described by Hallen (1982).

This study is primarily exploratory. The causal relationships established will serve as a first attempt to build a model. The model should be further tested with more data in the effort to formalize it as a theory in international logistics.

Outline of Research Methodology

The study applies survey research methodology with mail questionnaires. The data collection consisted of three stages. The first stage involved personal interviews with companies that are current users of foreign trade zones. These interviews served as preliminary research to help determine the formulation of the hypotheses and the development of the survey instrument. Meanwhile, data were collected from a sample of firms that are active importers but are not zone-users. The second stage involves a more formal pretest of the questionnaire with students in the International Marketing course at Oklahoma State University; subsequently, another pretest was administered to a small sample of current zone users as well as to Oklahoma import and/or import-export firms that are non-users. The final stage was a mail survey to a national sample of zone users and non-users.

The data analysis included testing the proposed conceptual model and the relationships among variables, as stated in the second research objectives, through a causal modeling approach using structural equations. In addition, stepwise discriminant analyses were used to investigate the third research objective dealing with the differences between the current user and the non-user. Figure 1 presents the research methodology steps.

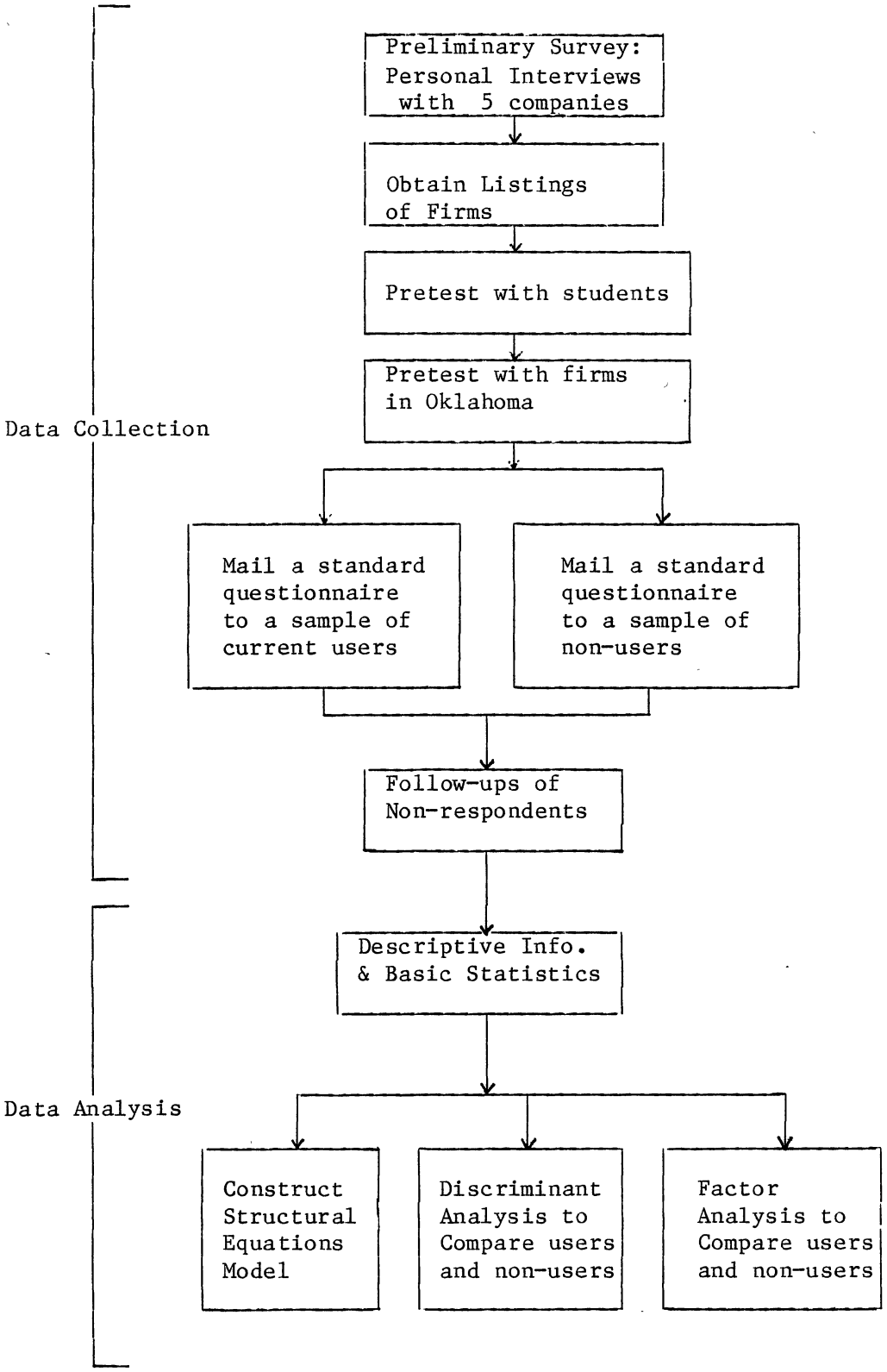


Figure 1. Research Methodology Steps

Contribution of the Study

The current state of the art in international logistics research is very limited. Although the study has the potential to contribute greatly to practice, an attempt is made to contribute to theory in this area as well.

Theoretical Contribution

In a broad sense, attempts to reintegrate distribution into the marketing discipline are very necessary at present. The exclusion of physical distribution, i.e. transportation and storage, from marketing is perceived to be another contraction of the disciplinary field (Bartels 1983). As Bartels (1982, p. 3) commented, "At this time, however. a tendency to fragment marketing into 'marketing' and 'distribution' compels concern for whether the full potential of either can be achieved if such separation does occur, either in theory or in fact." In addition, the international dimension of marketing has not been adequately explored and the phenomenon is seen as a paradox in that "despite the obvious increase in international marketing activities, this trend has not been reflected in the marketing literature" (Cunningham and Green 1984, p. 9). International logistics, in particular, has not been viewed as a high priority area of research (Okeafor 1982).

Furthermore, research in the area of logistics has been predominated by the modeling approach, i.e. the use of management science techniques; a major deficiency is the lack of studies

examining executives' decisions concerning logistics issues (which will be emphasized in this study). Additionally, this research may make a significant contribution in that it seeks to formalize what is being practiced in the real world, or in Zaltman and Bonoma's (1984) terms, theory-in-use. The theory verification or theory justification approach to research is prevalent in marketing. This approach attempts to capture empirical data to falsify or confirm a theory in a hypothetico-deductive manner while theory construction or theory building is almost ignored (Deshpande 1983; Olson 1984; Peter 1984; Zaltman, LeMasters and Heffrings 1982). This study adopts the theory-in-use approach to theory-building proposed by Zaltman and Bonoma (1984) and Zaltman, LeMasters and Heffrings (1982). According to this approach, it is believed that practitioners have their own informal theory which we should observe and use to derive a more formal theory, as shown in Figure 2.

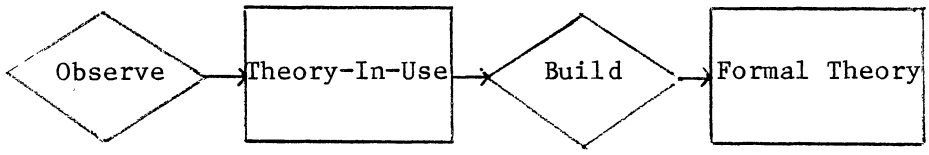


Figure 2. The Theory-In-Use Approach to Research Adopted by the Study

This non-traditional research approach is described as a "backward" moving from successful practice to sound theory with the

inductive logical path (Zaltman and Bonoma 1984). Whether a sound theory can actually be built depends on how much of the theory-in-use can actually be observed in the real world.

Practical Contribution

The study provides meaningful information to foreign trade zone administrators in order to help them promote zone usage. The model of zone usage should help the administrators understand the decision process used by firms, how different types of firms perceive and evaluate zone benefits differently, and how this results in different usage behavior. Of particular contribution is the comparison of users and non-users, which provides insight to foreign trade zone administrators as to why foreign trade zones are not widely used despite their numerous benefits.

Organization of the Dissertation

Briefly, the organization of this dissertation is as follows: Chapter I overviews the topic of investigation and the plan of the research; Chapter II reviews the relevant literature which forms the basis for the research; Chapter III details the research methodology including the proposed conceptual model, the construct of interest and their operationalizations, the formulation of hypotheses, the sample design, the pretests of research instruments, and the data collection procedures; Chapter IV presents the formal findings of the research. It is organized around the research hypotheses presented in Chapter III. The final chapter, Chapter V, summarizes the research and presents the conclusions and recommendations which can be drawn from the study.

CHAPTER II

REVIEW OF LITERATURE

The literature relevant to the study will be discussed in six separate sections. The first section presents the description of foreign trade zone operations, statistics on current usage, and import and reexport activities in the zones. The second section describes the variations in foreign trade zone services and the perceived quality. The third section covers the benefits of the zones before relevant logistics/marketing factors are discussed in the fourth section. The fifth section covers import channels, international purchasing and sourcing channels, and facilitating organizations; channel members and facilitators are considered as providing outside influence on zone-usage decisions. Finally, firm-related factors that may be important to the decision to use a foreign trade zone are included in the last section.

Foreign Trade Zone Operations

The two types of foreign trade zones, general purpose zones and subzones, need to be considered separately in terms of the influence of the logistics/marketing factors on the zone usage decision. Specifically, general purpose zones, which are located in or adjacent to ports of entry, have multiple users and are primarily used for warehousing and distributing, although some assembling or small-scale manufacturing is occasionally done. The range of activities within a

general purpose zone varies greatly, but most general purpose zones have multiple activities as shown in Table I.

TABLE I

MULTIPLE ACTIVITIES IN GENERAL PURPOSE ZONES

Activity	Number of zones indicating activity*
Warehousing	41
Packing and repacking	23
Examining and inspecting	23
Labeling	14
Destroying inferior goods	12
Manufacturing (small-scale)	11
Assembling	10
Cutting goods	6
Repairing	3
Exhibiting	4
Sorting	3

Source: The U.S. General Accounting Office (1984), p. 15.
*based on information contained in the 41st annual report available for fiscal year 1982.

Subzones, on the other hand, are very convenient for larger manufacturers as they are located within the firm's plant or warehouse facility. A firm may ask for permission to declare a certain area as a subzone if it can show that existing facilities in general-purpose zones are not appropriate for its large-scale manufacturing. Subzone users are engaged in large-scale manufacturing and/or assembling operations as well as the storage of components and finished products. The major goods currently being produced in subzones are automobiles,

trucks, motorcycles, tractors, women's garments, and refined oil. Subzones are mainly responsible for the current overall growth in the value of zone activity. Between 1973 to 1982, the subzone share of goods produced in the zones rose from 29 to 62 percent, and the value of these products increased from $47 million to $2.4 billion. Meanwhile, general purpose zone value of business activity increased from $114 million to $1.5 billion (The U.S. General Accounting Office 1984).

Classifications of Merchandise

There are five categories of merchandise taken into a foreign trade zone; each receives different customs treatment as described in the U.S. Trade Commission (1984) and Calabro (1983) as follows:

1. Privileged foreign merchandise consists of material of foreign origin which is to be considered in its original state, for tariff classification and value purposes, prior to its availability for transfer to the U.S. Customs territory. Regardless of the manipulation or processing which occurs after the category is determined, the original designation applies for duty classification and tax purposes. Raw material which is to be transformed into a product with a higher duty after completion normally would fall into this category. The user has the option of selecting this classification.

2. Privileged domestic merchandise is considered to be of U.S. origin and can be reentered into the Customs territory free of quotas, duties, and taxes. This classification usually applies to those raw materials or component parts originating in the U.S. which will be used in combination with materials of foreign origin to complete the

manufacture or assembly of a product.

3. Nonprivileged foreign merchandise is material of foreign origin which, for tariff and taxing purpose, is to be considered in the state in which it exists at the time of its placement for transfer to the Customs territory. This classification usually would apply to those products which have a lower tariff classification than the materials and components of which they are made. The selection of this option is at the discretion of the user. For example, automobile components can be brought into a zone as non-privileged foreign merchandise and then assembled into a complete automobile upon which a duty is assessed with a lower duty rate.

4. Nonprivileged domestic merchandise applies to material of domestic origin wherein the privileged domestic merchandise classification was not requested and approved prior to its placement in the FTZ. Frequently, privileged domestic merchandise loses its identity in the zone and is reclassfied as nonprivileged foreign merchandise. The nonprivileged domestic merchandise category usually results from oversight or neglect on the part of the user. This status is rarely utilized. In most occasions, a firm would want to preserve the privileged status so that those domestic goods can be isolated from foreign materials and not be subject to duty.

5. Zone-restricted merchandise is foreign or domestic merchandise which is taken into a zone from the customs territory for the sole purpose of storage, exportation, or destruction. It may not be returned to the customs territory unless approved by special order of the Foreign Trade Zones Board.

Although this classification of merchandise is for customs

purposes, it affects the firm's decision on the type of merchandise --being raw materials, components, and finished goods--to bring in from foreign sources in such a way that the maximum duty saving can be achieved. Statistics on the volume of merchandise being imported and exported out of foreign trade zones in recent years are discussed next.

U.S. Exports from Foreign Trade Zones

According to the data compiled by the Foreign Trade Zone Board, exports from FTZ's are shown in the table below by type of zone for 1978 to 1982.

Although exports were shipped from 38 general-purpose zones in 1982, four zones (McAllen with 60 percent; Miami, 19 percent; New York, 5 percent; and Port Everglades, 3 percent) together accounted for nearly 90 percent of the value shipped to foreign countries from such

TABLE II

EXPORTS FROM FOREIGN TRADE ZONES
(in millions of current dollars)

Year	Total	From general-purpose zones	From subzones
1978	$236	$119	$117
1979	347	196	151
1980	694	392	302
1981	926	484	442
1982	1,539	811	728

Source: U.S. International Trade Commission 1984, p. 43.

zones. Exports from subzones amounted to $728 million in 1982, up from $117 million in 1978. In summary, exports from foreign trade zones were miniscule when compared with the total exports of domestic merchandise of $207.2 billion.

Currently, the majority of products leaving zones are entering domestic commerce rather than being reexported to foreign commerce as visualized at the time the Foreign Trade Zone Act was passed in 1934. Even though U.S. exports from FTZ's increased over six-fold from 1978 to 1982, the domestic content of these exports was relatively small. For instance, a significant, but undeterminable, share of exports from general-purpose zones consisted of foreign merchandise that had been admitted into such zones and was subsequently reexported (transshipped). Similarly, some of exports consisted of domestic and foreign merchandise that had been commingled but was exported as totally domestic (The U.S. International Trade Commission 1984). Nonetheless, it is estimated that approximately 33 percent of goods entering general purpose zones and subzones are domestic goods, usually to be combined with foreign items (the U.S. Foreign Trade Zone Board 1983).

U.S. Imports from Foreign Trade Zones

The amount of imports that enter the U.S. through FTZs is not a significant share of total U.S. imports; they average about 0.4 percent annually. According to the statistics provided by the U.S. General Accounting Office (1984), the balance between exports and imports--the products that enter domestic commerce--from general purpose zones and subzones has remained at a relatively constant percentage over the ten year period of rapid zone growth, as illustrated in Table III.

TABLE III

THE PERCENTAGE OF IMPORTS AND EXPORTS THROUGH FTZ'S
(1973-1982)

Year	Subzone products		General purpose zone products		Total	
	Imported	Exported	Imported	Exported	Imported	Exported
1973	80	20	89	11	86	14
1974	93	7	80	20	86	14
1975	96	4	77	23	88	12
1976	94	6	80	20	88	12
1977	95	5	78	22	86	14
1978	91	9	68	32	81	19
1979	95	5	69	31	86	14
1980	93	7	59	41	83	17
1981	90	10a	62	38	82	18
1982	89	11a	64	36	82	18

[a] The major exports were oil and automobiles.

Source: adapted from the U.S. General Accounting Office (1984), p. 16.

The statistics mentioned indicate that the FTZs account for a very small amount of merchandise being reexported to foreign markets, despite the fact that the original purpose of FTZs was to encourage exporting of goods requiring foreign components (instead of producing them abroad).

Variations in Foreign Trade Zone Services and Their Perceived Quality

Foreign trade zones provide a range of industrial services to firms. To understand the decision whether to "buy" these services, it is necessary to look at to the industrial buying literature.

Unfortunately, little attention has been paid to the purchasing of services in industrial markets. Nonetheless, there exists broad agreement that most industrial purchasing organizations are far more competent in purchasing tangible goods than in purchasing intangibles or services, and that tangibles are easier to buy than services (Ferguson 1983; LeBell 1975; Sarkar 1974; Schonberger 1980; Sullivan 1975). It is also more difficult to develop and maintain a standard of quality since it is often determined by the persons who deliver the services; people are the major source of differentiation among service suppliers (Webster 1979). Johnston and Bonoma (1981) compared the industrial buying behavior for capital equipment and for industrial services and found that services had fewer people involved in the buying center than did capital equipment purchases. Additionally, services involve relatively less vertical involvement in terms of the levels of the organization's authority hierarchy exerting influence and communicating within the buying center. Perhaps the findings can be explained by the types of services involved in the study, as they were relatively less important ones such as janitorial services, training services, etc.

Foreign trade zone services are different from typical industrial services in at least three aspects: (1) No supplier selection process exists because presumably there is only one supplier in a given area; (2) Foreign trade zone services are provided by not-for-profit operators as a public utility; and (3) Using a zone involves purchasing a set of services, e.g. warehousing, customs arrangement, exhibitions, manufacturing space etc., which is not standardized across zones. Each of the services seems to possess a different level of intangibility.

For larger manufacturing firms, using zone services is a strategic issue in the sense that the services affect the production, logistics, and marketing functions of the firm. For smaller, nonmanufacturing firms, a bonded warehouse is regarded as an alternative supplier of services. Consequently, the decision for these firms is not as strategic, having less effect on logistics and marketing functions.

In turning to the services marketing literature, one finds that the focus is on consumer markets. Nonetheless, Sheth (1974, 1979), Webster and Wind (1972), and Zaltman and Wallendorf (1979) agree that there are large similarities between industrial buying behavior and household/family buying behavior in the purchase and decision-making processes, the mechanics of marketing management, and the nature of environmental influences. Also, Fern and Brown (1984) argue against the industrial/consumer marketing dichotomy and view the similarities as more useful in developing marketing knowledge. Therefore, this study will seek to apply the concepts and theories in consumer services marketing to its industrial context.

Bateson (1979) suggests a simple, yet effective, way of understanding differences between goods and services by focusing on one characteristic--intangibility. Given that a service is an intangible act, its production and consumption are inseparable with no inventories; a service is not capable of being physically stored and transferred and the unused capacity is lost forever. In the case of foreign trade zone services, empty warehouses and a Customs officer's unused hours at the zone are examples of how a service capacity cannot be recalled for use at some later time. In other words, services have some degree of perishability. The more intangible, the more difficult

it is to try to standardize service delivery and to ensure consistent quality control. Given the intangibility aspect of services, it is not as easy for the customer to evaluate service quality.

Shostack (1977, 1984) describes the goods-services dichotomy through a molecular model. The model postulates that, in fact, market entities consist of both tangible and intangible elements, making up molecular wholes. Those with relatively less intangibility are considered goods-dominant, and those with more intangibility are regarded as service-dominant. To promote and sell highly tangible services, tangible evidence should be enhanced by associating services with the physical facilities and personnel through advertising and promotion. In the same light, one may assume that of the range of services provided by the foreign trade zones, the more tangible services, e.g. a warehousing facility, would hold relatively higher awareness and more accurate knowledge by firms. Furthermore, buying motives and practice vary greatly depending upon the type of the service involved (Haas 1982).

Additionally, the distribution channels for services are usually short with no intermediary function because production and consumption occur at the same time. In terms of service delivery and distribution, foreign trade zone services may be categorized according to Lovelock's (1984) classification as shown in Table IV.

The perceived quality of zone services is also influenced by each zone-operator's logistics expertise, which varies depending upon whether it is a private corporation in the warehousing/distribution industry. Several zones are operated by existing warehouse companies that wished to extend their regular warehousing, distribution and other

TABLE IV

FOREIGN TRADE ZONE SERVICES BY METHOD OF DELIVERY

Nature of Interaction Between Customer and Service Organization	Availability of Service Outlets	
	Single Site	Multiple Site
Customer Goes to Service Organization	--	general purpose zone
Service Organization Comes to Customer	subzone	--

logistics services to clients that imported and/or exported goods. For instance, Griswold & Bateman Warehouse Co. (operator of FTZ No. 49, Port Newark/Elizabeth), Industrial America Corp. (operator of FTZ No. 22, Chicago), and Darrell J. Sekin & Co., Inc. (operator of FTZ No. 32, Dallas/Ft.Worth) have been in the distribution and warehousing industry for years. Each decided to operate a foreign trade zone as a natural extension of regular business incorporating the zone services into a total company package that can provide more benefits to clients or users. Of course, zones operated by companies with wide logistics-related business experience and a broad range of services would be more likely to be in a better position to serve users satisfactorily. They can also provide consulting services, e.g. the selection of transportation mode and advice as to when and how to store and distribute goods.

Finally, it is important to note that bonded warehouses may provide similar services except that bonded warehouses are designed to facilitate temporary storage without duty while the primary intent of the foreign trade zones allows a large-scale product manipulation (McDaniel and Kossack 1983). Nevertheless, a few specific types of bonded warehouses now permit manufacturing for export-only and other minor manipulations. Unless there is a need to perform a large-scale manufacturing and major manipulations, the benefits from a bonded warehouse are very compatible with services provided by the foreign trade zones. Interviews with two current users also supported this observation.

In summary, the perceived service quality of foreign trade zones is influenced by the following factors: (1) the degree of tangible evidence (i.e., physical facilities), (2) method of delivery and customization (i.e., subzone versus general purpose zone), (3) the zone-operator's logistics expertise, and (4) comparable services provided by bonded warehouses in the same area. The next section will present specific benefits provided by foreign trade zones which are discussed from both the financial and the marketing/logistics perspectives.

Benefits of Foreign Trade Zones

The main benefits provided by foreign trade zones are related to importing activities. These include simplified customs procedures, duty deferral, duty reduction, and duty avoidance. However, importing has been perceived negatively as the balance of trade deficits have grown over the years toward $100 billion by the end of 1984 (U.S. News

and World Report 1983). With its tie to imports, the foreign trade zone operation has been criticized by certain industrial groups for encouraging imports and making domestic goods less competitive (The U.S. International Trade Commission 1984). Nonetheless, a degree of importing is necessary and has to be fostered for the following reasons: first, an efficient use of sources of supply that are available in foreign markets is often important to industrial firms (Hallen 1982); second, according to the international product life cycle theory, many product categories first introduced in the U.S. have to be imported from a foreign country at a later date (Hoy and Shaw 1981; Mullor-Sebastian 1983; Ongvisit and Shaw 1983; Wells 1968); third, the American consumer's preferences for foreign goods have increased; fourth, importing is vital to increasing the volume of exports through countertrade which presently accounts for one third of all world trade (Cooper 1984; Dizard 1983; Khoury 1984); finally, experience gained from importing can be valuable to export initiation as the familiarity with international trade increases. Accordingly, as the role of the import function becomes increasingly vital to the U.S. position in international trade, foreign trade zones would be even more important agencies that facilitate and smooth the import process. With the primary focus of the foreign trade zones being on increasing the nation's reexport and transshipment trade, it is hoped that greater opportunities will exist to encourage reexporting out of the zones to foreign markets as more firms decide to use foreign trade zone services.

The specific benefits of foreign trade zones may be described from the financial as well as the logistics/marketing points of view. In this study, the financial benefits are treated as the primary benefits while the logistics/marketing benefits are secondary, resulting from the opportunity to gain primary benefits. The financial benefits will be discussed first, followed by the elaboration of logistics/marketing benefits will be provided.

Financial Benefits

These benefits are obtained through some form of tax or customs incentive, which may range from being free of customs duties and import controls to reduced insurance costs for storage (Laurent 1983). McDaniel and Kossack (1983) present a model of foreign trade zone benefits from the financial savings perspective which includes the following items:

1. A lower rate of theft due to the required extra security by U.S. Customs territory
2. Lower insurance costs
3. Non payment of inventory tax
4. Excise taxes are not paid on goods while being stored in the FTZ
5. Delay of payment of taxes on goods to be imported into the U.S. Customs territory
6. Avoidance of duty on goods to be re-exported when the use of duty drawback, temporary import bond or a bonded warehouse is not an alternative.

7. Saving of duty drawback cost (avoidance of the procedure associated with refunding 99% of duties paid on imported materials that are used with domestic components to be exported.)
8. Saving of cost of temporary import bond
9. No duty payment on waste or shrinkage
10. Reduced duty on by-products of manufacturing processes
11. The ability to select in advance the lowest possible tariff.

Logistics/Marketing Benefits

Zone operations can play a vital role in international logistics, both in the in-bound materials management and the out-bound physical distribution subsystems. They often provide useful sites for distribution centers because they exist in many countries (Schary 1983). Multinational corporations can fully maximize such an advantage. Relating to Picard's (1982) models of international physical distribution systems, foreign trade zones are often used to locate a multicountry warehouse in the multicountry system. Such a warehouse is used to provide one central inventory for a group of regional markets (Schary 1982). For instance, an American company in Picard's (1982) study has a central warehouse for South America in Miami, Florida, which is geographically close to the market and offers a high frequency of airflights to all important South American cities. This system may serve as a distribution center in the transit system or

a stocking warehouse as in the classical system. The multicountry system does not have to be mutually exclusive from the other models, and a foreign trade zone may be used as a warehouse for stocking and/or distribution in any of the four. Furthermore, demonstrations or displays of imported products stored in the zone can be done without any duty payment. The four models are shown in Figure 3.

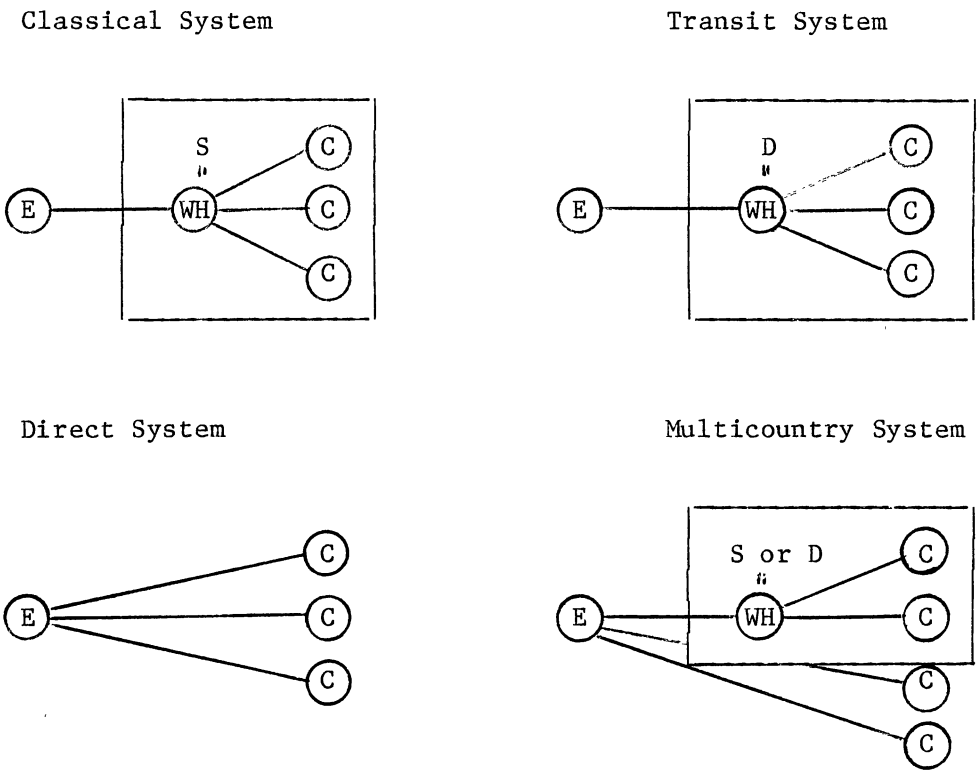
Terpstra (1983) describes four additional potential advantages which include:

1. They permit the firm to realize the economies of bulk shipping to a country without having to bear the burden of custom duties. Duties are paid only when the goods are released on a small lot basis from the zone or bonded warehouse.

2. They permit manufacturers to carry a local inventory at less cost than in facilities they own, because in their own facilities they must pay the duty as soon as the goods enter the country. If duties are high, the financial burden of covering the duty on goods in inventory is significant.

3. ...firms find that they can ship ingredients or components into the zone without paying the U.S. duty on them. After assembly, the complete product can be shipped into the U.S. market at the lower rate applying to the finished goods.

4. Their ability to engage in local processing, assembly, repacking, and similar operations can mean savings to the international firm. It can ship to the market in bulk or CKD (completely knocked down) for advantageous freight rates. Then it can process, assemble, or repack locally for local distribution (p. 399).



E = Exporter
WH = Warehouse
C = Customer
S = Stocking inventory overseas
D = Distribution

Source: Adapted according to Picard (1982) from Schary (1982), p. 408.

Figure 3. Models of International Physical Distribution

Accordingly, these advantages would be realized more by manufacturing firms that are involved in importing foreign raw materials and/ or components as their procurement strategy. The usefulness to an individual firm also depends on whether the goods shipped apply to a high duty rate (Terpstra 1983). If a firm finds that the use of a zone incurs much higher distribution costs and/or reduces its customer service level, it may well bypass going through a foreign trade zone in its physical distribution system. Furthermore, due to their nature, certain products require special distribution and handling; high-value items such as computers and electronics are frequently shipped via air freight with the lowest inventory possible being held in foreign markets (Johnson 1976); perishable items such as foods may also not be well suited for a longer physical distribution time through a foreign trade zone.

To conclude the discussion of the beneficial aspects of foreign trade zones, it is important to stress that primary financial benefits alone are not sufficient to make firms decide to use a zone in their international logistics system. The secondary, logistics/marketing benefits need to be attractive enough to firms as well. These benefits will be discussed next.

Relevant Logistics/Marketing Factors

The logistics/marketing factors that affect the foreign trade zone decisions to use and to locate in a certain zone may be classified into two types:

1. Non-zone-specific (general) factors: those related to the advantages of using a foreign trade zone in general, and

2. Zone-specific factors: those related to a particular zone location.

The general logistics factors, which have been discussed in the previous section include: a) transportation, b) inventory and warehousing, c) sourcing and materials management, and d) distribution. In terms of zone-specific factors, this study recognizes that there is variation among foreign trade zones in terms of the services provided and costs incurred by zone operators that are passed on to users. Additionally, each zone has its unique characteristics such as the proximity to ports and to markets, rail facilities, truck terminals, warehousing space and facilities, and other location advantages (McDaniel and Kossack 1983).

Firms need to consider these factors in light of their effect on company efficiency, increased convenience, and the ability to improve the customer service level through using a foreign trade zone. The general logistics factors may be further examined and linked with the zone specific factors by focussing on the issues related to the source and the destination of the product flow. The proximity to the domestic and foreign sources of materials and to the domestic and foreign markets, along with the proportion of the flow of goods from each point underline the importance of factors involved in the decision to use the zone and to reexport. The logistics costs incurred and the ability to market the products at a satisfactory customer service level depend very much on these issues.

Figure 4 and Figure 5 illustrate the basic distinction between two types of users, import-only firms and active reexporters, by their sources, destinations, and the relative size of the volume of the flow of goods. From the two figures, there exist two logistics subsystems:

1. In-bound subsystem

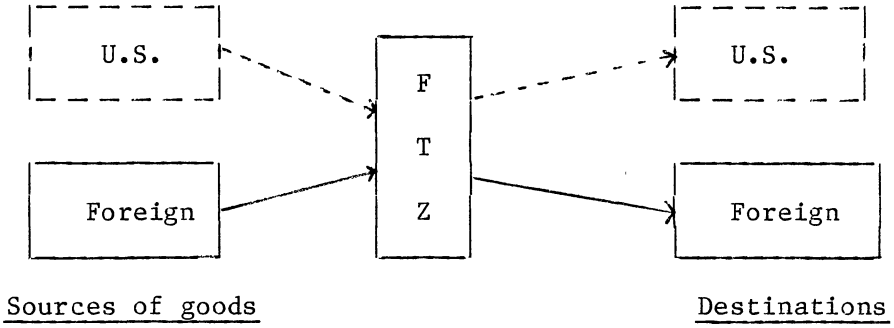
   1.1 domestic source
   1.2 foreign source

2. Out-bound subsystem

   2.1 domestic destination
   2.2 foreign destination

These issues may be directly tied to the warehouse location literature. If the factors related to the zone location are of interest here, then another research question arises: How does a firm use the zone-specific logistical factors related to zone location and the varying services offered by each zone to help decide whether to use a foreign trade zone? The location literature has focused on developing algorithms to minimize the logistics costs or to suggest a set of acceptable solutions for the best location through management science modeling. For the purpose of this study, the variables that have been included in these models, not the models themselves, will be discussed. To examine the factors more accurately, one must also know the main purpose for zone usage.

A zone may be used as a warehouse facility only or as a manufacturing site or both. Unless a firm operates a large-scale manufacturing facility, it would usually use an existing general purpose zone. Meanwhile, selecting a subzone location for large-scale manufacturing is not quite the same as a plant site decision. In this case, a firm chooses among its existing plants if



*The portion with dotted box and line indicates that the volume of goods from such a source and to such a destination may not be significant compared with the alternative source and destination.

Figure 4. Source and Destination of Goods for Reexporting Firms

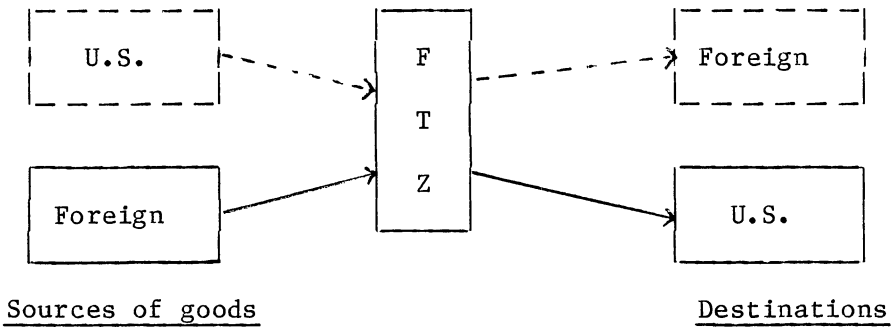


Figure 5. Source and Destination of Goods for Import-only Firms

there are more than one. Then, it applies for the permission to have a subzone area within a particular existing plant. Accordingly, there are not as many factors to be considered as in the case of selecting a new plant site where all cost factors as well as the qualitative factors (e.g., quality of life) need to be analyzed (Student 1976). Perhaps proximity to domestic and foreign markets and proximity to domestic and foreign suppliers are the critical factors; these two factors have tremendous effect on the transportation modes to use and the associated costs, on the customer service level, and on materials management (i.e., sourcing). Thus, the decision to select a certain plant as a subzone also depends on the distance between the plant site and the port of entry through which the goods will pass. Meanwhile, when a firm uses a general-purpose zone, the distance between the port of entry where the zone is located and the location of the firm's office is not as important; this is because goods do not need to be shipped to the firm's site as in the case of a subzone usage since warehousing, manipulating, and small-scale manufacturing activities are performed within the zone at the port of entry. Nevertheless, one still needs to keep in mind the variation among zones in terms of warehousing space and facilities, truck terminals, rail facilities, proximity to markets and to suppliers, and service fees charged by the zone operator.

In sum, the logistics/marketing factors may have a very significant influence on an international logistics planner's decision of whether to use a foreign trade zone and, if so, at what location; therefore these factors deserve to be examined carefully before the decision is made, and merit careful attention by researchers as well.

The next section discusses import and distribution channels and other facilitating organizations, which include parties outside the firm that may very well influence the firm's logistics decision, or in this case, the foreign trade zone usage decision.

Third Party Influence

Import Channels and International Distribution Channels

Although the study does not emphasize the behavior of members involved in the imports and distribution channels, the international dimension of the channel literature deserves to be discussed, as it seems likely that a channel member would have an influencing role on the decisions to use the zone and to reexport from the zone. This is particularly true for multinational corporations when the physical distribution of merchandise between manufacturing units and subsidiaries abroad depends on and affects the operations of both entities (Picard 1983). Furthermore, the facilitators who are not included in the channel, i.e., international freight forwarders and customs house brokers, are assumed to take part in providing advice and information to help firms make their decisions.

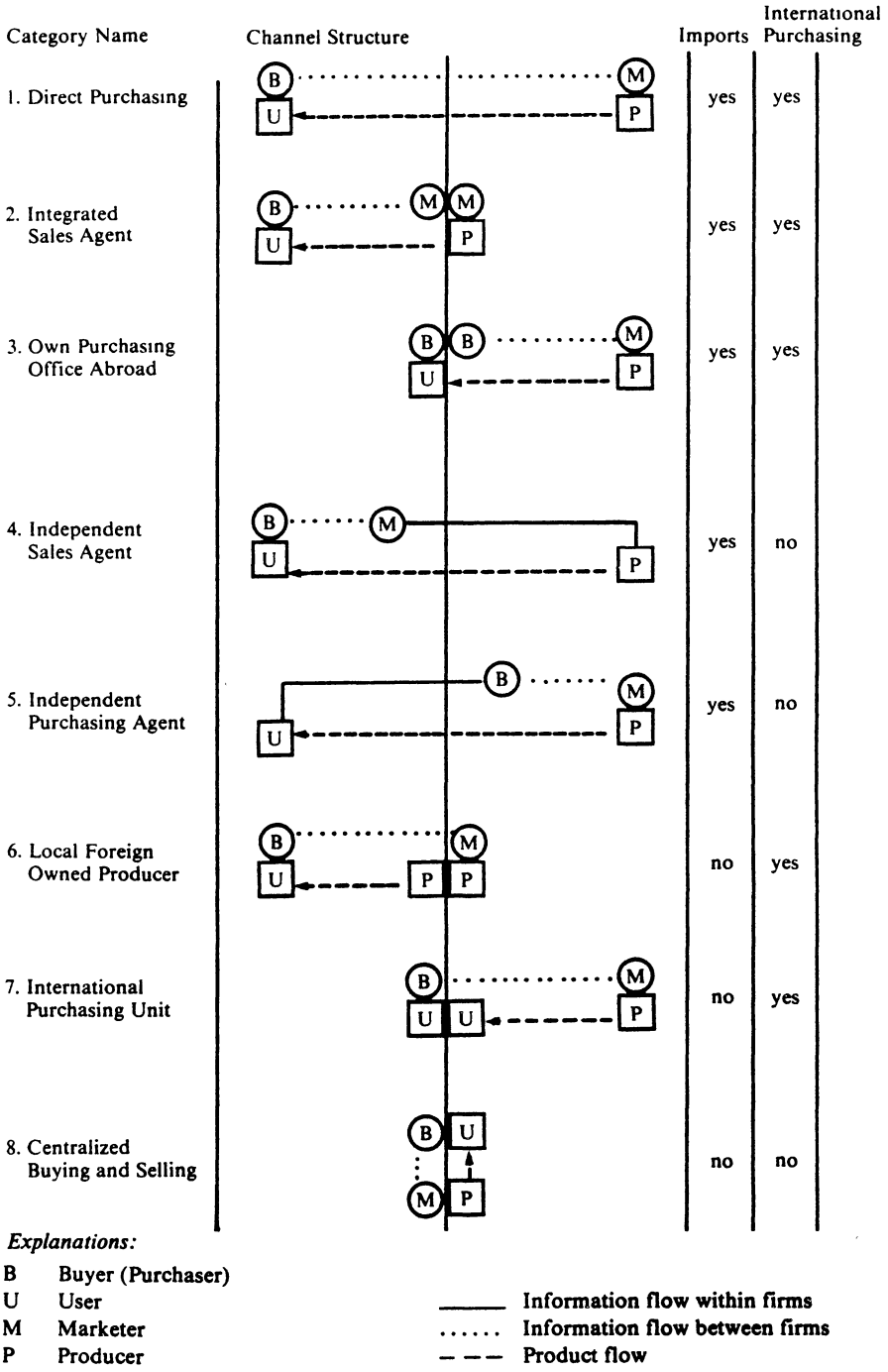
Import Channels

It was mentioned in Chapter I that the scope of the study includes import channels, although a channel may be categorized as being both an import as well as an international purchasing channel. These two types of channels are distinguished based on Hallen's (1982) definitions of "importing" and " international purchasing" as follows:

> Imports refer to flows of goods across the border into the buying country. Consequently, in industrial marketing and purchasing the import channels connect the production units of the buying and selling firms. International purchasing, on the other hand, involves direct information flows to independent foreign suppliers. Relations to sales representatives in the customer's country may lead to international purchasing. If no important direct relations to the foreign supplier exist, and if the sales representative is perceived as equivalent to a domestic firm, the situation may be adjudged equivalent to buying domestically. Relations to nationals of other countries employed within the same transnational firm may also lead to imports in the form of intra-firm trade, but this is not international purchasing either (p. 44).

Hallen (1982) suggests eight categories of channels for imports and international purchasing, some of which show considerable overlap; they include: (1) direct purchasing, (2) integrated sales agent, (3) own purchasing office abroad, (4) independent sales agent, (5) independent purchasing agent, (6) local foreign-owned producer, (7) international purchasing unit, and (8) centralized buying and selling. These classifications are illustrated in Figure 6.

The first five categories are import channels representing actual physical flows of goods across borders and are included in the study. The direct purchasing category has no intermediary in any of the countries concerned and is a case where international purchasing and importing coincide. The second situation involves dealing with the local sales agent or selling subsidiary of the foreign suppliers, who is closely linked to the marketing unit of the suppliers. The third category represents the situation where the buying firm has its own purchasing unit abroad operating in close contact with the domestic firm. In the fourth and the fifth categories, negotiations are carried out within the boundary of one country while goods are delivered from



Source: Hallen (1982), p. 46

Figure 6. Channels for Imports and International Purchasing

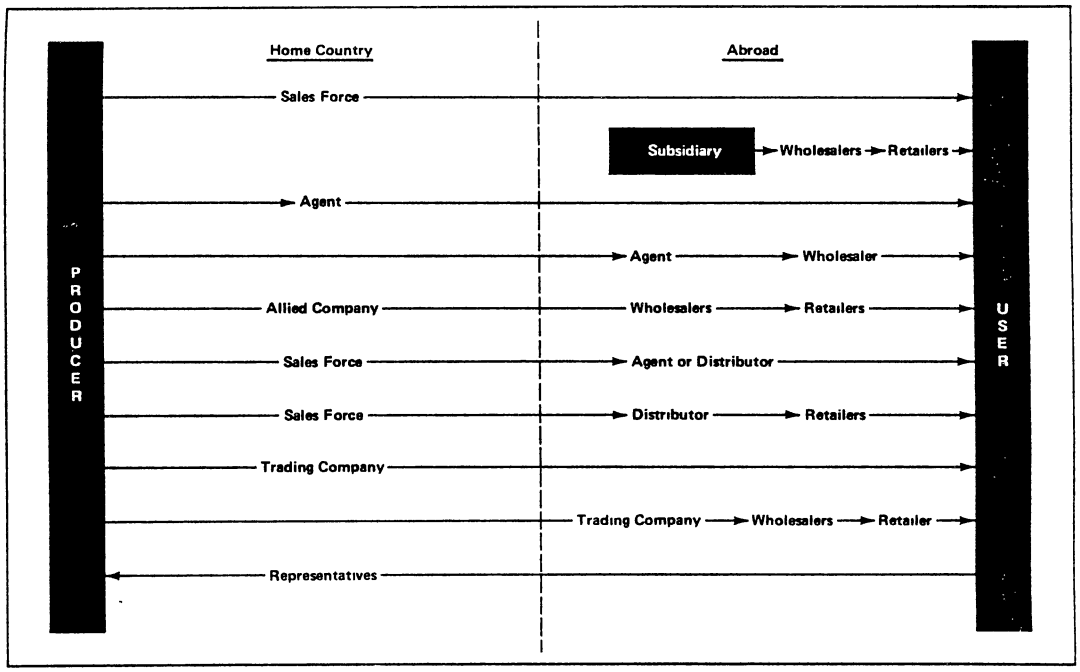
abroad, and therefore is a purely import relation not involving international purchasing. Sometimes the buying firm may not even be aware of the foreign origin of the goods because the transactions are handled through independent agents.

Beside import channels, the study includes the international sourcing concept. It is not considered as a type of chanels mentioned as it constitutes intra-company transactions among multiple plants established overseas. In its strict definition, international sourcing denotes the use of "satellite plants" which are set up in countries with lower production costs to produce not for the local market but for exports to other parts of the same organization located in some other countries (Leff 1974; Leontiades 1971). Thus, international sourcing applies to the cases of multinational corporations with multiple plants and multiple markets in more than one country. However, this study adopts a more loose, yet popular, definition of the term which includes acquiring raw materials, component parts, and finished goods from any foreign source, not just from another part of the same company.

International Distribution Channels

Selected international channels of distribution are categorized by Kahler (1983) as shown in Figure 7.

As shown in the Figure, several channel members may be involved. Unless a firm has its own distributing subsidiary, it may resort to services provided by domestic middlemen in the foreign market; these may include several types of agents and merchants. Domestic middlemen such as a combination export manager (CEM), a manufacturer's export agent (MEA), an export merchant and an export jobber are convenient to



Source: Kahler (1983), p. 165

Figure 7. Selected International Channels of Distribution

to use, but are not able to provide the kind of market information and representation available from foreign-based middlemen (Cateora 1983). However, the firm has little control over the foreign marketing operations when compared with exporting through wholly owned sales subsidiaries.

The channels of distribution described here can be matched with Hallen's (1982) classifications, except that here they are viewed from the selling or exporting side. The same channel member may well be involved in both importing/purchasing and exporting activities.

Customs House Brokers, International Freight Forwarders, and Export Trading Companies - Major Facilitators

From the preliminary interviews with firms at least two types of facilitating organizations seem to be in position to provide information as well as advice to import/export firms in their decisions related to foreign trade zones: customs house brokers and international (or foreign) freight forwarders. Sometimes customs house brokers are regarded as a type of international freight forwarder (Davies and Dicer 1981; Okeafor 1982); they will be discussed separately here. Additionally, with the emergence of the expanding and vital role of export trading companies (some of which also cover the logistics function including the activities traditionally performed by freight forwarders and customs house broker), it is worthwhile to mention export trading companies as another outside source of influence.

Customs house brokers are agents for importers who perform two

critical functions: (1) facilitating product movement through customs, and (2) handling necessary documentation that must accompany international shipments (Stock and Lambert 1982). A customs house broker is a specialist in handling the problems of the variety of customs procedures, restrictions and requirements that differ in each foreign country. Therefore, this facilitator also assists in export shipments across international borders. A survey of traffic and distribution professions showed that 93.6 percent of the respondents said they used a customs house broker in their import/export operations (Foster 1980).

International freight forwarders or foreign freight forwarders play a somewhat reverse role to that of customs house brokers, although some firms provide both import and export-related services (Foster 1980) They are usually agents for exporters, advising on specific details of exporting and shipping, coordinating movement to the port of export, booking cargo space on vessels, preparing necessary documentation, arranging for delivery at the pier of loading, and procuring insurance (Schary 1983). They may also provide for warehouse storage when necessary. Many facilitating organizations perform services provided by a traditional customs house broker and by a foreign freight forwarder. Furthermore, forwarders can coordinate trade activities of overseas importers. To summarize, a forwarder can be described as an exporter's traffic department, a buyer (importer)'s representative, or an importer/exporter agent (Okeafor 1982).

Concerning export trading companies, they are now in a much better position to give financial support and to provide the logistics function for small-and medium-sized U.S. companies through joint

exporting ventures, which are allowed under the enactment of the Export Trading Company Act in 1982. The complexity of international shipping, a reason cited for the lack of exporting by small-and medium-sized U.S. firms, can now be handled more effectively by an export trading company that establishes joint ventures with logistics companies such as a freight forwarder, an ocean or air carrier, or a Non-Vessel Operating Common Carrier (NVO or NVOCC). However, at this stage, the joint venture interest of U.S. export trading companies, as discussed in Thomchick and Rosenbaum's (1984) study, has been limited to freight forwarding activities, and not to the development of a more comprehensive transportation company. Besides export-related services and transactions, an export trading company may also be involved in importing and countertrading. With this potential, an export trading company may well be another outside organization with increasing influence over a a client's decision whether to include a foreign trade zone in its logistics system.

Having described relevant third party organizations and their influence on a firm's usage decision, the next section will cover those factors related to the firm itself that seem likely to affect the decision process.

Firm-related Factors

Although logistics factors have been emphasized in the previous sections, firm-related factors are also important in understanding foreign trade zone decisions. Beside governmental reports on foreign trade zone-related statistics, the firm-related factors are derived from the exporting literature, because firms that are current zone

users are engaged in foreign trade, whether importing and/or exporting. Presumably, findings from export behavior studies concerning firm-related variables may be applied to this study.

Firm-related factors may be divided into 3 categories: 1) levels of import/export involvement, 2) product characteristics, and 3) firm characteristics.

1. Import/export involvement

   1.1 Level of imports as a percent of total purchase
   1.2 Level of exports as a percent of total sales

2. Product characteristics --both imports and exports

   2.1 Standard Industrial Classification
   2.2 Product Suitability

3. Firm-size

   3.1 Sales
   3.2 Scale of manufacturing
   3.3 Employment

Studies on export expansion behavior found that specific links exist between firm characteristics and export behavior (Bilkey 1978; Reid 1978, 1983). Cavusgil (1984) and Cavusgil and Nevin (1981) tested causal relationships among the export behavior and the internal determinants which include: (1) differential firm advantages (firm's size, technology intensiveness, and possession of a unique product), (2) strength of managerial aspirations for various business goals (growth, profits market development). (3) management expectations about the effects of exporting on business goals, and (4) the level of organizational commitment to export marketing (market planning, policy toward exports, and systematic exportation). The results showed that 46.6% of the variation in export marketing behavior can be explained by ten of these firm-related factors.

In terms of size, it was found that in the small firm, export behavior is likely to be affected more by individual decision-maker(s) and is less subject to such structural arrangements as intragroup trading, territorial allocations, and sourcing policies which are likely to be present in the large firm (Reid 1983). It is expected that a similar observation will be seen in the case of making foreign trade zone-related decisions. It is hypothesized that larger firms have higher awareness and more knowledge of a zone's financial and logistics/marketing benefits. They also use foreign trade zones in different ways than smaller firms, i.e., use zones more for manufacturing facilities, on a continous basis, and ship a higher volume of merchandise through the zone.

The levels of import/export involvement imply different needs as well as varying degrees of knowledge that a firm has gained in international sourcing and distribution; different levels of experience should be related to different perceptions of the benefits of foreign trade zones and the relevant logistical advantages. Furthermore, the relative levels of imports to total purchase and exports to total sales imply the importance of foreign trade to a particular firm, and therefore, how extensively management will explore the possible benefits, in addition to whether the firm actually needs to use an FTZ.

Relating to product characteristics, their variations in size, weight, classification, and value affect the shipping, handling, and warehousing methods used, which in turn, have an impact on whether to ship the product through a foreign trade zone.

In conclusion, third party influence and firm-related factors serve as background variables to influence zone-usage decisions

as will be presented in the conceptual model in the following section.

The Conceptual Model of Zone-Usage Decisions

From the literature discussed in the chapter, a conceptual model representing the relationships among variables is proposed in Figure 8.

The first category consists of background variables; they include firm size, level of imports/exports, third party influence, and product suitability. The decision criteria variables represent the awareness and knowledge of zone benefits (both financial and logistics/marketing), evaluation of zone benefits, and evaluation of zone services compared with comparable services such as those of bonded warehouses. Finally, the third set of variables contains those related to usage behavior. These include whether or not a firm is using a zone, its regularity of use (temporary or continuous), the volume of merchandise shipped through a zone as a percent of total foreign trade, the main purpose of zone usage, and the number of zones used by the firm.

The relationships can be stated in the following manner: that the background variables influence the decision criteria variables which, in turn, lead to the usage behavior variables. For instance, larger manufacturing firms would place more importance on how a foreign trade zone can facilitate their manufacturing process. Such activities as sourcing raw materials and components from foreign origins with maximum duty savings possible would be important to them. Furthermore, a higher volume of merchandise through the zone on a continuous basis would be expected for this type of firm.

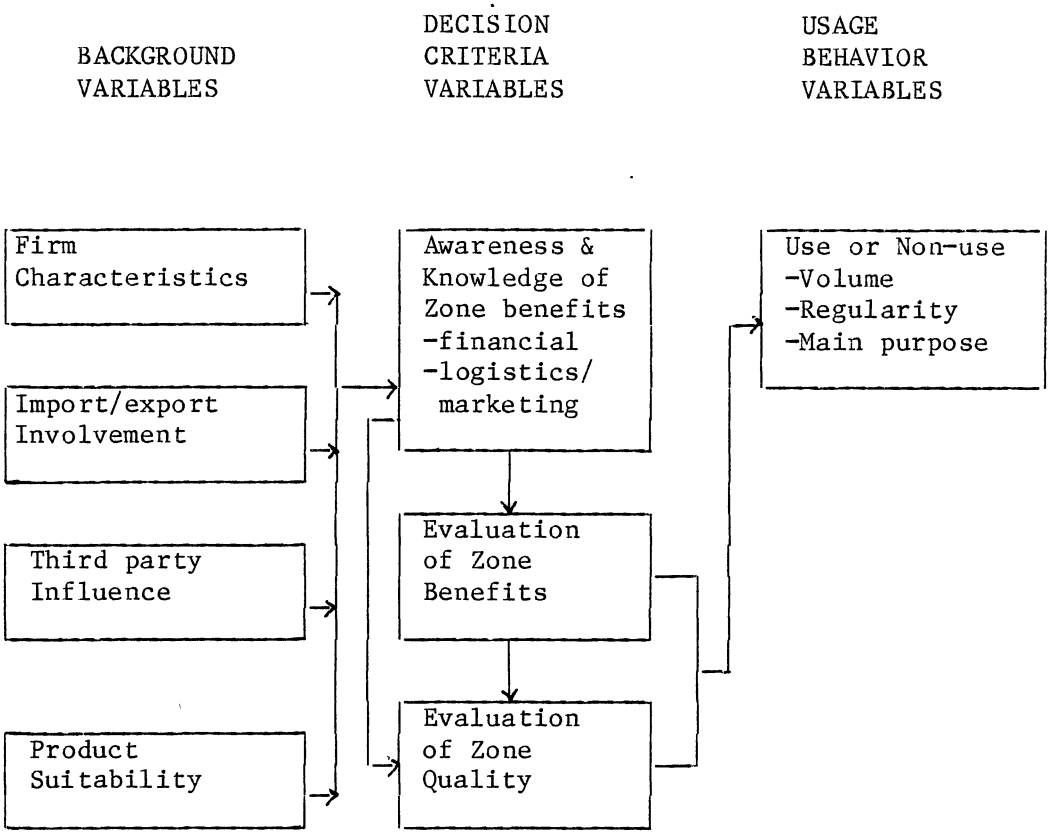


Figure 8. A Conceptual Model of Zone-Usage Decisions

The discussions of variables and their relationships in this chapter serve to underlie the foundation for the research hypotheses, the operationalizations of variables, the questionnaire design, and the research methodology to be presented in the next chapter.

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes the methodology used in order to examine the role of foreign trade zones in firms' international logistics systems and the factors affecting firms' decisions to use zones. It consists of seven sections: (1) the major research hypotheses, (2) a causal model representing the relationships among variables and their multiple indicators, (3) the measures of interest (both the independent and dependent variables to be used in the analysis), (4) the sample design, (5) the development and pretesting of survey instruments, (6) the data collection procedures (i.e., the administration of the questionnaires) , and (7) the methods used to test the hypotheses. The testing and the results of the hypotheses based on the questionnaire replies are discussed in chapter four.

Research Hypotheses

The main research hypotheses to be tested empirically are stated below. Each hypothesis will be discussed further later in the chapter.

1. Current zone-users and non-users differ across the background variables as well as across the decision criteria variables.

    1.1. In terms of background variables, the user is likely to have a higher percent of imports to total purchases, to be influenced more by the facilitators and/or channel members, and to have a higher

perceived product suitability.

1.2. In terms of decision criteria variables, the user is likely to have higher awareness of zone benefits and to make more positive evaluations of zone quality.

2. Zone usage behavior (volume of goods flowed through a foreign trade zone) may be directly explained by the decision criteria variables (awareness and evaluation of zone benefits and zone service quality), which in turn, are influenced by the background variables.

The Interrelationships Among Constructs In the Structural Equations Model

To link the constructs, their measures, and their relationships, a more structured model with multiple indicators is developed as shown in Figure 9. The specification of this model presents the first step in the causal modeling approach to be discussed later in the chapter. Here, a construct refers to an unobserved representation while a variable is an observable measure of a corresponding construct. Measures of the same construct should hold together well to represent a unidimensional construct.

In the context of the causal modeling approach, background variables are treated as exogenous constructs whose values are determined outside the system. They are considered as "givens" or inputs to the model and are never modeled as a function of any other construct. Relationships among exogenous constructs are not specifically hypothesized. They are not direct representations of foreign trade zone decision and behavior, which are regarded as the

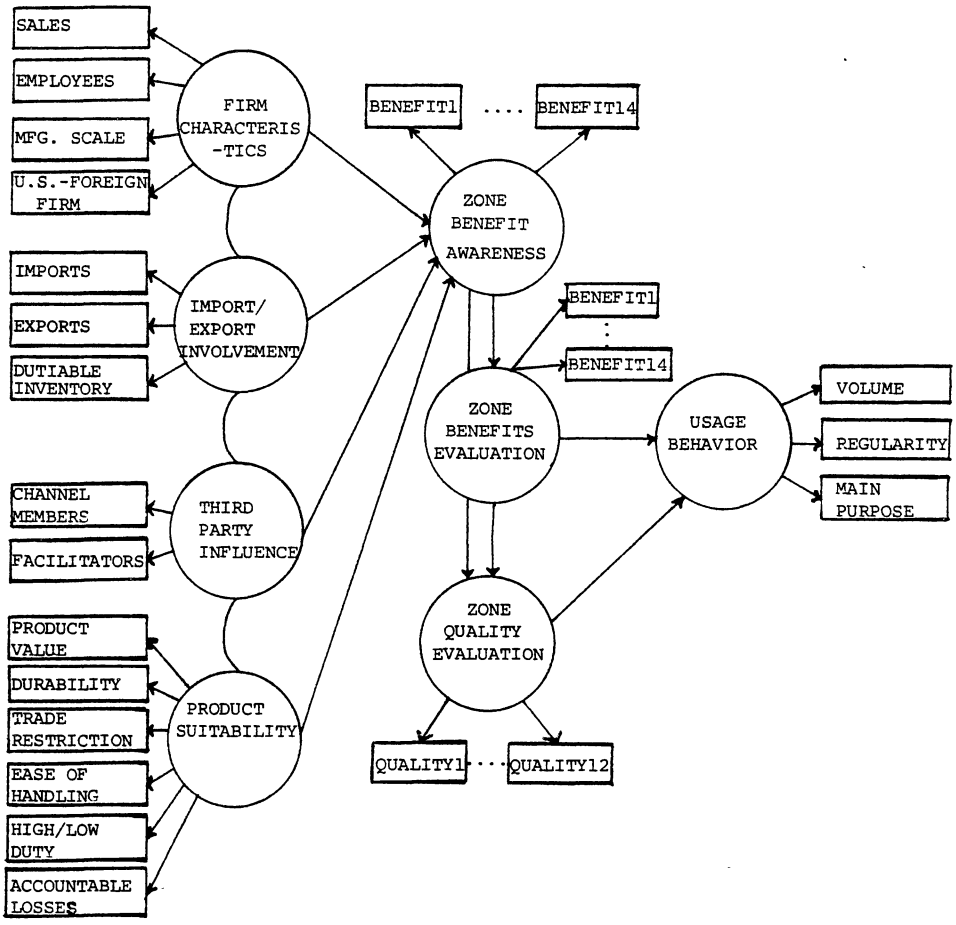


Figure 9. The Structural Model with Multiple Indicators

endogenous variables. However, their causal influence on the endogenous variables is expected.

From the review of literature and the preliminary interviews mentioned in the previous chapter, firm characteristics (i.e., firm-size, scale of manufacturing, U.S. versus foreign-based), import/export involvement, third party influence and product suitability are likely to be related to the awareness and knowledge of zone benefits. These exogenous constructs are also hypothesized to link directly to the awareness construct. They are exogenous because they are not a part of the usage decision-process despite the existence of their influence. Zone awareness, in turn, leads to the evaluation of zone benefits and of zone quality (similar to the affective attitude). The more firms know about zone benefits, the better they may be in making their evaluations about benefits and quality before deciding on the usage issues (i.e., to use or not, main purpose, number of zones used, and regularity). This linkage is similar to changing from affective attitude to the conative stage as the intention , and then actual behavior take place. These hypothesized relationships are illustrated with arrows in the model.

Measures of Interest

This section presents descriptions of the measurement of the variables selected to serve as indicators of the constructs in the model of zone-usage decisions. To ensure a satisfactory degree of reliability, an attempt is made to use more than one measure or indicator of most constructs included in this study. Background or exogenous constructs will be described first. Then, the decision

criteria constructs and dependent constructs (both of which are regarded as endogenous constructs) are mentioned along with their hypothesized relationships.

Background Constructs

Firm Characteristics

As described in the previous chapter, firm characteristics seem to affect the variation in zone usage behavior. The four variables measured here include: (1) sales, (2) employment, (3) scale of manufacturing, and (4) U.S. versus foreign-based company. Sales and employment represent firm-size; size is an important variable that encompasses several aspects which could affect foreign sales (Czinkota and Johnston 1983; Hirsch 1971; Safarian 1971), as well as related marketing/logistics strategies. Jackson and Morgan (1978) suggest that the measure of size selected should depend upon the subject of investigation. In this case, it seems appropriate to use sales volume as it is related to the volume of shipments. Employment is linked to the number of activities with which a firm is involved, particularly in its manufacturing function. Therefore, the assumption is made in the present research that indicators of size in terms of sales volume and employment will provide more relevant information for the questions of interest.

Sales volume was measured as a continuous variable, by asking for the total annual sales of the company or the division of larger corporations. The categories for number of employees are ordinally scaled, consisting of (1) under 25, (2) 25 to 99, (3) 100 to 249, and (4) 250 and over.

Another variable measured is the scale of manufacturing. Whether or not a firm is a manufacturer affects how it evaluates the zone benefits and services, in addition to its usage behavior. Scale of manufacturing was measured in three categories as used in the U.S. Government documents related to foreign trade zones; these include: (1) no manufacturing, (2) small-scale manufacturing, and (3) large-scale manufacturing. As a clear and concise description of each type which was not found, examples of each category are provided in the questionnaire.

Finally, according to the suggestion by foreign trade zone administrators, the foreign-versus U.S.-based dimension of firm characteristic was also measured as a categorical variable.

Import/Export Involvement

Import/export involvement, how active a firm has been in import/export activities, is represented by the following indicators: level of imports as a percent of total purchases, and level of exports as a percent of total sales. Level of exports as a percent of sales has been the most frequently used indicator of export performance (Reid 1981). The level of imports as a percent of purchases has not been used frequently in previous studies. Both of the measures are very important to the zone usage behavior as discussed in the previous chapter. They were measured as a ratio or a percent instead of in an absolute terms in order that they can be compared across firms regardless of their size. In addition, although they may be measured as a continuous variable, the categories may increase the likelihood and the accuracy of response without having to refer to the company records.

Third Party Influence

Channel Members' Influence. This variable represents the degree to which channel members, (whether an agent, a middleman, or a sales subsidiary manager) influence the firm's international distribution decisions for the non-user respondents. The overall influence, instead of separate measures of each type of channel members , were used here. A five-point semantic differential scale was used to ask if these channel members have very strong influence or no influence in the firm's international distribution decisions. For the current user sample, more specific questions related to influence on zone-usage decision whether to use a zone were asked.

Facilitators' Influence. According to the personal interviews with firms, they often make use of some type of facilitators and seek advice and information asked whether they resort to services provided by customs house brokers, export trading companies, foreign freight forwarders, financial institutions (e.g. banks, insurance companies) and transportation companies. The same five-point semantic differential scale as described above for the channel members' influence was also used here.

Product Suitability. As discussed in Chapter II, certain types of products may not be as appropriate for routing through a foreign trade zone. An attempt was made to measure product suitability as perceived by the user and the potential user. The respondent was asked to rate

the degree of suitability on a semantic differential scale based on the following criteria: 1) high versus low value, 2) perishability versus durability, 3) high versus low trade restrictions, 4) ease of handling and transfer, 5) low versus high duty, and 6) low versus high accountable losses (e.g. obsolescence, damage, defects, pilferage, etc.)

Decision Criteria Constructs

All the three types of decision criteria constructs are hypothesized to affect the usage behavior constructs either directly or indirectly. Their descriptions are stated below.

Awareness of Zone Benefits

This construct is a measure of whether the respondent are aware or have some knowledge of financial and logistics/marketing benefits provided by the zone prior to their decision. A five-point semantic differential scale includes measuring differing degree of awareness and knowledge of the benefit factors listed in Table V. The benefits included are regarded as secondary benefits, some of which result from the primary benefits of duty savings and quota avoidance; for instance, they make economies of bulk shipping possible. This same scale was used with non-users.

Evaluation of Zone Benefits

The list of benefits in Table IV was evaluated in terms of importance to the firm with a five-point semantic differential scale of relatively less important to relatively more important ratings. A

potential for bias may exist as some benefits may have higher awareness and therefore, are evaluated as more important.

Evaluation of Zone Quality

This construct consists of three measures of the perceived quality of services and facilities provided by a zone, comparing with other zones in the same geographic area, and comparing with similar services provided by bonded warehouses. They were measured with a semantic differential scale from very poor to excellent on the criteria listed in Table VI . Some criteria (i.e. proximity to foreign and domestic markets, access to needed transportation modes, and access to the port of entry) are related to the locational aspect.

Usage Behavior Construct

Usage behavior is represented by the actual use and the intended future use. For the current users, the following variables will be measured: (1) the annual volume of merchandise that flows through a zone, from both domestic and foreign sources, (2) the regularity of usage, and (3) the main purpose of usage. Firms are asked to identify the zone(s) which they are using at present. Regularity of usage is operationalized by asking how frequently in a year the firm uses a zone; this includes four categories of (1) once, (2) 2-3 times, (3) 4-12 times, and (4) continuous use. The main purposes (presented in Table VII) are evaluated by responding firms in terms of the relative importance to their business operation on a semantic differential scale. Intended usage is measured with a semantic differential scale for both the current users as well as non-users.

TABLE V

LIST OF SELECTED ZONE BENEFITS

1. Cash flow and interest savings on duty
2. Quota avoidance
3. No inventory tax
4. Lower insurance costs due to higher security
5. Better discipline in inventory control
6. Time savings through simplified customs procedure
7. Ability to manipulate products
8. Ability to manufacture and assemble products
9. Ability to bring in foreign raw materials/components
10. Economies of bulk shipping from abroad
11. Faster customer services in distributing to different markets
12. Facilitating transshipments to foreign ports
13. Inverted tariffs (with more favorable rates)
14. Better discipline in handling waste/scraps

Source: Compiled from Calabro (1983); McDaniel and Kossack (1983); Terpstra (1983); U.S. General Accounting Office (1984); interviews with the National Association of Foreign Trade Zones' president (1985), a customs house broker (1985) and other personal interviews with firms (1985).

TABLE VI

LIST OF SELECTED CRITERIA OF ZONE QUALITY

1. Consulting services
2. Convenient hours
3. Administrative procedures
4. Warehousing facilities
5. Manufacturing facilities
6. Proximity to foreign markets
7. Accessibility of transportation modes
8. Access to the port of entry
9. Promotion efforts (publicity, advertising)
10. Zone operator's expertise
11. Custom-personnel relations
12. Assistance in documentation and duty procedures

Source: Compiled from Calabro (1983); McDaniel and Kossack (1983); Terpstra (1983); U.S. General Accounting Office (1984); interviews with the National Association of Foreign Trade Zones' president (1985), a customs house broker (1985) and other personal interviews with firms (1985).

TABLE VII

LIST OF MAIN PURPOSES OF ZONE-USAGE

1. Manipulating (including inspecting, cutting, repacking, labeling, repairing, sorting)
2. Small-scale manufacturing and assembling
3. Large-scale manufacturing and assembling
4. Warehousing and distribution
5. Exhibition and displays of products
6. Inspection of imported goods
7. Distribution to domestic or foreign markets

Source: Adapted from the U.S. General Accounting Office (1984).

Sample Design

Target Populations

Since comparisons between zone-users and non-users will be made, two target populations of firms are of interest. The user target population is defined to include all firms that use foreign trade zones in the U.S., whether a general purpose zone or a subzone. The non-user target population consists of all firms located in the U.S. that are involved in import and/or export activities, but are not using a foreign trade zone at present. However, the survey population of current users and non-users will cover slightly different sampling frames due to difficulties in obtaining complete listings of such firms, as well as time and resource constraints.

Selecting the Sample of Zone Users

There were two steps in selecting zone users to be included in the study: (1) the selection of zones and (2) the selection of firms currently using a zone. A sample of zones was chosen to cover a wide variation of characteristics based on geographic location, ratio of exports to total merchandise leaving the zone, number of zone users, and length of time in operation, i.e. old versus new zones. These zones were approved by the National Association of Foreign Trade Zones as being appropriate for including in the study based on the criteria mentioned above. Table VIII presents the list of 24 zones selected to be included in the study.

Selecting the Sample of Non-Users

Firms that are not using a foreign trade zone but seem likely to use one were chosen out of the listing of U.S. firms engaged in international business from the 1985 Dun & Bradstreet's Principal International Businesses. To be likely to use a zone, a firm has to be involved in a degree of importing. Firms with no indicator of whether or not the company imports and/or exports were excluded from the sample. Because zone-operators preferred not to provide the list of user firms, it was not possible to contrast the listing of non-users with that of current users to eliminate duplications of sampling elements. However, the questionnaire for the non-user is also designed to detect whether the respondent is a current user or a non-user, and it is also appropriate for collecting data from a user. Therefore, the number of users in the Dun & Bradstreet's listing, presumed to be a

TABLE VIII

THE SAMPLE OF ZONES INCLUDED IN THE STUDY

Zone 2	New Orleans, LA
Zone 3	San Francisco, CA
Zone 7	Mayaguez, PR
Zone 8	Toledo, OH
Zone 9	Honolulu, HA
Zone 12	McAllen, TX
Zone 14	Little Rock, AR
Zone 15	Kansas City, MO
Zone 17	Kansas City, KS
Zone 23	Buffalo. NY
Zone 32	Miami, FL
Zone 33A	Volkswagen of America, Pittsburgh, PA
Zone 35	Philadelphia, PA
Zone 41	Milwaukee,WI
Zone 41A	American Motors Corp., Southfield, IL
Zone 43	Battle Creek, MI
Zone 44	New Jersey, NJ
Zone 56	Oakland, CA
Zone 57	Charlotte, NC
Zone 58	Bangor, ME
Zone 65	Panama City, FL
Zone 75	Phoenix, AZ
Zone 78B	Toshiba Corp., Lebanon, TN
Zone 84	Houston, TX

non-user sampling frame, can be determined. After checking the returned responses, the overlap between the two samples was found to be insignificantly small; only seven firms in the presumed non-user sample have used or currently use a foreign trade zone. Aprroximately 300 firms from this listing were randomly selected and were mailed the non-user questionnaire.

Development and Prestesting of the Questionnaires

Questionnaire Development

The data collection instrument used in this research was a mail questionnaire. Most of the items on the questionnaires were developed by the researcher based on the literature review and preliminary, personal interviews conducted with two firms and the Tulsa foreign trade zone administrators. Then, early drafts of the questionnaires were reviewed by the dissertation committee. Subsequently, five to six revisions were made. Finally, extensive questionnaire pretests were conducted as discussed in the following section.

There were two instruments: one for zone-users and the other for non-users. Attempts were made to make the items as comparable as possible, both in terms of the operationalization of the variables and of the flow of the instruments, as can be seen in Appendix A.

Questionnaire Pretests

To assure the clarity of the research instrument, the questionnaires were pretested three times: with students, with Oklahoma firms, and with foreign trade zone administrators.

Student Pretest

The first pretest was conducted with students taking International Marketing in Spring 1985 at Oklahoma State University. Prior to issuing the questionnaire instruments, the class had a brief lecture on foreign-trade zone operations and their benefits. In addition, students were also given a two-page description of what a foreign-trade zone is. Two days later, they were issued a package containing a scenario, a cover letter, the questionnaire and the feedback sheet related to the questionnaire format and design. Each student received only one of the two scenarios; the first scenario described a hypothetical company which has been using a zone, while the second was a company that was considering whether to use a zone. Students assumed the role of a distribution manager who was asked to participate in this task. They were asked to respond to the questionnaire, using the information included in the scenario along with the previously issued foreign-trade zone description handouts. Half of the class received the non-user scenario and questionnaire; the other half played the role of the manager of a zone-using firm. Students were given two days to work on this as an extra credit assignment outside the classroom so that the yielded response process was more similar to the actual setting for managers. Twenty-eight out of 32 students returned the questionnaire and the feedback sheet on how the instrument could be improved. Changes were then made based on the actual responses as well as on the detailed question-by-question feedback provided by the student.

Second Pretest with Interview Methods

The revised questionnaire based on the student pretest was pretested again with five firms which are current users of Zone 53, Tulsa, as well as foreign-trade zone administrators (i.e., the Tulsa FTZ Director, the President and the Executive Director of the National Association of Foreign Trade Zones). These pretests involved personal interviews, telephone interviews or some combinations of both methods. The people included in this pretest were shown the questionnaire prior to or during the interviews. At this stage, the concern was mainly on the scope of the study (i.e. whether all variables important to zone usage decisions have been incorporated in the questionnaire), while the clarity of the instruments was a secondary concern.

Third Pretest with Mail Survey

After the second pretest and its subsequent revisions, 20 questionnaires were mailed to current users of Tulsa Foreign Trade Zone and to import/export firms in Oklahoma which represented non-users. Five questionnaires, for a response rate of 25%, were returned. This final pretesting helped to make the final questionnaires more clear, concise, and less lengthy before being mailed out to the national samples. In addition, printing and reproduction quality and mailing procedures were also evaluated for further improvements on the national surveys.

Administration of the Questionnaires

The data collection method consisted of administering mail surveys to user and non-user firms. The mailing included a return envelope, a

cover letter, and a questionnaire booklet.

Questionnaires to users were distributed through the operators of the foreign trade zones mentioned earlier. The operators of each of the selected zones were contacted by mail for assistance in distributing the questionnaires to their clients, who in turn, were asked to return the questionnaire directly to the researcher. Approximately 400 questionnaires were sent to be distributed. The number distributed to each zone varied, based on how many users there were for the particular zone. This ranged from one questionnaire for a subzone to 40 to 50 questionnaires for larger zones such as Honolulu, Houston, New Orleans, and McAllen. The actual sample size was determined by asking zone operators for the number of questionnaires which they distributed to zone users. In all, a total of 245 were actually distributed and made up the sample size of the user group. A follow-up letter was mailed to the zone operators a week after the package of questionnaires was shipped to them. This was intended to remind them to distribute the research instruments if they had not done so and to ask them to encourage their clients to returned the questionnaire to the researcher as soon as possible. Later, a second follow-up consisted of sending out more questionnaires to be redistributed by the participating zone operators. The final response rate was 55 / 245 = 22.4%

For the non-user sample, 300 questionnaires were mailed directly to firms. A reminder postcard was sent out one week after the questionnaire mail-out. The second follow-up was mailed out three weeks afterward with another copy of the questionnaire. Twenty-nine firms were unreachable due to name and/or address changes. Accordingly, the total sample size was 271. The total response rate for this sample was

55 / 271 = 20.3%. Seven firms from the non-user sample were actually users. Thus, their responses were regrouped with the user group which made up the total of 62 firms while the non-user group consisted of 48 firms. This reclassification was felt to be legitimate because both questionnaires were designed to be as uniform to each other as possible as may be seen in Appendix A. Table IX presents the tabulations of survey responses by firms and questionnaire versions.

TABLE IX

SURVEY RESPONSES BY FIRM-GROUP AND QUESTIONNAIRE USED

	User Group	Non-user Group	TOTAL	Response Rates
User Questionnaire (n=245)	55	0	55	22.4%
Non-user Questionnaire (n=271)	7	48	55	20.3%
	62	48	110	

In examining the non-responses, for the non-user sample, the profile of non-responding firms, was found to be similar to that of responding firms, using the information provided in the Dun & Bradstreet 's Principal International Businesses, with one exception;

five non-responding firms in the petroleum equipment industry notified the researcher that the study is not applicable to their business. For the user group, a similar procedure was conducted with the use of the annual report of the Foreign Trade Zone Board. The frequency of responses from various zones was also checked to make sure that responses did not come from only a few types of firms.

Data Analysis

To conduct an empirical test of the model of zone-usage, the causal modeling or holistic construal approach was selected as the method for data analysis. Then, to compare zone users and non-users across background variables and decision criteria variables, a discriminant analysis was utilized.

Causal Modeling or Holistic Construal Approach

The causal modeling approach was used to test empirically the relationships among constructs. A "structural equations" model, a system of linear regression equations in the context of a causal model, is constructed to provide a comprehensive scheme for representing all of the elements and relationships of a theory in a single structure before being tested. The approach is neither rigidly deductive nor purely exploratory, but consists of a process by which theories and hypotheses are tentatively formulated deductively and then are tested empirically, and later are reformulated and retested (Bagozzi and Phillips 1982). Thus, the holistic construal approach is very appropriate for this particular study. Due to the exploratory nature of this study and the underdeveloped nature of this research area, there is no strong a priori theory to underlie the structural relationships of constructs. However,

through searching the literature review, logical criteria, and obtaining empirical evidence (i.e. from personal interviews), a tentative model was specified to help identify the relationships among variables or constructs for empirical testing and later reformulation.

Precautions are needed because of the limitations associated with this approach. An assumption was made concerning the relations investigated in the study as the procedures are restricted to linear relations or to transformations of nonlinear data leading to linear relations. Concerning the scale of measurement, the following rule was observed in operationalizing the variables: measures should be at least intervally scaled, or if ordinal, are either well behaved or can be transformed appropriately. However, the greater the number of categories, the less critical is the interval requirement (Asher 1976). Nominal variables are allowed only if separate, meaningful groups can be examined (Bagozzi and Phillips 1982).

The notational version of the model is presented in Figure 10. The notations adopted in this study are based on those used by Bagozzi (1977, 1980); they include:

1. Circles representing theoretical constructs (unobserved variables)

2. Squares indicating operationalizations (measures or observed variables)

3. Exogenous variables measured with error are shown as ξ's, their operationalizations by x's, and errors in variables for the x's by δ's

4. Endogenous variables measured with error are shown as η's,

their operationalizations by y's and errors in variables for the y's by ε's

5. Relationships between :

   5.1 exogenous and endogenous variables are shown by γ
   5.2 endogenous variables are shown by β
   5.3 exogenous variables and their operationalizations are shown by λx
   5.4 endogenous variables and their operationalizations are shown by λy

6. correlations among exogenous constructs are drawn as curved line segments and are represented as ϕ's.

Discriminant Analysis

A two-group discriminant analysis was utilized to test the second major hypothesis of differences between users and non-users across the background and decision criteria variables, used as the set of criterion variables. Because of the exploratory orientation of the present study, the stepwise discriminant analysis procedure was used to help select a subset of variables to produce a good discriminant model, instead of arbitarily including all the criterion variables. In order to be able to identify which variables really contributed to the discriminatory power of the model, three separate discriminant functions were calculated, one with background variables, one with dependent variables, and the last with a combination of both types as the discriminating variables. Hay's ω^2 statistic was used to give an estimate of the amount of variance in the discriminating variable that is attributable to group difference as used and interpreted in Dickerson and Gentry (1983) and Winn and Lutz (1973).

For the variables with multiple indicators, if the measures indicate some common factors after being factor analyzed, the mean of

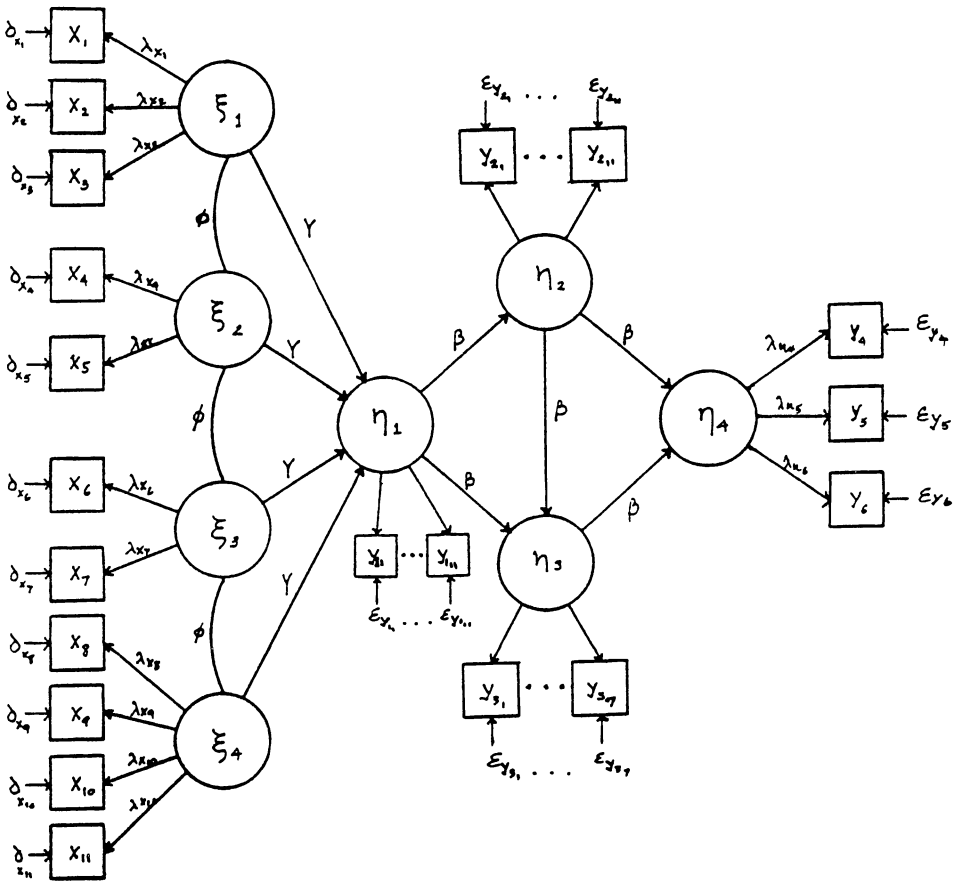


Figure 10. The Notational Model of Structural Equations

the multiple indicators were then calculated as an overall value for the firm as used by Robertson and Kennedy (1968), these variables include third party influence and awareness of zone benefits. Otherwise, individual measures were included as possible discriminating variables.

Based on the review of literature, it was expected that differences between the user and the non-user were such that the user would:

1. have a higher percent of imports to total purchases,
2. be influenced more by the facilitators and/or channel members,
3. have higher perceived product suitability,
4. have higher awareness of zone benefits, and
5. have more positive evaluation of zone quality.

Firm characteristics, the level of exports and the evaluation of the importance of each zone benefit are likely to be insignificant discriminating variables although they affect the variation in usage behavior within the user group as described earlier. Therefore, these two types of variables were hypothesized to be insignificant in the discriminant function.

Summary of Data Analysis

The two methods used for the data analysis of this research complemented each other in increasing understanding of the zone-usage behavior. The causal modeling approach sought to make an overall empirical test of the interrelationships among variables hypothesized as elements in the zone-usage decision process. The discriminant analysis attempted to identify how users differ from non-users across a group of variables, i.e. the background variables and the decision criteria variables.

CHAPTER IV

ANALYSES AND FINDINGS OF THE STUDY

The data analyses concerning the use of foreign trade zones by import/export firms and the results of the tests of the hypotheses set forth in Chapter III are presented in this chapter. Two sets of data were collected for this study. One set was from foreign trade zone users and the other from general import/export firms in the U.S.

The chapter is organized as follows: the first section reports descriptive information in terms of simple comparisons between the two samples across background variables. The second section analyzes multiple measures of important constructs via the use of Cronbach's (1951) alpha reliability tests. Section three describes the results of the test of the first hypothesis (concerning differences between users and non-users), obtained through three stepwise discriminant analyses: one using the environmental variables, one using the decision criteria variables, and one using both sets of variables. Section four takes a closer look at the two groups of firms through comparisons of the rotated factor patterns for several constructs. Section five presents the results of factor analyses of user data as a preliminary step leading to the sixth section. The last section discusses the task of reconstructing and testing the final structural equations model of relationships among constructs, using Joreskog and Sorbom's (1983) LISREL VI program.

Descriptive Information and Simple Statistics

Comparative Analysis on Background Variables

The first stage of data analysis includes cross-tabulations of the user and the non-user groups across background variables; the user group consisted of 62 firms while there were 48 firms in the non-user group. Such an analysis provides fundamental insight for understanding zone-usage decisions and behavior. The results are summarized in Table X and are discussed in this section.

In terms of firm characteristics, cross-tabulations showed that the user group is slightly smaller in terms of sales and in the number of employees. For instance, 63% of the users have sales of $10 million or less while only 14% of non-users fell in this category. Meanwhile, 47% of the user group has less than 25 employees while over 63% of the non-user group has 250 employees or more. While the two groups are statistically different in sales (χ^2= 29.2, p= .001), there is no statistical difference in terms of the two groups' scale of manufacturing. Some difference exists in the U.S. versus foreign type of firms (χ^2= 5.8 and p= .05) ; there are more foreign-based firms in the zone using group than in the non-user group (15% versus 2%). In sum, the two groups were found to be significantly different in sales, number of employees nad type of firms (i.e., foreign-versus U.S.-based) but not in scale of manufacturing.

Concerning import/export involvement, it is clear that firms in the user group import at a higher percentage of total purchases than does

the non-user group. Specifically, 46% of the users indicated that imports account for more than half of their purchases, while only 4% of the non-users are in the same category. Users and non-users distributions of exports as a percent of total sales are slightly different. While they are about the same in the categories of 50% and below, 19% of the users are in the "51% and above" category with only 2% of the non-users are in that category. The distributions of the average dutiable inventory level kept on hand by firms are not statistically significant with a p-value greater than .1.

In terms of third party influence, the two groups show differences only for custom house brokers and foreign freight forwarders. More than 50% of the non-users (53%) stated that they have not been influenced by custom house brokers and foreign freight forwarders while the reverse is the case for the users. Meanwhile, 15% of the users reported being influenced by transportation companies while the majority of non-users are influenced at varying degrees. There is no statistical difference between groups in terms influences from financial intstitutions, export trading companies, and channel members.

Finally, concerning product suitability variables, the two groups are not different in how they perceive types of products to be suitable for going through a foreign trade zone except in product value; 42% of the users perceive products with high value as being very suitable while only 22% of the non-users share the same response. The remaining variables related to product suitability were perceived similarly by both users and non-users.

TABLE X

COMPARISON OF USER AND NON-USER ACROSS
BACKGROUND VARIABLES WITH CHI-SQUARE TESTS

Variable	Description	User (n= 62)	Non-User (n= 48)	χ^2 Chi	Probability
I. FIRM CHARACTERISTICS					
SALES	Total Annual Sales			29.2	.001
	below $1 million	18%	2%		
	$1-10 million	45	12		
	$11-50 million	20	27		
	$51-100 million	4	27		
	$101-500 million	10	19		
	$501-990 million	2	2		
	$1 billion and above	2	12		
EMPLOYEE	Number of employees			18.5	.000
	less than 25	47%	13%		
	25-99	18	13		
	100-249	10	11		
	250 and above	26	63		
MANUFACT	Scale of manufacturing			1.5	.464
	No manufacturing	49%	47%		
	Small-scale	39	33		
	Large-scale	12	20		
US_FOR	U.S. or foreign firm			5.8	.055
	U.S.-based	85%	98%		
	foreign-based	15	2		
II. IMPORT/EXPORT INVOLVEMENT					
IMPORTS	Imports as a % of purchases			29.4	.000
	0%	2%	13%		
	1-10%	25	61		
	11-30%	20	15		
	31-50%	7	7		
	51% and above	46	4		

TABLE X (Continued)

Variable	Description	User	Non-User	χ^2	Probability
EXPORTS	Exports as a % of sales			9.3	.053
	0%	28%	31%		
	1-10%	31	51		
	11-30%	17	9		
	31-50%	7	7		
	51% and above	17	2		
INVEN	Dutiable inventory level			1.4	.927
	Below $100,000	32%	38%		
	$101-500,000	21	19		
	$501-1,000,000	4	5		
	$1001-5,000,000	28	22		
	$5001-10,000,000	6	5		
	$11 million and up	6	11		
III.	THIRD PARTY INFLUENCE				
CBHINFL	Custom house broker			9.6	.047
	No influence	34%	53%		
	Little influence	24	17		
	Moderate influence	14	21		
	Strong influence	19	9		
	Very strong influence	9	0		
FFFINF	Foreign freight forwarder			10.3	.036
	No influence	49%	53%		
	Little influence	15	13		
	Moderate influence	10	28		
	Strong influence	15	4		
	Very strong influence	10	2		
TRANSCO	Transportation company			9.6	.048
	No influence	51%	24%		
	Little influence	22	24		
	Moderate influence	17	28		
	Strong influence	8	17		
	Very strong influence	2	7		

TABLE X (Continued)

Variable	Description	User	Non-User	χ^2	Probability
FININF	Financial Institutions			7.6	.108
	No influence	54%	30%		
	Little influence	19	37		
	Moderate influence	10	15		
	Strong influence	10	13		
	Very strong influence	7	4		
ETCINF	Export trading company			3.0	.387
	No influence	85%	89%		
	Little influence	0	2		
	Moderate influence	7	7		
	Strong influence	8	2		
	Very strong influence	0	0		
CMEMBER	Channel member			4.3	.369
	No influence	47%	34%		
	Little influence	21	22		
	Moderate influence	15	32		
	Strong influence	12	7		
	Very strong influence	5	5		
IV.	PRODUCT SUITABILITY				
PRODUCT1	Product value			14.8	.005
	1 (low value)	2%	22%		
	2	9	22		
	3	20	19		
	4	27	16		
	5 (high value)	42	22		
PRODUCT2	Product durability			2.9	.571
	1 (highly durable)	43%	47%		
	2	15	25		
	3	20	9		
	4	9	6		
	5 (highly perishable)	42	22		

TABLE X (Continued)

Variable	Description	User	Non-User	χ^2	Probability
PRODUCT3	Trade restrictions			.7	.940
	1 (high restrictions)	17%	23%		
	2	13	13		
	3	25	26		
	4	23	16		
	5 (low restrictions)	23	23		
PRODUCT4	Ease of handling			5.0	.291
	1 (difficult)	26%	33%		
	2	20	9		
	3	26	33		
	4	17	6		
	5 (easy)	11	18		
PRODUCT5	Duty level			2.1	.714
	1 (low)	27%	16%		
	2	10	6		
	3	33	45		
	4	20	22		
	5 (high)	10	10		
PRODUCT6	Accountable losses			2.9	.570
	1 (low)	32%	22%		
	2	14	28		
	3	28	28		
	4	10	9		
	5 (high)	16	12		

Descriptive Information on Usage Behavior

This section reports additional information from the zone-user group; specifically, firms' ratings of the main purpose of zone-usage, the regularity of use, the type of zone used, the use of more than one zone, intended future use, and the future usage level are discussed.

From Table XI, 80% of the users use a foreign trade zone on a continuous basis and 81% use a general purpose zone. Only 16% of respondents reported using other zones; perhaps using a network of more than one zone was not perceived as practical or feasible by those firms. Ninety-two percent of the users stated that they intended to use such facilitating services in the future and the majority (68%) expected to increase the usage level.

The top three purposes for using a foreign trade zone are 1) warehousing and storage (with 85% of respondents rating as important or extremely important), 2) distribution to markets (60%), and 3) inspection of imported goods (51%).

In summary, it appears that zone users are satisfied with the services provided and will continue to use such facilities and services. However, it appears that other activities which can be performed in a zone such as product manipulation, exhibition and displays, and large-scale and small-scale manufacturing need to be promoted more by foreign trade zone administrators.

TABLE XI

DESCRIPTIVE INFORMATION ON USAGE BEHAVIOR
(USER SAMPLE ONLY)

Variable	Description	Categories	Percent (n=62)
FREQUENT	Regularity	Once a year	2%
		2-3 times a year	3
		4-12 times a year	15
		Continuous a year	80
ZTYPE	Type of zone used	General purpose zone	81%
		Subzone	7
		Both types	12
OTHZ1	Use other zones	Yes	16%
		No	84
CONTUSE	Intended future use	Yes	92
		No	8
USELEVEL	Future usage level	Increase significantly	30%
		Increase a little	38
		Stay the same	16
		Decrease a little	8
		Decrease significantly	8
Main purpose of usage			
ACTIV1	Product manipulation	Extremely unimportant	22%
		Unimportant	15
		Neither	19
		Important	17
		Extremely important	26
ACTIV2	Small-scale manufac.	Extremely unimportant	62%
		Unimportant	12
		Neither	18
		Important	2
		Extremely important	5
ACTIV3	Large-scale manufact.	Extremely unimportant	68%
		Unimportant	17
		Neither	2
		Important	5
		Extremely important	9

TABLE XI (Continued)

Variable	Description	Categories	Percent (n=62)
ACTIV4	Warehousing & storage	Extremely unimportant	8%
		Unimportant	2
		Neither	5
		Important	13
		Extremely important	72
ACTIV5	Exhibition & displays	Extremely unimportant	57%
		Unimportant	12
		Neither	14
		Important	7
		Extremely important	9
ACTIV6	Inspection	Extremely unimportant	16%
		Unimportant	12
		Neither	21
		Important	16
		Extremely important	35
ACTIV7	Distribution to market	Extremely unimportant	20%
		Unimportant	4
		Neither	16
		Important	14
		Extremely important	46

Reliability Tests of Multiple Measures

Several constructs included in the study were measured by multiple-item scales. The initial tasks were to test their reliability and to investigate whether they share a common trait among themselves. Cronbach's (1951) alpha reliability coefficients were calculated through the use of SPSSx program and are reported in Tavle XII for the sets of items for the following constructs: Awareness of zone benefits, evaluation of zone benefits, evaluation zone quality, third party influence, and product suitability.

The SPSSx's reliability analysis showed that all of the multiple measures of the constructs, except the product suitability measures, have high alpha coefficient values of .78 or above, indicating high internal consistency or high homogeneity in each set of items. It is neither necessary nor sufficient for a covariance structure of measures to be reliable in order to be unidimensional. Yet, unidimensionality does contribute to the size of the alpha coefficient (Anderson and Gerbing 1982). Clearly, product suitability is not a single construct, based on the extremely low alpha level (.21).

TABLE XII

RELIABILITY ANALYSIS OF MULTI-ITEM SCALES

Construct	Items	# of items	Alpha Coefficient
Awareness of Zone Benefits	AWARE1 to AWARE13	13	.93
Evaluation of Zone Benefits	IMP1 to IMP13	13	.83
Evaluation of Zone Quality	ZQUAL1 to ZQUAL13	13	.90
Third Party Influence	CBHINFL, FFFINF, FININF, TRANSCO, ETCINF,CMEMBER	6	.78
Product Suitability	PRODUCT1 to PRODUCT6	6	.21

Discriminant Analyses of the User and the Non-User Groups

This section first discusses the preliminary steps involved in selecting the final set of variables to include in the discriminant analyses. Then, the results of the discriminant analysis which used the background variables to derive a discriminant function are presented followed by a discussion of the discriminant analysis using the decision criteria variables. These two analyses tested the first research hypothesis related to the differences between the two groups of firms included in the study. Finally, a discriminant analysis combining both sets of variables was conducted to see if the discriminating ability of the function improved significantly. All of the discriminant analyses reported here utilized the stepwise method in which the variable that minimizes the Wilks' lambda is entered.

The preliminary analyses included a correlation analysis of all potential independent (discriminating) variables to detect multicollinearity (i.e. excessively high correlation among the potential independent variables); multicollinearity could distort the results and could contribute to the existence of unequal group variances. The pooled within-groups correlation matrices of the independent variables (shown in Table XIII) were examined and none of the variables remaining in the analysis were highly correlated, using $r < .5$ as the criterion. This indicated that these variables taken concurrently contributed much information because they were independent of one another.

TABLE XIII

POOLED WITHIN-GROUPS CORRELATION MATRICES OF EXPLANATORY VARIABLES USED IN DISCRIMINANT ANALYSES

I. COMBINED VARIABLES

	AWAR	IMP3	IMP2	IMP5	IMP6	IMP7	IMP10	ZQLTY	INFLUENC	IMPORTS	PRODUCT3
AWAR	1 00000										
IMP3	0 01964	1 00000									
IMP2	0 04822	0 50215	1 00000								
IMP5	0 14270	0 02383	0 11758	1 00000							
IMP6	0 25744	0 09020	0 10431	0 40819	1 00000						
IMP7	-0 06977	0 23297	0 19103	-0 04183	-0 10929	1 00000					
IMP10	-0 15557	0 16352	0.24646	0 27739	0 12080	0.34574	1 00000				
ZQLTY	0 05319	0 03475	-0 01910	-0 08304	0 00942	0 16991	0 44603	1 00000			
INFLUENC	0 08997	0 15920	0 39618	-0 00270	-0 03346	0 12106	0 21771	0 00433	1.00000		
IMPORTS	-0 17749	0 13484	0 18571	-0 01331	0 04211	0 15115	0 08250	-0 34079	0 20592	1 00000	
PRODUCT3	0 18258	-0 11222	-0 31800	-0 04993	0 00938	-0 34559	-0 26217	0 04287	-0 23073	-0 24461	1 00000
PRODUCT4	-0 24508	-0 10901	-0 03091	-0 00507	-0 04165	-0 31342	-0 04363	0 03448	0 18073	0 01058	-0 11161
EXPORTS	0 16071	0 10500	0.24489	0 24939	0 27634	-0 18602	0 08071	-0 03246	0 27747	-0 05256	0 06307
PRODUCT5	-0 13914	0 09067	-0 07483	0 04318	-0 00127	-0 11232	-0 21903	-0 26466	-0 18757	0 04195	0 46346
PRODUCT6	-0 02320	-0 05012	-0 18459	0.31645	0 17644	-0 38176	-0 20045	-0 12199	0 00151	0 04074	-0 15343

	PRODUCT4	EXPORTS	PRODUCT5	PRODUCT6
PRODUCT4	1 00000			
EXPORTS	0 15066	1 00000		
PRODUCT5	0 00842	0 00725	1 00000	
PRODUCT6	0 38750	0 20100	-0 11918	1 00000

II. BACKGROUND VARIABLES

	INFLUENC	EXPORTS	IMPORTS	PRODUCT5	PRODUCT6	PRODUCT3	PRODUCT4
INFLUENC	1 00000						
EXPORTS	0 17862	1 00000					
IMPORTS	0 10923	0 03504	1 00000				
PRODUCT5	-0 16188	-0 03065	-0 00212	1 00000			
PRODUCT6	0 08772	0 13198	-0 02287	-0 16681	1 00000		
PRODUCT3	-0 18329	0 07467	-0 13876	0 51841	-0 14794	1 00000	
PRODUCT4	0 17192	0 10613	-0 02240	-0 08238	0 41168	-0 16506	1 00000

III. DECISION CRITERIA VARIABLES

	AWAR	IMP3	IMP2	IMP5	IMP6	IMP7	IMP10	ZQLTY
AWAR	1 00000							
IMP3	-0 01129	1 00000						
IMP2	0 10785	0 43869	1 00000					
IMP5	0 24527	0 00550	0 08535	1 00000				
IMP6	0 24680	0 08516	-0 02249	0 45487	1 00000			
IMP7	0 07144	0 26373	0 25465	-0 00693	-0 06883	1 00000		
IMP10	-0 09756	0 18786	0 22427	0 26899	0 16962	0 31936	1 00000	
ZQLTY	0 19570	-0 01352	-0 04889	-0 00816	0 05124	0 12222	0 30175	1 00000

A factor analysis of the user data was also run to help decide whether to use the mean of the multiple indicators as a composite variable. Consequently, the third party influence measures, the evaluation of zone quality measures and the awareness measures were found to be appropriately combined in such a manner because of their unidimensionality. This is consistent with the high alpha levels for these variables, as discussed earlier. The detailed results of these factor analyses may be viewed in Appendix B.

Discriminant Analysis using Background Variables

The background variables selected after reviewing the pooled within-groups correlation matrices were INFLUENC (which is the mean of all third party influence measures), IMPORTS, EXPORTS, PRODUCT3, PRODUCT4, PRODUCT5, and PRODUCT6. As illustrated in Table XIII, mulitcollinearity did not exist among these variables. The final stepwise discriminant function discriminated significantly between the two groups (χ^2 = 25.3, 3 d.f., $p<.0001$).The standardized canonical discriminant function is:

$$D = -0.35\ \text{INFLUENC} + .33\ \text{EXPORTS} + .93\ \text{IMPORTS}.$$

It correctly classified 73% of the firms, which was significantly greater than Cmax (or the percent of firms being correctly classified by assigning all to the larger group), of 56%. The Hay's ω^2 statistic was 28%; this statistic provides an estimate of the amount of variance in the discriminating variable that is attributable to group differences. However, the Box' M statistic did not support the equality of group

covariance matrices (M=16.0, p=.02); this means the other statistical tests may not be valid.

The analysis indicated that the user is not influenced as strongly by third parties in their zone usage decisions as is the non-user, which does not support a part of Hypothesis 1.1. Meanwhile, the user is more involved with import activities than the non-users, as hypothesized. EXPORTS turned out to be a significant discriminator; zone-users not only import more but also export more than non-users. Product suitability is not a statistically significant discriminating variable.

Discriminant Analysis of Decision Criteria Variables

The decision criteria variables used in the analysis were AWAR (which is the mean of all the awareness measures), IMP1, IMP2, IMP5, IMP3, IMP6, IMP8, IMP9, and ZQLTY (the mean of all quality evaluation measures). The IMP's variables had highest factor loadings chosen from the dominant factors in the factor analysis. As also shown in Table XII, these variables are not highly correlated. The stepwise discriminant function discriminates significantly between the two groups (χ^2 = 7.5, 3 d.f., p=.058) The standardized canonical discriminant function is:

$$D = .74\ AWAR + .62\ IMP5 - .71\ IMP6.$$

This function correctly classified 64.3 % of the firms, which was only slightly larger than the Cmax value, 61.9 %. The Hay's ω^2 statistic was 11.5 percent while the Box' M statistic showed the equality of group covariance matrices (M=.69, p=.996).

Hypothesis 1.2 was partially supported; users were more likely to be very aware of zone benefits, and they perceived the ability to

the ability to manipulate products in the zone(IMP5) as being more important. Meanwhile, non-users viewed manufacturing benefits(IMP6) as being more important; this is expected because non-users do not know much about the less visible benefits such as simplified customs procedures. Contrary to the hypothesis, the user and the non-user were not different in terms of the evaluation of zone quality, however.

Combined Discriminant Analysis

This additional analysis was conducted to find if the discriminating ability would improve significantly when the two sets of variables were combined. It was found that the percent of firms correctly classified increased considerably to 83.1% (compared to a Cmax value of 67.6%), with the following standardized canonical discriminant function:

$$D = .49\ \text{AWAR} - .48\ \text{IMP6} + .49\ \text{ZQLTY} - .56\ \text{INFLUENC} + .95\ \text{IMPORTS} + .51\ \text{EXPORTS}.$$

The function discriminates significantly between the two groups ($\chi^2 = 34.5$, 6 d.f., $p < .0001$). The Hay's ω^2 statistic was 51% which is much better than the two previous functions while the Box's M statistic marginally supports the equality of group covariance matrices ($M = 36.1$, $p = .09$). The interpretations of the function were generally congruent with those described earlier, but some additional information is included. Considering the background variables and the decision criteria variables together, the user considers the quality of the zone as being more important than does the non-user. IMPORTS is clearly the most significant discriminating variable.

Summary of the Results of Discriminant Analyses

When comparing the discriminant analyses using background variables with the one using decision criteria variables, the background variables were found to be more important in discriminating the user from the no-user; its standardized canonical function was superior (nearly 9% higher) in correctly classifying firms, with the Hay's ω^2 of 17.5 higher than the canonical function of decision criteria variables. These observations were confirmed in the combined analysis. All three background variables which were in the final discriminant function had considerably higher coefficients than those for decision criteria variables; specifically, third party influence (INFLUENC), import level (IMPORTS), and export level (EXPORTS) were more powerful discriminators than the overall benefit awareness(AWAR), evaluation of manufacturing benefits (IMP6), and the overall evaluation of zone quality (ZQLTY).

Factor Analyses of User versus Non-user Data: Another Comparative Look At the Two Groups

This section takes a closer look at the differences and similarities in the factor patterns obtained from the user data and from the non-user data. The type of factor analysis used in this study was principal component analysis with varimax rotation. In all, eight different factor analyses were done, representing each construct proposed to be included in the model of zone usage decisions. The variables or measures of the constructs were factored separately for each sampling group. Table XIV presents the factor patterns and the subjective interpretation of each factor. Only those measures or variables with a factor loading of .6 or greater are used in the interpretations.

The Evaluation of Zone Quality Construct

Four factors with an eigenvalue greater than one were identified for the varimax rotations analysis of both the user data and the non-user data. It appeared that the user paid more attention to the quality of services provided by a zone operator than the external or physical quality of a zone, as seen when comparing the first factor (which was labeled as "internal services") and the remaining factors (labeled as "locational quality", "manufacturing facility quality", and "warehousing quality" consecutively). For the non-user, the resulting factors are not easily interpreted; those firms not using a zone did not seem to have as clearly defined a view of a foreign trade zone and its services. The four factors were labeled tentatively as "improved logistics," "transaction ease," "promotion and manufacturing," and

TABLE XIV

FACTOR ANALYSES OF MEASURES BY CONSTRUCTS AND DATA GROUPS

Rotated Factor Patterns for Zone Quality

USER GROUP

Variable	Description	Factor1	Factor2	Factor3
ZQUAL13	Assistance in document.	.90	.14	.13
ZQUAL12	Customer-personnel rel.	.90	.19	-.01
ZQUAL2	Convenient hours	.83	.06	.19
ZQUAL11	Zone operator's exp.	.77	.52	-.07
ZQUAL3	Administrative procedure	.76	.29	.25
ZQUAL1	Consulting services	.69	.30	.05
ZQUAL10	Promotion efforts	.62	.24	.59
ZQUAL8	Transportation mode acc.	.18	.88	-.12
ZQUAL9	Access to port of entry	.21	.74	.14
ZQUAL7	Proximity to dom. mkts.	.06	.67	.32
ZQUAL6	Proximity to fgn. mkts.	.45	.57	-.25
ZQUAL4	Warehousing facilities	.36	.54	-.37
ZQUAL5	Manufacturing facilities	.18	-.03	.88
Subjective interpretation of the factor		Internal services	Locational Quality	Manufacturing facility quality

NON-USER GROUP

Variable	Description	Factor1	Factor2	Factor3	Factor4
ZQUAL9	Access to port of entry	.87	.22	-.04	.00
ZQUAL8	Transportation mode acc.	.82	.20	.29	.05
ZQUAL1	Consulting services	.75	.28	.37	.23
ZQUAL4	Warehousing facilities	.69	-.05	.22	.47
ZQUAL2	Convenient hours	.55	.65	.06	-.23
ZQUAL13	Assistance in doc.	.07	.76	-.03	.54
ZQUAL3	Administrative procedure	.44	.64	.30	.31
ZQUAL6	Proximity to fgn. mkts	.17	.63	.53	-.04
ZQUAL7	Proximity to dom. mkts	.32	.43	.42	.41
ZQUAL10	Promotion efforts	.21	-.02	.85	.13
ZQUAL5	Manufacturing facilities	.06	.31	.62	.38
ZQUAL11	Zone operator's exp.	.39	.35	.49	.39
ZQUAL12	Customer-personnel rel.	.07	.09	.26	.92
Subjective interpretation of the factor		Improved Logistics ?	Transaction Ease ?	Promotion & Manu-facturing	Customer relation

TABLE XIV (Continued)

Rotated Factor Patterns for Awareness of Zone Benefits

USER GROUP

Variable	Description	Factor1	Factor2	Factor3
AWARE9	Simplified custom proc.	.83	.28	.25
AWARE13	Better inventory control	.78	-.11	.43
AWARE8	Lower insurance	.75	.43	.11
AWARE7	Cash flow savings on duty	.75	.36	.13
AWARE10	Faster customer service	.69	.18	.41
AWARE2	Economies of bulkshipping	.06	.82	.26
AWARE3	No inventory tax	.30	.74	.05
AWARE1	Facilitating transship.	.27	.70	.20
AWARE4	International sourcing	.12	.67	.55
AWARE6	Ability to manufacture	.14	.52	.73
AWARE14	Better waste handling	.36	.14	.82
AWARE5	Ability to manipulate	.33	.19	.79
AWARE12	Quota avoidance	.33	.49	.47
AWARE11	Inverted tariffs	.21	.48	.49
Subjective interpretation of the factor		Financial & Logistics Benefits ?	Improved Logistics	Improved Manufacturing

NON-USER GROUP

Variable	Description	Factor1	Factor2	Factor3
AWARE7	Cash flow saving on duty	.81	.46	.09
AWARE4	International sourcing	.73	.32	.30
AWARE5	Ability to manipulate	.73	.37	.32
AWARE1	Facilitating tranship.	.70	.23	.53
AWARE6	Ability to manufacture	.70	.23	.53
AWARE8	Lower insurance	.53	.12	-.07
AWARE11	Inverted tariffs	.52	.59	.30
AWARE12	Quota avoidance	.50	.47	.22
AWARE9	Simplified customs proc.	.27	.80	.30
AWARE10	Faster customer service	.30	.79	.21
AWARE13	Better inventory control	.19	.57	.68
AWARE14	Better waste handling	.02	.54	.70
AWARE2	Economies of bulkshipping	.35	.07	.80
AWARE3	No inventory tax	.29	.13	.79
Subjective interpretation of the factor		Financial & Logistics Benefits ?	Improved Customer Service ?	Improved Logistics

TABLE XIV (Continued)

Rotated Factor Patterns of Benefits Evaluation

USER GROUP

Variable	Description	Factor1	Factor2	Factor3
IMP10	Faster customer service	.77	.12	-.06
IMP9	Simplified customs proc.	.76	-.05	.05
IMP13	Better inventory control	.72	.01	.02
IMP8	Lower insurance	.54	.35	-.36
IMP7	Cash flow savings on duty	.47	.28	.00
IMP14	Better waste handling	.43	.01	.41
IMP2	Economies of bulkshipping	-.07	.82	-.26
IMP3	No inventory tax	.08	.68	-.07
IMP1	Facilitating transship.	.11	.63	.16
IMP11	Inverted tariffs	.15	.58	.52
IMP4	International sourcing	.12	.57	.43
IMP12	Quota avoidance	.47	.52	.30
IMP5	Ability to manipulate	-.03	.08	.81
IMP6	Ability to manufacture	-.10	-.03	.77
Subjective interpretation of the factor		Customer Services ?	Improved Logistics	Manufact. Benefits

NON-USER GROUP

Variable	Description	Factor1	Factor2	Factor3
IMP11	Inverted tariffs	.94	.10	.13
IMP9	Simplified customs proc.	.75	.38	.12
IMP12	Quota avoidance	.63	-.02	.33
IMP7	Cash flow savings on duty	.63	.53	.21
IMP10	Faster customer service	.63	.44	.46
IMP8	Lower insurance	.57	.58	-.18
IMP3	No inventory tax	.19	.86	.01
IMP1	Facilitating transship.	-.01	.74	.20
IMP13	Better inventory control	.38	.72	.16
IMP2	Economies of bulkshipping	.25	.56	.27
IMP5	Ability to manipulate	.32	.03	.89
IMP6	Ability to manufacture	.07	.27	.83
IMP4	International sourcing	.39	.02	.78
IMP14	Better waste handling	-.13	.43	.55
Subjective interpretation of the factor		Financial Benefits	Improved Logistics	Manufact. Benefits

TABLE XIV (Continued)

Rotated Factor Patterns for Product Suitability

USER GROUP

Variable	Description	Factor1	Factor2	Factor3
PRODUCT4	Ease of handling	.80	.18	.25
PRODUCT6	Accountable losses	.79	-.04	-.26
PRODUCT2	Product durability	.70	-.36	.08
PRODUCT3	Trade restrictions	-.05	.85	-.08
PRODUCT5	Duty level	-.03	.80	-.03
PRODUCT1	Product value	.02	-.10	.96
Subjective interpretation of the factor		Physical suitability	Trade regulations suitability	Product value

NON-USER GROUP

Variable	Description	Factor1	Factor2
PRODUCT5	Duty level	.80	-.06
PRODUCT1	Product value	-.80	.07
PRODUCT3	Trade restrictions	.78	-.08
PRODUCT2	Product durability	.30	.82
PRODUCT6	Accountable losses	-.46	.61
PRODUCT4	Ease of handling	-.42	.56
Subjective interpretation of the factor		Trade regulations suitability	Physical suitability

TABLE XIV (Continued)

Rotated Factor Patterns for Third Party Influence

USER GROUP

Variable	Description	Factor1	Factor2
TRANSCO	Transportation company influence	.91	.23
FFFINF	Foreign freight forwarder infl.	.87	.04
FININF	Financial institution infl.	.86	.15
CBHINFL	Customs house broker infl.	.72	.28
ETCINF	Export trading company infl.	.03	.93
CMEMBER	Channel member infl.	.48	.66
Subjective interpretation of the factor		More interactive third party	Less interactive third party

NON-USER GROUP

Variable	Description	Factor1	Factor2
TRANSCO	Transportation company influence	.83	-.12
FFFINF	Foreign freight forwarder infl.	.76	-.11
CMEMBER	Channel member infl.	.67	-.01
ETCINF	Export trading company infl.	.31	.79
FININF	Financial institution infl.	.44	-.61
CBHINFL	Customs house broker infl.	.35	-.49
Subjective interpretation of the factor		More interactive third party	Less interactive third party

customer-personnel relations" respectively. Clearly, the users rated the zone quality on a different set of criteria, and they showed much more awareness of those services provided by the zone administrators.

The Awareness of Zone Benefits Construct

Apparently, the groups are not distinctly different in their awareness of zone benefits. Each did not seem to separate financial benefits from logistics benefits well, which made up the more global factor 1 labeled "financial and logistics benefits." However, the user was more aware of manufacturing benefits (factor 3). Both groups had another more well-defined view of logistics benefits which was called "improved logistics." Finally, factor 2 for the non-user was somewhat uninterpretable.

The Evaluation of Zone Benefits Construct

For this construct, the non-user appears to have a more interpretable set of factors. The non-user seemed to be able to evaluate subsets of benefits that are highly related well; Factor 1 represented the financial benefits while logistics-related benefits made up Factor 2. Manufacturing, product manipulation, and sourcing of raw materials and components from foreign sources (international sourcing) were combined. This factor pattern would seem to reflect the promotional effort of foreign trade zone administrators. The variables factored less clearly for the user. Perhaps the user knows of many more benefits, most of which are quite important to his business operation. The three factors for the user group were extracted: the first one was tentatively called "improved customer service" while second and the

service" while the second and the third factors were clearly "logistics benefits" and "manufacturing benefits." The financial variables seemed to be relatvely less importannt to only the user. This s howed that financial benefits but also logistics benefits are considered in zone usage decisions.

The Product Suitability Construct

For both the user and the non-user data, two verv nicely held factors were the "physical suitability" for factor 1 and "duty and trade regulations suitability" for factor 2. Additionally, product value was an additional factor for the user group; users were able to separate product value from trade regulations suitability.

The Third Party Influence Construct

For the user, they were grouped together appropriately with those third parties whose services are provided to them on a more regular basis (i.e. transportation companies, financial institutions, foreign freight forwarders, and custom house broker) into Factor 1; the second factor represented channel members and export trading companies with which they do not interact face to face or not at all. For the non-user, the influences of transportation companies, foreign freight forwarders, and channel members loaded high together, indicating a differing view of how various third parties influence firms' logistical decisions.

Summary of User/Non-user Differences

As mentioned in the previous chapter, zone-users were expected to import more, to be influenced more by third parties, and to have higher perceived product suitability. Furthermore, they were also hypothesized to be likely to be more aware of zone benefits and to make more positive evaluations of zone quality. Firm characteristics (i.e., firm size), the level of exports and the evaluation of the importance of each zone benefit were not expected to be significantly different.

The χ^2 tests supported the expectation about import levels; users actually import at a higher percentage of total purchases than does the non-user group. However, the level of exports were also found, unexpectedly, to be different; users also exported more. Concerning third party influence, users were influenced more by custom house brokers and foreign freight forwarders while non-users were influenced, at varying degrees, by transportation companies. On the other hand, no group difference was found in perceived product suitability. Finally, regarding firm size, the user group was found to be smaller in terms of sales and in the number of employees. There were also more foreign-based firms in the zone using group than in the non-user group.

Turning to discriminant analysis, results of the general findings were in agreement with those of χ^2 tests. In addition to third party influence (INFLUENC), level of imports (IMPORTS), and level of exports (EXPORTS), the overall benefit awareness (AWAR), evaluation of manufacturing benefits (IMP6), and the overall evaluation of zone quality (ZQLTY) were also found to be significant discriminant variables. Again, the results supported the expectations except for the level of exports which turned out to be very significant.

Meanwhile, the factor analyses provided more detailed results related to decision criteria variables. Users seemed to pay more attention to the quality of services provided by a zone operator than to the external or physical quality of a zone. The non-users did not seem to have a clearly defined view of a foreign trade zone and its benefits. On the other hand, the users were not able distinguish the importance of different zone benefits as well as the non-users were. The evaluations of various financial benefits did not factor as clearly for the user group; this implied that users evaluated logistics benefits and financial benefits in a more integrated manner and that logistics benefits are indeed important to zone-using firms. No difference in factor patterns existed in the groups' awareness of various benefits.

In sum, differences do exist between users and non-users across background variables as well as across decision criteria variables. Such findings should be meaningful to zone administrators in segmenting the market for a more effective promotional and educational effort, which will be discussed in Chapter V. The next section analyzes zone-usage decisions in more detail with the structural equations approach.

Factor Analyses of User Data: Preliminary Analysis for the Structural Equations Modeling

Factor analysis was used to determine underlying common factors and to find how well they measure the unobservable constructs in a unidimensional manner. Furthermore, due to its exploratory nature, more variables than needed were measured and the use of factor analysis helped in the data reduction process. Thus, the factor analysis of user data to obtain original, unrotated factors patterns was used to help determine what variables to include in testing and reconstructing the structural equations model to be discussed in the subsequent section.

For data reduction purpose, only the factors with an eigenvalue of greater than or equal to 1 were retained for investigation. After examining the eigenvalues and selecting factors, the remaining factors were compared in terms of the eigenvalue and the percent of variance explained by each. After that, the factor loadings in each factor were examined. If there was only one distinct, common factor with a relatively high eigenvalue and with a high percent of explained variance, compared with the other factors, three to four variables with highest factor loadings were selected out of that factor. If two or more factors have equivalent eigenvalues, it is an indication of nonunidimensionality of the construct and a scree test was conducted to confirm that that those factors are actually not far apart in terms of the amount of variance which each can measure. The original constructs were then split into two or more constructs (based on the chosen factors) with the two to three measures (variables) with the highest loadings in each corresponding factor used in the analyses in the later stages.

Table XV contains the factor loadings of the measures of each original construct, the eigenvalues and the percent of variance explained by each factor. As shown, the awareness of benefits construct is represented by one unique factor with the eigenvalue = 7.31 compared with 1.59 for the second factor. Therefore, AWARE4, AWARE6 and AWARE9 (with highest loadings in the first factor) were chosen to include in the initial structural equation model testing. The benefit evaluation construct showed three separate factors. The original single construct was broken down to three new constructs; IMP11 and IMP12 went to the first evaluation subconstruct, while IMP2 and IMP3 formed the second construct and IMP5 and IMP6 formed the third construct. Concerning the evaluation of zone quality construction, Factor 1 was the dominant factor with an eigenvalue of 6.25. Accordingly, the three variables with highest loadings were kept as remaining measures of the construct; they are ZQUAL11, ZQUAL12, and ZQUAL13. The eight usage behavior measures formed one dominant factor, all of which loaded high on the factor. Thus, the four measures which represented the most recent (1984) figures were chosen for inclusion in preliminary runs of the LISREL program. SALES, EMPLOYEE, and MANUFACT were also factor analyzed into only one factor with high loadings; all three were kept as measures of the firm size construct.

In terms of the import/export involvement construct, only one factor was obtained with IMPORTS and INVEN loading high while EXPORTS loaded relatively lower and with a negative sign. The third party

influence construct had the first factor as a dominant factor with an eigenvalue of 3.48 (compared with 1.03 for the second factor) Thus. the top three variables, FFFINF, TRANSCO, and FININF were selected to be used in further LISREL runs. Finally, the product suitability construct turned out to be non-unidimensional without one dominant factor, so the construct was split into three constructs, with PRODUCT3, and PRODUCT5 went to the first construct, PRODUCT2, PRODUCT4, and PRODUCT6 to the second construct, and PRODUCT1 formed its own third construct.

TABLE XV

FACTOR ANALYSES OF USER DATA BY INDIVIDUAL CONSTRUCTS
(ORIGINAL FACTOR PATTERNS)

I. AWARENESS OF BENEFITS

Variable	Description	Factor1	Factor2	Factor3
AWARE1	Facilitating transshipments	.67	.307	.24
AWARE2	Economies of bulkshipping	.66	.53	.16
AWARE3	No inventory tax	.63	.29	.39
AWARE4	International sourcing	.77	.40	-.11
AWARE5	Ability to manipulate products	.76	-.07	-.44
AWARE6	Ability to manufacture/assemble	.79	.29	-.32
AWARE7	Savings on duty	.72	-.28	.33
AWARE8	Lower insurance	.75	-.23	.38
AWARE9	Simplified customs procedures	.79	-.40	.22
AWARE10	Faster customer services	.74	-.36	.00
AWARE11	Inverted tariffs	.68	.20	-.12
AWARE12	Quota avoidance	.74	.13	-.05
AWARE13	Better inventory control	.64	-.62	-.11
AWARE14	Better waste handling	.76	-.13	-.48
eigenvalue		7.32	1.58	1.11
percent of explained variance		53%	11%	8%

II. EVALUATION OF BENEFITS

Variable	Description	Factor1	Factor2	Factor3
IMP1	Facilitating transshipments	.56	.17	-.30
IMP2	Economies of bulkshipping	.45	-.05	-.74
IMP3	No inventory tax	.51	.00	-.47
IMP4	International sourcing	.60	.38	-.14
IMP5	Ability to manipulate products	.27	.70	.30
IMP6	Ability to manufacture/assemble	.14	.69	.30
IMP7	Savings on duty	.50	-.21	.05
IMP8	Lower insurance	.49	-.54	-.12
IMP9	Simplified customs procedures	.48	-.37	.46
IMP10	Faster customer services	.57	-.44	.30
IMP11	Inverted tariffs	.65	.44	-.08
IMP12	Quota avoidance	.76	.08	.03
IMP13	Better inventory control	.49	-.36	.39
IMP14	Better waste handling	.41	.11	.42
eigenvalue		3.68	2.15	1.73
percent of explained variance		26%	15%	12%

TABLE XV (Continued)

III. EVALUATION OF ZONE QUALITY

Variable	Description	Factor1	Factor2	Factor3
ZQUAL1	Consulting services	.74	-.04	-.13
ZQUAL2	Convenient hours	.75	-.35	-.21
ZQUAL3	Administrative procedures	.82	-.21	-.02
ZQUAL4	Warehousing facilities	.53	.50	-.15
ZQUAL5	Manufacturing facilities	.26	-.67	.54
ZQUAL6	Proximity to foreign markets	.64	.40	-.09
ZQUAL7	Proximity to domestic markets	.45	.21	.55
ZQUAL8	Accessibility of transportion	.61	.61	.29
ZQUAL9	Access to port of entry	.59	.33	.39
ZQUAL10	Promotion efforts	.73	-.44	.28
ZQUAL11	Zone operators expertise	.91	.16	-.13
ZQUAL12	Customer-personnel relations	.84	-.15	-.32
ZQUAL13	Assistance in documentation	.84	-.27	-.21
eigenvalue		6.25	1.88	1.18
percent of explained variance		48%	14%	9%

IV. USAGE BEHAVIOR

Variable	Description	Factor1
FRDOM1	Volume from domestic in 83	.98
FRDOM2	Volume from domestic in 84	.98
FRFGN1	Volume from foreign in 83	.98
FRFGN2	Volume from foreign in 84	.98
TODOM1	Volume to domestic in 83	.99
TODOM2	Volume to domestic in 84	.99
TOFGN1	Volume to foreign in 83	.98
TOFGN2	Volume to foreign in 84	.98
eigenvalue		7.77
percent of explained variance		97%

V. FIRM SIZE

Variable	Description	Factor1
SALES	Total annual sales	.65
EMPLOYEE	Number of employees	.87
MANUFACT	Manufacturing activities	.76
eigenvalue		1.79
percent of explained variance		60%

TABLE XV (Continued)

VI. IMPORT/EXPORT INVOLVEMENT

Variable	Description	Factor1
IMPORTS	Imports as % of purchases	.72
EXPORTS	Exports as % of sales	-.50
INVEN	Dutiable inventory	.65
eigenvalue		1.87
percent of explained variance		40%

VII. THIRD PARTY INFLUENCE

Variable	Description	Factor1	Factor2
CBHINFL	Custom house broker influence	.77	-.04
FFFINF	Foreign freight forwarder inf.	.81	-.32
ETCINF	Export trading company inf.	.41	.83
TRANSCO	Transportation company inf.	.93	-.16
FININF	Financial institutions inf.	.85	-.22
CMEMBER	Channel member influence	.71	.40
eigenvalue		3.48	1.04
percent of explained variance		58%	17%

VIII. PRODUCT SUITABILITY

Variable	Description	Factor1	Factor2	Factor3
PRODUCT1	Product value	.23	-.29	.89
PRODUCT2	Product durability	.79	.07	-.04
PRODUCT3	Trade restrictions	-.49	.67	.17
PRODUCT4	Ease of handling	.63	.52	.28
PRODUCT5	Duty level	-.44	.64	.20
PRODUCT6	Accountable losses	.64	.46	-.27
eigenvalue		1.92	1.43	1.01
percent of explained variance		32%	24%	17%

Structural Equations Model Development

The structural equations model was developed through several steps. First, all measures of the constructs were examined through factor analyses as discussed in the previous section. Then, the correlation matrix of all the measures used as input data for the structural equations modeling was examined. These preliminary analyses served to indicate potentially inadequate measures, which were further deleted or modified before a more meaningful analysis was conducted. Before final testings of the full model, smaller submodels were first investigated through the LISREL VI program, mainly to find where modifications were needed, as well as to test the construct validity (i.e. how well the measures of the same construct held together). Ideally, theory would lead one to a unique model, and such a program as LISREL would provide its parameter estimates. However, in this research area where the theory is underdeveloped, it is more likely that the researcher could at best offer a tentative model as a hypothesis to be tested, modified and retested.

Criteria for Model Assessments

Essentially, the LISREL program generates estimates of the model. It then recreates a correlation matrix based on the specification of the model and compares it with the sample correlation matrix. The degree to which they are different is an indication of the degree to which the model is misrepresented. The maximum likelihood procedure provides an overall chi square goodness of fit test of a structural equation model.

The LISREL program provides the probability of obtaining a chi-square value larger than that actually obtained, given that the hypothesized model holds. Therefore, the higher the value of the probability, the better the fit (Aaker and Bagozzi 1979; Bagozzi 1980). It has been suggested that adequate fits may be obtained when $p > .10$ (Bagozzi 1980).

Additional indications of badness of fits of a model, as suggested by Joreskog and Sorbom (1983), include:

1. Unreasonable values of the parameter estimates, e.g. negative variances, correlations larger than one in magnitude, covariance or correlation matrices which are not positive definite,

2. Low t-values (less than or equal to 2) for the parameters,

3. Extremely large standard errors,

4. Very low coefficients of determination (a measure of the strength of several relationships jointly),

5. Very low squared multiple correlations (a measure of the strength of a separate, observed variable in measuring the latent variable or a construct),

6. The goodness of fit index showing the value outside the zero to one range, and

7. The root mean square residual not within the zero to one range.

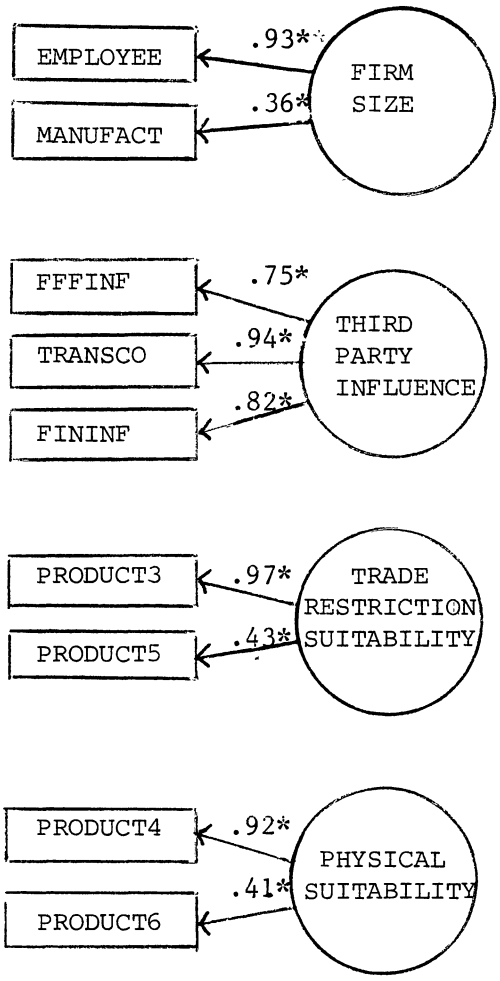
The chi-square test, goodness of fit index (GFI), and root mean square (RMR) are measures of the overall fit of the model to the data while the other indicators help determine whether one or more relationships within the model are good or not. Thus, the researcher needs to pay attention to the aforementioned overall model fit indicators as well as to the specific relationship indicators.

Analysis of the Original Model

Initially, 31 variables representing six unobserved endogenous constructs and five unobserved exogenous constructs were considered for the full trial run. These variables and constructs were selected and structured based on the factor analysis results of the user data. The preparation of the data for maximum likelihood estimation procedures involved the construction of the correlation matrix. The matrix (shown in Appendix C) served as the input data to the LISREL VI program. Unfortunately, the original model was not testable by the program due to the non-positive definite characteristic of the data matrices.

Analysis of Submodels: First Step of Model Refinements

With an unsuccessful initial full model run, the correlations among the variables included in the model were examined once more and submodels were generated and run to find where the critical problems were. After some modifications, five separate submodels were derived: the model of the exogenous constructs and their measures or the X's, the "awareness' submodel, the "benefits evaluation" submodel, the "zone quality evaluation" submodel, and the "usage behavior" submodel. Each of these submodels is summarized in the figures below.



Coefficient of determination = .87

Chi square = 45.3, 25 d.f., p = .01

Goodness of fit index = .87

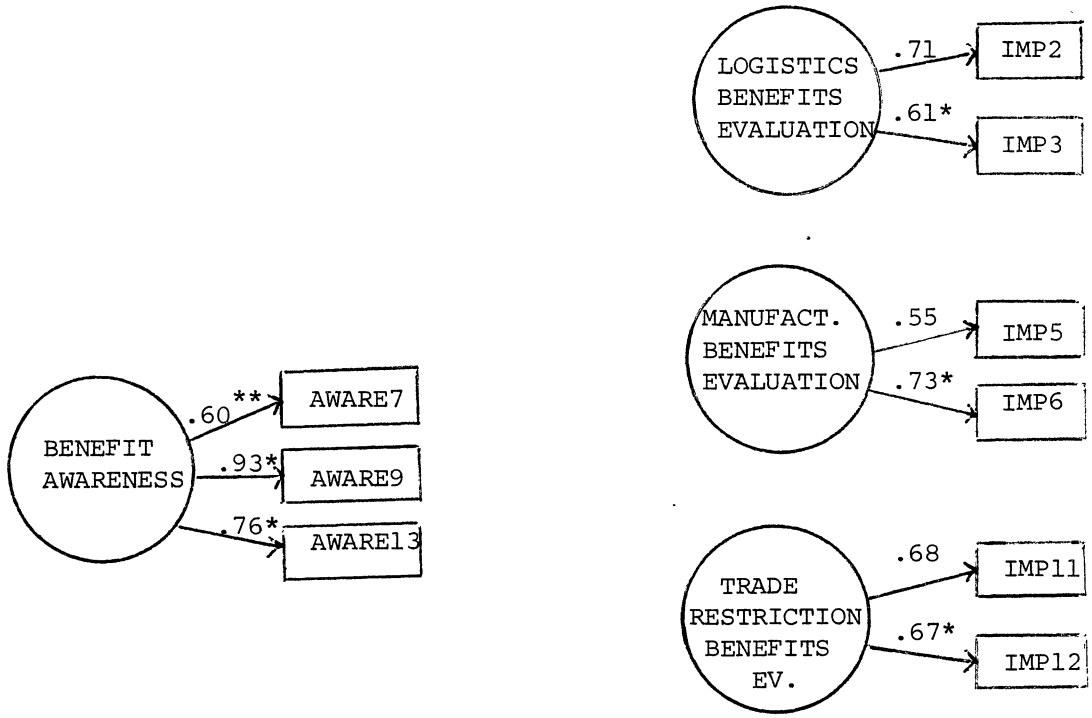
Adjusted Goodness of fit index = .76

Root mean square = .10

* designates t-value above 2.0.

** designates a fixed coefficient; t-value is not calculated.

Figure 11. Submodel of the Exogenous Constructs

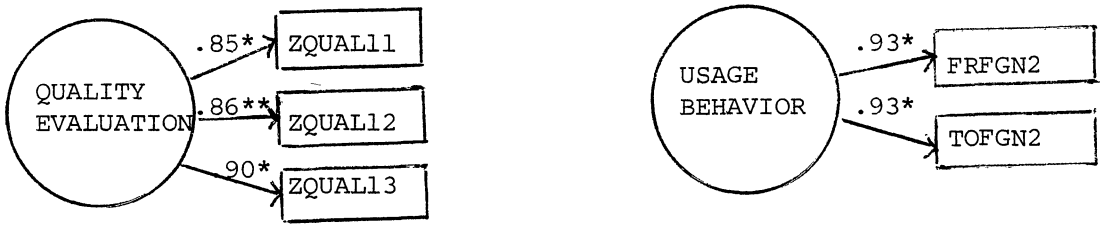


BENEFITS AWARENESS SUBMODEL	BENEFITS EVALUATION SUBMODEL
Coefficient of determination = .89	Coefficient of determination = .90
Chi square = n.a	Chi square = 5.4, 6 d.f., p = .50
Goodness of fit index = n.a.	Goodness of fit index = .97
Adjusted Goodness of fit index = n.a.	Adjusted Goodness of fit index=.90
Root mean square = n.a.	Root mean square = .05

* designates t-value above 2.0.

** designates a fixed coefficient; t-value is not calculated.

Figure 12. Submodels of the Benefits Awareness Construct and the Benefits Evaluation Construct



QUALITY EVALUATION SUBMODEL	USAGE BEHAVIOR SUBMODEL
Coefficient of determination = .91.	Coefficient of determination= .93.
Chi square = n.a.	Chi square = n.a.
Goodness of fit index = n.a.	Goodness of fit index = n.a.
Adjusted Goodness of fit index = n.a	Adjusted Goodness of fit index=n.a
Root mean square = n.a.	Root mean square = n.a.

* designates t-value above 2.0.

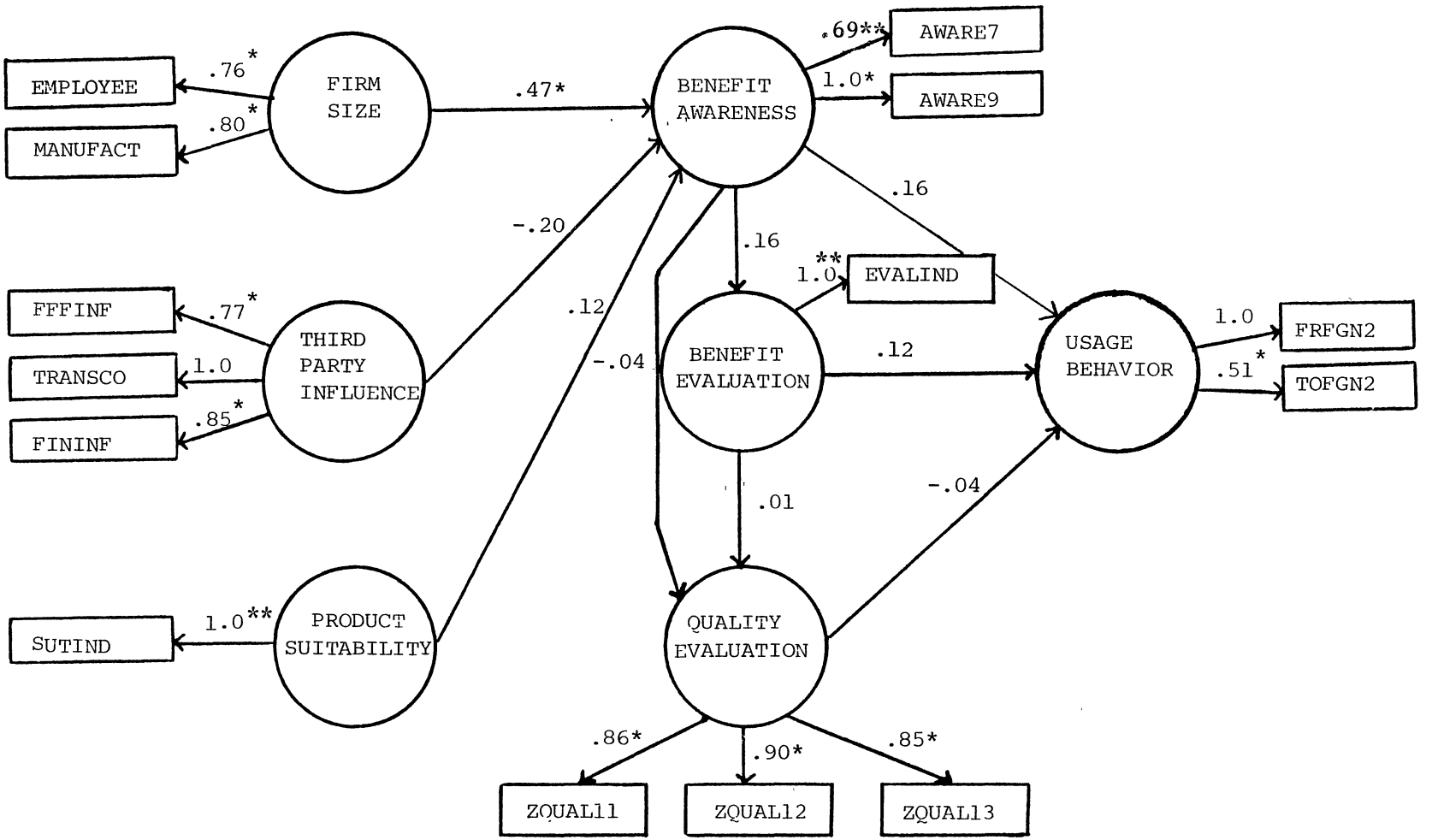
** designates a fixed coefficient; t-value is not calculated.

Figure 13. Submodels of the Quality Evaluation Construct and the Usage Behavior Construct

As seen in the figures, only the statistical significance of individual coefficients (with a t-value greater than or equal to 2) are reported for single construct tests. Goodness of fit indicators are shown for those with more than one construct, i.e. the benefits evaluation submodel and the exogenous submodel. The benefits evaluation submodel which consisted of three subconstructs seemed to hold together well, unlike the exogenous model. Since internal consistency of measures of individual constructs is emphasized at this stage, the phi values indicating the relationships among constructs were not estimated or shown the figures. When taken singly, the measures showed reasonable internal consistency despite multidimensionality of the product suitability and benefits evaluations.

Analysis of the Revised Model

After examining each construct or subsets of constructs, the full model was retested with some modification but the positive definite problem was again encountered. Despite their multidimensionality, the three benefits evaluation subconstructs and the two product suitability subconstructs were transformed to indices called EVALIND and SUTIND respectively. Additionally, the modification indices and fitted residuals indicated that there was a direct linkage between the benefit awareness construct and the usage behavior construct. Therefore, an additional parameter for this causal path was also estimated in the revised model. Figure 14 presents the maximum likelihood solution of the revised model. The overall results in terms of goodness of fit of the model were not very satisfactory, as shown in Table XVI.



*t-values greater than or equal to 2.
** a fixed coefficient, therefore, t-value is not calculated.

Figure 14. Maximum Likelihood Solution of the Model

TABLE XVI

GOODNESS OF FIT INDICES OF THE REVISED MODEL

Coefficient of determination = .336
Chi square = 108.85 with 71 d.f., p = .003
Goodness of fit index = .819
Adjusted Goodness of fit index = .733
Root mean square = .103

To be regarded as a good model, the Chi-square test should have a probability level of .1 or higher. The goodness of fit index and the adjusted goodness of fit index should also be nearly .9.

However, all specific relationships among the constructs and their respective measures were statistically significant with $t > 2$. In other words, the various reduced sets of variables seem to be be measuring the constructs adequately well. On the other hand, most of the relationships among the constructs themselves were not significant. In this case, only firm size (measured by the number of employee and scale of manufacturing) was significantly related to benefit awareness in a positive direction as hypothesized in the previous chapter. Thus, the relationships stated in the first hypothesis received little support in the present study.

In summary, two major areas of problems occurred. First, convergent validity was shown to be lacking, particularly for the constructs of firm size and benefits awareness, which is a major reason

for rejection of the model. The lack of fit of the model also resulted from some variables (i.e., dutiable inventory levels) not being properly classified as a endogenous variable or an exogenous varible due to the lack of previous research to guide the study. Second, low relationships existed among constructs in the structual model. Inspite of the best efforts to model the constructs, there was little to explain zone usage decisions from the results of structural equations analyses.

Summary

Chapter IV has shown the results of the data analyses, both in a group-comparison approach and in the more conceptual, model testing and reconstructing approach. The interpretations and implications of the results to theory and practice will be the topics of the next chapter. In Chapter five, the detailed results reported in this chapter will be summarized and the important findings will be highlighted, along with the limitations and the contributions of the study.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

This chapter presents the major conclusions to be drawn from this study. The managerial and research implications of the findings are also examined. In addition, limitations and some methodological criticisms are discussed. Finally, directions for future research are suggested.

Major Findings and Conclusions

The findings and conclusions which can be drawn from the study are classified into two types: those related specifically to the zone-user data and those related to the comparative analyses of zone users firms versus non-zone users. The descriptive statistics presented in the previous chapter dealt with both types of information. Factor analyses and discriminant analyses supplied comparative information between the two samples. On the other hand, the structural equations approach investigated the relationships among variables for the zone-user data only.

Comparative Findings and Conclusions

Comparative analyses between users and non-users are important in providing insight into the understanding of zone-usage decision

processes; for example, those factors considered to be important by users have several implications, which will be discussed in the next section.

Firms that use a foreign trade zone differed from non-users in various aspects. Generally, zone users were slightly smaller in sales and a higher percentage of these firms are foreign-based. Perhaps U.S.-based firms were not as aware of nor as enthusiastic in using such facilitating services. More experience in import/export activities may influence the decision to use a foreign trade zone; the user group both imports and exports more than the non-user group. A higher proportion (more than 50%) of zone users were also influenced by two types of third parties: custom house brokers and foreign freight forwarders. Meanwhile, transportation companies had some influence on non-users. Regarding product suitability, both groups seemed to have similar perceptions of the product characteristics that are suitable for products going through a zone. In addition, it was found from the discriminant analyses that the aggregate third party influence (INFLUENC), IMPORTS, and EXPORTS were three most important discriminators, with IMPORTS ranked first. Finally, the results of the factor analyses of both groups indicated that both groups vary somewhat in how they viewed a foreign trade zone, its benefits and its quality. The user did not view the financial benefits (such as cash flow savings and inverted tariffs) as a distinct factor, but rather the factors emphasized the logistical advantages to foreign trade zones. In evaluating zone quality, the users rated the zone quality on a different set of criteria and they showed much more awareness of those services provided by the foreign trade zones.

Findings and Conclusions Drawn from Analyses of User Data

It can be concluded from the descriptive information that the majority of users were satisfied with the services by foreign trade zones. The zones apparently play a role in those firms' international logistics systems; they were used most for logistical purposes such as warehousing and storage, distribution to markets, and inspection of imported goods.

Tests of the structual equations model did not show a satisfactory fit nor did the model explain the usage behavior as expected. Multidimensionality existed in such constructs as product suitability and benefits evaluation. However, most specific tests of relationships among measures and constructs were statistically significant with $t > 2$. The reduced sets of variables measured the constructs considerably well while the hypothesized relationships received little support in the present study. Such results indicated that although there was a reasonable amount of internal consistency among measures of the same construct, construct validity (i.e., convergent validity) was lacking when constructs were allowed to relate to each other in the full model.

Implications of the Research

The study has some significant implications for foreign trade zone administrators as well as for international marketing/logistics researchers. Those implications are discussed below.

Implications for Foreign Trade Zone Administrators

The results show the need for educating the business sector about the benefits of foreign trade zones. The study points out specific areas needing attention, thus allowing foreign trade zone administrators to concentrate their promotional efforts more effectively. Specifically, the study discusses how zone users differ from non-users in terms of firms' characteristics as well as in the attitudes toward and perceptions of foreign trade zones, their services and their benefits. Promotional efforts can be planned and implemented more effectively by presenting more appropriate messages now that the administrators understand their target markets better than before. Firms' unclear perceptions about the zone operations can be clarified and corrected, while helping to form more positive attitudes in the international business community. Aside from financial benefits, it could be pointed out to non-users that foreign trade zones also provide logistical and distribution advantages, many of which can not be evaluated easily. Moreover, because many non-users did not perceive products of high value as suitable for going through a foreign trade zone, they may need to be educated that using a zone does not involve a longer tie-up of products or funds as might be anticipated.

It is suggested that zone administrators concentrate their immediate efforts on the type of firms similar to current users. The profile of this prime target market may be described as being firms which are active importers, more likely (but not necessarily restricted to) to be foreign-based, and relatively smaller in size (i.e. $50 million and below in sales with 100 or less employees). The finding

could be used as a promotional message to U.S. firms already at competitive disadvantages; that foreign trade zones not only help them gain cost-efficiency but also will provide certain logistical benefits.

The study indicated that the users also have a relatively higher level of exports as a percent of sales. The finding is encouraging to zone administrators. It implies that promoting reexportation from foreign trade zones to foreign markets may be more feasible than had been expected since foreign trade zone administrators try to reach the current active exporters as their prime target market.

Furthermore, zone administrators should include those third parties who influence international distribution decisions in their promotion and education programs. Custom house brokers and foreign freight forwarders can be effectively used to maintain consistent zone usage. Meanwhile, because more non-users are influenced by transportation companies, this particular third party should be included in the promotional and educational programs as well.

Zone administrators should not only emphasize promotion to non-users but also to their current users for increasing usage and new ways of using a zone. The findings suggested that most zone-users used only a single zone; they may not be aware of possible advantages of using a network of more than one zone for warehousing and distribution purposes. Perhaps foreign trade zone administrators from a variety of locations can make a joint effort to educate users about the "network" concept. In addition, many firms used a foreign trade zone mainly for warehousing and storage, distribution to markets, and inspection of

imported goods. This implies that they either are not well aware of other activities that may be conducted in a zone or may have needs limited to conduct only those activities. In any case, a zone operator should be sure that their warehousing and storage facilities are in an excellent condition. They should also assist firms with their distribution by providing convenient access to transportation modes and by arranging shipments with transportation companies. Finally, they should make the inspection process for imported goods as convenient as possible.

Implications for Academic Researchers

For international marketing researchers, this study developed a more complete list of facilitating services or benefits provided by foreign trade zones in the U.S. It also attempts to introduce a conceptual framework or structure to a rather unsystematic and atheoretical area of research, incorporating an extensive set of factors that might affect or be a part of zone-usage decisions. Although the proposed model was not supported strongly, it offers a systematic investigative approach with many relevant factors or variables. It provides a broader, more complete and more realistic view for understanding complicated international marketing and logistics issues; it also incorporates some environmental (or background) factors.

Regarding measurement issues, it provides much insight as to how various suggested measures represent a construct, as to how reliable and valid they are, and as to which ones may serve best as a foundation for further investigations. For instance, product suitability is not a unidimensional construct. Future attempts to measure this particular

construct should consider two separate dimensions of physical suitability and trade regulations suitability. The third party influence construct for measuring outside institutions influence on international distribution decisions was well measured by including custom house brokers, foreign freight forwarders, export trading companies, transportation companies, financial institutions, and channel members. Import/export involvement is multidimensional when measured by import levels, export levels, and dutiable inventory levels, and thus needs a better operationalization. Such information on variables and construct measurements has been severely lacking in international business research.

In the area of services marketing research, the emphasis has been on consumer markets. This study examined a type of industrial services and found some interesting results. People-related services or "internal services" involving customer-personnel interfaces were clearly seen as being more important factors in the evaluation of the quality of foreign trade zones than were physical facilities and the zones' "external services" such as distribution, warehousing, transportation, and inventory control. This provides some support to those who claim that the industrial/consumer dichotomy may not be very necessary in services marketing, as both industrial markets and consumer markets seem to give more weight to the "people" factors in the evaluation of service quality.

Limitations and Some Methodological Criticisms

Two major methodological problems were encountered in this study: defining the scope of the study and the data collection process. Regarding the scope of the study, the approach taken in the study was to explore and uncover as many factors as possible. There was a limited amount of literature to provide help in drawing boundaries of the investigations and to serve as a solid conceptual foundation for the study. The preliminary interviews with business executives and zone administrators and the pretests of the questionnaire instruments resulted in a lengthy questionnaire. The length of the questionnaire was partially responsible for the low response rates and the low quality of the data. Besides the length of the survey instruments, other data collection problems were due to a poor sampling frame for the non-user sample and to poor questionnaire distribution to the user sample. Indirect distribution via zone operators caused long delays and apparently was not effective in reaching many of the zone users. As for the non-user sampling frame, the listing from the Dun & Bradstreet's Principal International Businesses contains many foreign elements; some businesses not appropriate for the study such as those in the grocery retailing industry were included in the study despite the researcher's efforts to sort out those firms. Moreover, to non-users, the topic of the study was not of much interest nor relevance in many cases, adding to the low response rate.

Both the definition of scope and the data collection problems led to some methodological criticisms in the validity assessment and in the

analysis stage. Specifically, because the study was limited by the method of questionnaire distribution through foreign trade zones and by the low response nature of the survey, a direct assessment of the validity and the reliability of the key informants' responses (such as mailing the the same instrument to two or more executives in the same organization) was not possible. As a consequence, the questionnaire to the non-user group was mailed to the chief executive or the owner of a company, who was asked to pass it on to the most appropriate manager in the organization. For the user group, each participating zone operator was relied upon to distribute the instrument to the most appropriate executive in a zone-using company.

In terms of the analyses, the results of the disciminant analyses were not cross-validated using a hold-out sample. The structural equations modeling assumption on unidimensionality was partially violated on the product suitability and the benefit evaluation constructs. Moreover, the model was not tested with sufficient data of high quality, i.e. data with a minimal amount of missing values. There should have been at least 50 data points over the number of variables included in the model in order for the tests to be statistically valid (Lawley and Maxwell 1971). Finally, the zone-by-zone comparative analyses would have been valuable, but was not possible for the same sample size reason.

Bearing its exploratory nature in mind, the results and the findings of the study can only properly be regarded as tentative. The results need to be compared with other similar studies and should be interpreted and used with these limitations and criticisms in mind.

Directions for Future Research

The problem investigated in this study was the examination and the evaluation of one specific type of facilitating service available to firms involved in import/export activities, the use of foreign trade zone services. To understand how and why such services are not widely used nor are not being used as intended, more in-depth studies such as this are needed. Furthermore, issues relevant to third party influence in international logistics decisions should be investigated further. Some other factors suggested by the study should also be examined and compared to the results in future research related to international logistics/distribution decisions. While the more common use of simulations and optimization models in logistics research has provided great insight, more investigation is needed into the decision process used in making decisions in the area of international logistics. The factors and issues being considered here should be considered in future research.

Because the conceptual model was not satisfactorily tested with empirical data, future studies may consider retesting the model with a larger data base and/or proposing and testing a rival model. Further development of the definition and measurement of constructs that are generalizable across various facilitating services, not just foreign trade zone services, will also be useful.

In addition, comparing the profiles of users and non-users of foreign trade zones with those of other facilitating services (e.g., export trading companies, foreign freight forwarders, bonded warehouses,

etc.) may provide insight as to what type of firms need and receive outside assistance in import/export activities and how the role of facilitating institutions differs for different types of firms. Perhaps proper information can then be provided as to how these institutions can aid firms in their international marketing/logistics activities more properly, given the variations in firm characteristics. Finally, future studies might also consider investigating the decisions related to selecting and using facilitating services from a contingency or situational effect approach. In other words, under what situations might a firm consider including facilitating services in their logistical systems.

It is hoped that the study will at least serve as a basis for more research designed to enhance further our knowledge of international marketing and logistics; this research should benefit the academic community and the business community alike.

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APPENDIXES

APPENDIX A

SURVEY INSTRUMENTS

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

April 22, 1985

Mr.George K. Keitner
Executive Director
FTZ No. 23
901 Fuhrmann Blvd.
Buffalo, NY 14203-3183

Dear Mr. Keitner:

You might have been contacted by Mr. Bob Chancler and/or Mr. Bob Portiss by now about our national survey of foreign-trade zone users and potential users.

We have interacted with Mr. Joseph O'Connor and Mr. Bob Chancler at the NAFTZ and have their support on this project. The results could be meaningful in helping zone operators promote and serve firms better in the future.

Your zone is among the 20 zones that the NAFTZ agreed as appropriate for including in the survey. Would you please help us by distributing the enclosed questionnaires to your users, both regular users and temporary or one-time users. We would like to cover as many diverse types of users as possible. You may be assured of complete confidentiality of your client's data.

Please encourage your clients to return the questionnaire to us by May 15. We sincerely appreciate your time and your consideration in helping to distribute the questionnaire as soon as possible.

Let us know if you would like the results of the survey. We sincerely appreciate your time and your consideration in helping us make this project possible. Thank you very much once again.

Very sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

CENTENNIAL DECADE 1980 • 1990

Encls.

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

April 22, 1985

Dear User of Foreign Trade Zones:

Foreign trade zone operations have been more widely used by firms in other countries than in the U.S. Our research team from Oklahoma State University is investigating the firm's decision whether to use a foreign-trade zone in its international distribution systems.

We have the support of the National Association of Foreign-Trade Zones and twenty individual zones throughout the country. This zone through which you receive the letter is one of those supportive zones that are included in our study.

It is our hope that the results of the research will help the zone administrator to promote and to serve firms such as yours better in the future.

Would you please help us in this study by completing the attached questionnaire. You may be assured of complete confidentiality. If your operation is a division of a corporation, please respond based on the divisional level of data.

We sincerely appreciate your time and your consideration in helping make this project meaningful. Please return the questionnaire in the enclosed addressed envelope directly to us by May 15. Thank you very much once again.

Very sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

Encls.

CENTENNIAL DECADE
1980 • 1990

THE USE OF FOREIGN-TRADE ZONES

Oklahoma State University

We are interested in your evaluation of Zone # _____ here after referred to as "this zone."

For each of the following questions, please check the appropriate answer or respond in the space provided.

1. How frequently in a year do you use the foreign-trade zone facilities and services?

ONCE	2-3 TIMES	4-12 TIMES	CONTINUOUS USE
_____	_____	_____	_____

2. Please check the type of zone that you use or have used.

_____ GENERAL PURPOSE ZONE

_____ SUBZONE

_____ BOTH TYPES OF ZONES

3. Does your division (company) use any zone other than this one ?

YES _____ NO _____

If yes, which zones and locations ?

_____

_____

_____

4. Below are some activities or functions that can be performed in foreign-trade zones. Please rate the relative importance of these activities to your business operation, by circling the appropriate response.

	EXTREMELY UNIMPORTANT				EXTREMELY IMPORTANT
Manipulating (such as cutting, repacking labeling, repairing, sorting, cleaning)	1	2	3	4	5
Small-scale manufacturing and assembling	1	2	3	4	5
Large-scale manufacturing and assembling	1	2	3	4	5
Warehousing and storage	1	2	3	4	5
Exhibition and displays of products	1	2	3	4	5
Inspection of imported goods	1	2	3	4	5
Distribution to domestic or foreign markets	1	2	3	4	5

5. Please estimate the annual volume in dollars of your company (division's) merchandise that flows through this zone. NOTE: If you are a multilocation company, please use figures that pertain to this zone location only.

	1983	1984
COST OF MERCHANDISE		
from domestic sources	$_____	$_____
from foreign sources	$_____	$_____
DOLLAR VOLUME OF MERCHANDISE		
To domestic destinations	$_____	$_____
To foreign destinations	$_____	$_____

6. Does your company use the customs treatments listed below?

bonded warehouses	YES _____	NO _____
importation under bonds	YES _____	NO _____
duty drawbacks	YES _____	NO _____

7. Please evaluate the quality of this zone.

	VERY POOR				EXCELLENT
Consulting services	1	2	3	4	5
Convenient hours	1	2	3	4	5
Administrative procedures	1	2	3	4	5
Warehousing facilities	1	2	3	4	5
Manufacturing facilities	1	2	3	4	5
Proximity to foreign markets	1	2	3	4	5
Proximity to domestic markets	1	2	3	4	5
Accessibility of transportation mod es	1	2	3	4	5
Access to the port of entry	1	2	3	4	5
Promotion efforts (publicity, adverti sing)	1	2	3	4	5
Operator's expertise	1	2	3	4	5
Customer-personnel relations	1	2	3	4	5
Assistance in documentation and duty procedures	1	2	3	4	5

8. Please circle the number which best indicates your AWARENESS and the RELATIVE IMPORTANCE of the following zone benefits:

	Before making the decision to use the zone, I was:					To our business operation, the following benefits are:				
	NOT AT ALL AWARE				VERY AWARE	RELATIVELY LESS IMPORTANT				RELATIVELY MORE IMPORTANT
FACILITATING TRANSSHIPMENTS TO AND FROM FOREIGN PORTS	1	2	3	4	5	1	2	3	4	5
ECONOMIES OF BULK SHIPPING FROM ABROAD	1	2	3	4	5	1	2	3	4	5
NO INVENTORY TAX	1	2	3	4	5	1	2	3	4	5
ABILITY TO BRING IN FOREIGN RAW MATERIALS/COMPONENTS	1	2	3	4	5	1	2	3	4	5
ABILITY TO MANIPULATE PRODUCTS	1	2	3	4	5	1	2	3	4	5
ABILITY TO MANUFACTURE AND ASSEMBLE PRODUCTS	1	2	3	4	5	1	2	3	4	5
CASH FLOW AND INTEREST SAVINGS ON DUTY	1	2	3	4	5	1	2	3	4	5
LOWER INSURANCE DUE TO HIGHER SECURITY	1	2	3	4	5	1	2	3	4	5
TIME SAVINGS THROUGH SIMPLIFIED CUSTOMS PROCEDURES	1	2	3	4	5	1	2	3	4	5
FASTER CUSTOMER SERVICE IN DISTRIBUTING TO MARKETS	1	2	3	4	5	1	2	3	4	5
INVERTED TARIFFS (WITH MORE FAVORABLE RATES)	1	2	3	4	5	1	2	3	4	5
QUOTA AVOIDANCE	1	2	3	4	5	1	2	3	4	5
BETTER DISCIPLINE IN INVENTORY CONTROL	1	2	3	4	5	1	2	3	4	5
BETTER DISCIPLINE IN HANDLING WASTE/SCRAPS	1	2	3	4	5	1	2	3	4	5

9. Are you aware of any bonded warehouses in your area ?

YES _____ NO _____ If no, please go to the next question.

If yes, please evaluate the quality of their services as compared to those available in this foreign-trade zone. Based on the following criteria,

	A BONDED WAREHOUSE IS				
	DEFINITELY WORSE		ABOUT THE SAME		DEFINITELY BETTER
Consulting services	1	2	3	4	5
Convenient scheduling (hours, contacts)	1	2	3	4	5
Administrative procedures	1	2	3	4	5
Warehousing facilities	1	2	3	4	5
Manufacturing facilities	1	2	3	4	5
Proximity to foreign markets	1	2	3	4	5
Proximity to domestic markets	1	2	3	4	5
Accessibility of transportation modes	1	2	3	4	5
Access to the port of entry	1	2	3	4	5
Promotion efforts (publicity, advertising)	1	2	3	4	5
Zone-operator's expertise	1	2	3	4	5
Customer-personnel relations	1	2	3	4	5
Assistance in documentation and duty procedures	1	2	3	4	5

10. For this question, please consider only your product which seems most suitable for handling through a foreign-trade zone. Describe this product based on the following characteristics:

LOW VALUE	1	2	3	4	5	HIGH VALUE
HIGHLY DURABLE	1	2	3	4	5	HIGHLY PERISHABLE
SUBJECT TO LOW TRADE RESTRICTIONS	1	2	3	4	5	SUBJECT TO HIGH TRADE RESTRICTIONS
EASY TO HANDLE	1	2	3	4	5	DIFFICULT TO HANDLE
LOW DUTY	1	2	3	4	5	HIGH DUTY
LOW ACCOUNTABLE LOSSES (obsolescence, damage, defects, pilferage,etc.)	1	2	3	4	5	HIGH ACCOUNTABLE LOSSES

11. Are there other zones in your geographic area ?

YES_____ NO _____ If no, please go to next question.

If yes, please evaluate the quality of this zone compared with the other zones. Based on the following criteria,

	THIS ZONE IS				
	DEFINITELY WORSE		ABOUT THE SAME		DEFINITELY BETTER
Consulting services	1	2	3	4	5
Convenient scheduling (hours, contacts)	1	2	3	4	5
Administrative procedures	1	2	3	4	5
Warehousing facilities	1	2	3	4	5
Manufacturing facilities	1	2	3	4	5
Proximity to foreign markets	1	2	3	4	5
Proximity to domestic markets	1	2	3	4	5
Accessibility of transportation modes	1	2	3	4	5
Access to the port of entry	1	2	3	4	5
Promotion efforts (publicity, advertising)	1	2	3	4	5
Zone-operator's expertise	1	2	3	4	5
Customer-personnel relations	1	2	3	4	5
Assistance in documentation and duty procedures	1	2	3	4	5

12. Have you used services provided by custom house brokers in your import/ export activities?

YES _____ NO ____

If yes, their influence on your decision to use a foreign-trade zone can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

13. Have you used services provided by foreign freight forwarders or transportation companies in your import/export activities?

YES _____ NO ____

If yes, their influence on your decision to use a foreign-trade zone can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

14. Referring to financial institutions such as banks, insurance companies, their influence on your decision to use a foreign-trade zone can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

15. Referring to transportation companies, their influence on your decision to use a foreign-trade zone can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

16. Have you used facilitating services provided by export trading companies?

YES _____ NO ____

If yes, their influence on your decision to use a foreign-trade zone can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

17. The influence from distribution channel members (such as an agent, a middleman, a sales subsidiary manager overseas) in zone-usage decisions may be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

18. Please check the category appropriate for the level of your division (company)'s imports as a percent of total purchases last year.

_____ 0%

_____ 1 - 10%

_____ 11 - 30%

_____ 31 - 50%

_____ 51% and above

19. Please check the category appropriate for the level of your division (company)'s exports as a percent of total sales last year.

_____ 0%

_____ 1 - 10%

_____ 11 - 30%

_____ 31 - 50%

_____ 51% and above

20. Regarding manufacturing activities, please check the category appropriate for your division (company).

_____ NO MANUFACTURING

_____ SMALL-SCALE MANUFACTURING
(light manufacturing, high technology etc.)

_____ LARGE-SCALE MANUFACTURING
(heavy manufacturing, automobiles, steel, etc.)

21. How many employees do you have in your division (company)? Please check the appropriate category.

_____ UNDER 25

_____ 25 TO 99

_____ 100 TO 249

_____ 250 AND OVER

22. What is the total annual dollar sales of your division (company)?

$_____

23. Please estimate your average dutiable inventory level (in dollars).

$_____

24. Do you intend to continue the use of a foreign trade zone in the next two years ?

YES _____ NO _____

If yes, do you expect the use to increase or decrease ?

INCREASE SIGNIFICANTLY	INCREASE A LITTLE	STAY THE SAME	DECREASE A LITTLE	DECREASE SIGNIFICANTLY
_____	_____	_____	_____	_____

25. Please check whether your company is U.S. based or foreign-based.

_____ U.S.
_____ FOREIGN

26. Which four-digit SIC codes apply to your division (company)?

_____

27. Other comments:

We are very appreciative of your time taken to complete this questionnaire. Please return it in the enclosed envelope or address it to James W. Gentry, Department of Marketing, Oklahoma State University, Stillwater, OK 74078.

THANK YOU ONCE AGAIN!

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

June 8, 1985

Dear Foreign Trade Zone User:

A questionnaire seeking information on the use of foreign-trade zones might have been distributed to you through your FTZ operator earlier.

If you have already completed and returned to us, please accept our sincere thanks. If not, please return to us today. Because it has been distributed to only a small number of firms, the results would be meaningful only when we obtain responses from executives such as yourself.

If by some chance the questionnaire was not received or got misplaced, another copy is enclosed with this letter.

Thank you very much for your consideration to help make this project worthwhile, which in turn, will help U.S. foreign-trade zone administrators serve you appropriately in the future.

Sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

CENTENNIAL DECADE 1980 • 1990

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

June 7, 1985

Mr. Homer A. Maxey, Jr.
FTZ 9 & 9A
Dept. of Planning & Econ. Development
Pier 2, 521 Ala Moana
Honolulu, HI 96813

Dear Mr. Maxey:

We really appreciate your consideration in distributing the questionnaires to users of your FTZ.

To date, the responses from firms has not been sufficient for us to obtain meaningful results from the survey. We have received _____ of the questionnaires that were distributed through your zone.

We would like to ask you to please help us by distributing the questionnaires to your regular and temporary users one more time. Please encourage them to return the questionnaire to us by the end of the month. We hope that those firms which did not get to respond last time will do so with this follow-up.

Again, if you haven't done so, please let us know if you would like the results of the survey. And, please notify us by writing or calling 405-624-5110 about the number of questionnaires that you actually distribute to zone users in order to help us determine the total survey sample size.

Thank you very much, once again, for your consideration in making this project worthwhile. It is our hope that it will help U.S. foreign trade zone administrators as well as zone operators such as yourself promote and serve firms better in the future.

Very sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

CENTENNIAL DECADE 1980 • 1990

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

April 22, 1985

Mr. Otto L. Rhoades
Sun Electric Corp.
One Sun Pky.
Crystal Lake, IL 60014

Dear Mr. Rhoades:

Foreign-trade zone operations have been more widely used by firms in other countries than in the U.S. We are investigating the firm's decision whether to use a foreign-trade zone in its international distribution systems.

We have interacted with the National Association of Foreign-Trade Zones and hope that the results of the research will help zone administrators promote and serve firms such as yours better in the future.

Would you please help us in this study by completing or have an appropriate executive complete the attached questionnaire. You may be assured of complete confidentiality. If your operation is a division of a corporation, please respond based on the divisional level of data.

We appreciate your time and your consideration in helping to make this project meaningful. Please return the questionnaire in the enclosed addressed envelope by May 10. Thank you very much once again.

Very sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

ljd

Encls.

CENTENNIAL DECADE 1980 • 1990

THE USE OF FOREIGN-TRADE ZONES

Oklahoma State University

For each of the following questions, please check the appropriate answer or respond in the space provided.

1. Have you ever used any foreign-trade zone ?

   YES_____ NO _____ If no, please go on to question 6.

   If yes, what was the last zone that you used?_____

2. Please check the type of zone that you use or have used.

   _____ GENERAL PURPOSE ZONE

   _____ SUBZONE

   _____ BOTH TYPES OF ZONES

3. How frequently in a year do you use the foreign-trade zone facilities and services ?

ONCE	2-3 TIMES	4-12 TIMES	CONTINUOUS USE
_____	_____	_____	_____

3. Does your division (company) use any zone other than the one mentioned above?

   YES _____ NO _____

   If yes, which zones and locations ?

   _____
   _____
   _____

4. Below are some activities or functions that can be performed in foreign-trade zones. Please rate the relative importance of these activities to your business operation, by circling the appropriate response.

	EXTREMELY UNIMPORTANT				EXTREMELY IMPORTANT
Manipulating (such as cutting, repacking labeling, repairing, sorting, cleaning)	1	2	3	4	5
Small-scale manufacturing and assembling	1	2	3	4	5
Large-scale manufacturing and assembling	1	2	3	4	5
Warehousing and storage	1	2	3	4	5
Exhibition and displays of products	1	2	3	4	5
Inspection of imported goods	1	2	3	4	5
Distribution to domestic or foreign markets	1	2	3	4	5

5. Please estimate the annual volume in dollars of your company (division's) merchandise that flows through the zone you last used.
NOTE: If you are a multilocation company, please use figures that pertain to this zone location only.

	1983	1984
COST OF MERCHANDISE		
from domestic sources	$_____	$_____
from foreign sources	$_____	$_____
DOLLAR VOLUME OF MERCHANDISE		
To domestic destinations	$_____	$_____
To foreign destinations	$_____	$_____

6. Does your company use the customs treatments listed below?

bonded warehouses	YES _____	NO _____
importation under bonds	YES _____	NO _____
duty drawbacks	YES _____	NO _____

7. Please evaluate the quality of that you would expect to see in a foreign-trade zone.

	VERY POOR				EXCELLENT
Consulting services	1	2	3	4	5
Convenient hours	1	2	3	4	5
Administrative procedures	1	2	3	4	5
Warehousing facilities	1	2	3	4	5
Manufacturing facilities	1	2	3	4	5
Proximity to foreign markets	1	2	3	4	5
Proximity to domestic markets	1	2	3	4	5
Accessibility of transportation modes	1	2	3	4	5
Access to the port of entry	1	2	3	4	5
Promotion efforts (publicity, advertising)	1	2	3	4	5
Zone-operator's expertise	1	2	3	4	5
Customer-personnel relations	1	2	3	4	5
Assistance in documentation and duty procedures	1	2	3	4	5

8. Please circle the number which best indicates your AWARENESS and the POSSIBLE IMPORTANCE of the following zone benefits:

	I am:					To our business operation, the following benefits are:				
	NOT AT ALL AWARE				VERY AWARE	RELATIVELY LESS IMPORTANT				RELATIVEL MORE IMPORTANT
FACILITATING TRANSSHIPMENTS TO AND FROM FOREIGN PORTS	1	2	3	4	5	1	2	3	4	5
ECONOMIES OF BULK SHIPPING FROM ABROAD	1	2	3	4	5	1	2	3	4	5
NO INVENTORY TAX	1	2	3	4	5	1	2	3	4	5
ABILITY TO BRING IN FOREIGN RAW MATERIALS/COMPONENTS	1	2	3	4	5	1	2	3	4	5
ABILITY TO MANIPULATE PRODUCTS	1	2	3	4	5	1	2	3	4	5
ABILITY TO MANUFACTURE AND ASSEMBLE PRODUCTS	1	2	3	4	5	1	2	3	4	5
CASH FLOW AND INTEREST SAVINGS ON DUTY	1	2	3	4	5	1	2	3	4	5
LOWER INSURANCE DUE TO HIGHER SECURITY	1	2	3	4	5	1	2	3	4	5
TIME SAVINGS THROUGH SIMPLIFIED CUSTOMS PROCEDURES	1	2	3	4	5	1	2	3	4	5
FASTER CUSTOMER SERVICE IN DISTRIBUTING TO MARKETS	1	2	3	4	5	1	2	3	4	5
INVERTED TARIFFS (more favorable rates)	1	2	3	4	5	1	2	3	4	5
QUOTA AVOIDANCE	1	2	3	4	5	1	2	3	4	5
BETTER DISCIPLINE IN INVENTORY CONTROL	1	2	3	4	5	1	2	3	4	5
BETTER DISCIPLINE IN HANDLING WASTE/SCRAPS	1	2	3	4	5	1	2	3	4	5

9. Are you aware of any bonded warehouses in your area ?

YES _____ NO _____ If no, please go to the next question.

If yes, please evaluate the quality of their services as compared to those available in this foreign-trade zone. Based on the following criteria,

	A BONDED WAREHOUSE IS				
	DEFINITELY WORSE		ABOUT THE SAME		DEFINITELY BETTER
Consulting services	1	2	3	4	5
Convenient scheduling (hours, contacts)	1	2	3	4	5
Administrative procedures	1	2	3	4	5
Warehousing facilities	1	2	3	4	5
Manufacturing facilities	1	2	3	4	5
Proximity to foreign markets	1	2	3	4	5
Proximity to domestic markets	1	2	3	4	5
Accessibility of transportation modes	1	2	3	4	5
Access to the port of entry	1	2	3	4	5
Promotion efforts (publicity, advertising)	1	2	3	4	5
Zone-operator's expertise	1	2	3	4	5
Customer-personnel relations	1	2	3	4	5
Assistance in documentation and duty procedures	1	2	3	4	5

10. For this question, please consider only your product which seems most suitable for handling through a foreign-trade zone. Describe this product based on the following characteristics:

LOW VALUE	1	2	3	4	5	HIGH VALUE
HIGHLY DURABLE	1	2	3	4	5	HIGHLY PERISHABLE
SUBJECT TO LOW TRADE RESTRICTIONS	1	2	3	4	5	SUBJECT TO HIGH TRADE RESTRICTIONS
EASY TO HANDLE	1	2	3	4	5	DIFFICULT TO HANDLE
LOW DUTY	1	2	3	4	5	HIGH DUTY
LOW ACCOUNTABLE LOSSES (obsolescence, damage, defects, pilferage,etc.)	1	2	3	4	5	HIGH ACCOUNTABLE LOSSES

11. Have you used services provided by custom house brokers in your import/export activities?

YES _____ NO ____

If yes, their influence on your international distribution decisions can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

12. Have you used services provided by foreign freight forwarders or transportation companies in your import/export activities?

YES _____ NO ____

If yes, their influence on your international distribution decisions can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

13. Referring to financial institutions such as banks, insurance companies, their influence on your international distribution decisions can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

14. Referring to transportation companies, their influence on your international distribution decisions can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

15. Have you used facilitating services provided by export trading companies?

YES _____ NO ____

If yes, their influence on your international distribution decisions can be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

16. The influence from distribution channel members (such as an agent, a middleman, a sales subsidiary manager overseas) in zone-usage decisions may be rated as:

VERY STRONG INFLUENCE	STRONG INFLUENCE	MODERATE INFLUENCE	LITTLE INFLUENCE	NO INFLUENCE
_____	_____	_____	_____	_____

17. Please check the category appropriate for the level of your division(company)'s imports as a percent of total purchases last year.

_____ 0%

_____ 1 - 10%

_____ 11 - 30%

_____ 31 - 50%

_____ 51% and above

18. Please check the category appropriate for the level of your division (company)'s exports as a percent of total sales last year.

_____ 0%

_____ 1 - 10%

_____ 11 - 30%

_____ 31 - 50%

_____ 51% and above

19. Regarding manufacturing activities, please check the category appropriate for your division (company).

_____ NO MANUFACTURING

_____ SMALL-SCALE MANUFACTURING
(light manufacturing, high technology etc.)

_____ LARGE-SCALE MANUFACTURING
(heavy manufacturing, automobiles, steel, etc.)

20. How many employees do you have in your division (company)? Please check the appropriate category.

_____ UNDER 25

_____ 25 TO 99

_____ 100 TO 249

_____ 250 AND OVER

21. What is the total annual dollar sales of your division (company)?

$_____

22. Please estimate your average dutiable inventory level (in dollars).

$_____

23. Do you intend to use a foreign trade zone in the next two years?

YES _____ NO _____

24. Please check whether your company is U.S. based or foreign-based.

_____ U.S.
_____ FOREIGN

25. Which four-digit SIC codes apply to your division (company)?

_____

26. Other comments:

We are very appreciative of your time taken to complete this questionnaire. Please return it in the enclosed envelope or address it to James W. Gentry, Department of Marketing, Oklahoma State University, Stillwater, OK 74078.

THANK YOU ONCE AGAIN!

April 30, 1985

A questionnaire seeking information on the use of foreign-trade zones by firms in the U.S. was mailed to you last week.

If you have already returned it to us, please accept our sincere thanks. If not, please complete or have an appropriate executive complete and return to us as soon as possible. Because it has been sent to only a small number of firms, the results will be meaningful only if we can obtain responses from executives such as yourself.

Thank you very much for your help in making this project worthwhile. It is our hope that it will help U.S. foreign-trade zone administrators serve you better in the future.

Sincerely,

Patriya Silpakit
Ph.D. Candidate

James W. Gentry
Professor of Marketing

Oklahoma State University

COLLEGE OF BUSINESS ADMINISTRATION

STILLWATER, OKLAHOMA 74078
(405) 624-5064

May 20, 1985

O. J. Tauber
Tauber Oil Co.
1121 Walker
Houston, TX 77052

Dear O. J. Tauber:

We wrote to you earlier for your assistance in providing information on the use of foreign trade zones.

We are writing to you again because of the significance that each questionnaire from practicing executives such as yourself has to the usefulness of this study. Since foreign trade zones present one of the least understood areas of international distribution, this study will help in providing zone administrators with guidance in terms of making the zones more effective.

Even if your company does not use a foreign trade zone at present, please do the best you can in filling out the questionnaire. It is very important to us to learn why such facilities and services are not being used more.

In the event that your questionnaire has been misplaced, a replacement is enclosed.

Once again, your time and your consideration are greatly appreciated.

Very sincerely,

James W. Gentry
Professor of Marketing

Patriya Silpakit
Doctoral Candidate

ljd

Encls.

CENTENNIAL DECADE 1980 • 1990

APPENDIX B

FACTOR ANALYSIS OF COMBINED DATA

	1	2	3	4	5	6	7
EIGENVALUE	7.865830	1.347340	0.824695	0.781206	0.691717	0.624608	0.382802
DIFFERENCE	6.518489	0.522645	0.043489	0.089488	0.067109	0.241806	0.031398
PROPORTION	0.5618	0.0962	0.0589	0.0558	0.0494	0.0446	0.0273
CUMULATIVE	0.5618	0.6581	0.7170	0.7728	0.8222	0.8668	0.8942

	8	9	10	11	12	13	14
EIGENVALUE	0.351404	0.277914	0.254130	0.212747	0.148031	0.139959	0.097617
DIFFERENCE	0.073490	0.023784	0.041384	0.064715	0.008072	0.042342	
PROPORTION	0.0251	0.0199	0.0182	0.0152	0.0106	0.0100	0.0070
CUMULATIVE	0.9193	0.9391	0.9573	0.9725	0.9830	0.9930	1.0000

2 FACTORS WILL BE RETAINED BY THE MINEIGEN CRITERION

FACTOR PATTERN

	FACTOR1	FACTOR2
AWARE1	0.75773	0.17906
AWARE2	0.68535	0.40788
AWARE3	0.57653	0.46862
AWARE4	0.77610	0.32087
AWARE5	0.79556	0.05440
AWARE6	0.77446	0.41230
AWARE7	0.77965	-0.17661
AWARE8	0.76065	-0.31853
AWARE9	0.80952	-0.40372
AWARE10	0.77066	-0.40776
AWARE11	0.73667	0.12688
AWARE12	0.74323	0.03536
AWARE13	0.73899	-0.39396
AWARE14	0.76005	-0.13758

	1	2	3
EIGENVALUE	1.173757	0.934207	0.892036
DIFFERENCE	0.239550	0.042171	
PROPORTION	0.3913	0.3114	0.2973
CUMULATIVE	0.3913	0.7027	1.0000

1 FACTORS WILL BE RETAINED BY THE MINEIGEN CRITERION

FACTOR PATTERN

	FACTOR1	
IMPORTS	0.59679	IMPORTS AS A % OF TOTAL PURCHASES
EXPORTS	0.60660	EXPORTS AS A % OF TOTAL SALES
INVEN	-0.67055	DUTIABLE INVENTORY

	1	2	3	4	5	6	7
EIGENVALUE	6.034696	1.474883	0.953105	0.899852	0.753987	0.661568	0.586697
DIFFERENCE	4.559812	0.521778	0.053253	0.145865	0 092419	0.074871	0.153906
PROPORTION	0.4642	0.1135	0.0733	0.0692	0.0580	0.0509	0.0451
CUMULATIVE	0.4642	0.5777	0.6510	0.7202	0.7782	0.8291	0.8742

	8	9	10	11	12	13
EIGENVALUE	0.432791	0.335504	0.284990	0.259588	0.180375	0.141964
DIFFERENCE	0.097287	0.050514	0.025403	0.079213	0.038411	
PROPORTION	0.0333	0.0258	0.0219	0.0200	0.0139	0.0109
CUMULATIVE	0.9075	0.9333	0.9552	0.9752	0.9891	1.0000

2 FACTORS WILL BE RETAINED BY THE MINEIGEN CRITERION

FACTOR PATTERN

	FACTOR1	FACTOR2	
ZQUAL1	0.79078	-0.13583	CONSULTING SERVICES
ZQUAL2	0.68055	0.05733	CONVENIENT HOURS
ZQUAL3	0.84050	0.14480	ADMINISTRATIVE PROCEDURES
ZQUAL4	0.59407	-0.48340	WAREHOUSING FACILITIES
ZQUAL5	0.45957	0.45683	MANUFACTURING FACILITIES
ZQUAL6	0.59443	0.01580	PROXIMITY TO FOREIGN MARKETS
ZQUAL7	0.59010	0.12432	PROXIMITY TO DOMESTIC MARKETS
ZQUAL8	0.67046	-0.55847	ACCESIBILITY OF TRANSPORTATION MODES
ZQUAL9	0.59337	-0.53682	ACCESS TO PORT OF ENTRY
ZQUAL10	0.62832	0.42665	PROMOTION EFFORTS
ZQUAL11	0.85430	-0.08049	ZONE OPERATORS EXPERTISE
ZQUAL12	0.69393	0.34044	CUSTOMER-PERSONNEL RELATIONS
ZQUAL13	0.75255	0.26387	ASSISTANCE IN DOCUMENTATION

	1	2	3	4	5	6
EIGENVALUE	2.895353	1.025819	0.752653	0.606486	0.486466	0.233223
DIFFERENCE	1.869534	0.273166	0.146167	0.120020	0.253243	
PROPORTION	0.4826	0.1710	0.1254	0.1011	0.0811	0.0389
CUMULATIVE	0.4826	0.6535	0.7790	0.8801	0.9611	1.0000

2 FACTORS WILL BE RETAINED BY THE MINEIGEN CRITERION

FACTOR PATTERN

	FACTOR1	FACTOR2	
CBHINFL	0.66521	0.10833	CUSTOM HOUSE BROKER INFLUENCE
FFFINF	0.77523	-0.16539	FOREIGN FREIGHT FORWARDER INFLUENCE
ETCINF	0.33091	0.86664	ETC INFLUENCE
TRANSCO	0.83291	-0.20494	TRANSPORTATION COMPANY INFLUENCE
FININF	0.76773	-0.33252	FINANCIAL INSTITUTIONS INFLUENCE
CMEMBER	0.67766	0.28827	CHANNEL MEMBER INFLUENCE

	1	2	3	4	5	6	7
EIGENVALUE	4.560756	1.868282	1.316073	1.247736	0.905072	0.787574	0.717554
DIFFERENCE	2.692474	0.552209	0 068337	0.342664	0.117498	0.070021	0.163173
PROPORTION	0.3258	0.1334	0.0940	0.0891	0.0646	0.0563	0.0513
CUMULATIVE	0 3258	0.4592	0.5532	0.6423	0.7070	0.7632	0.8145

	8	9	10	11	12	13	14
EIGENVALUE	0.554380	0.478139	0.411334	0.370131	0.302072	0.262546	0.218350
DIFFERENCE	0.076241	0.066805	0.041203	0.068059	0.039526	0.044196	
PROPORTION	0.0396	0.0342	0.0294	0.0264	0.0216	0.0188	0.0156
CUMULATIVE	0.8541	0 8883	0.9176	0.9441	0.9657	0 9844	1.0000

3 FACTORS WILL BE RETAINED BY THE NFACTOR CRITERION

IMP1	0.55654	-0.02824	0.36189
IMP2	0.50843	-0.18545	0.63130
IMP3	0.55459	-0.26035	0.44119
IMP4	0.61128	0.41425	0.05982
IMP5	0.47665	0.67454	-0.09448
IMP6	0.33245	0.69255	-0.12519
IMP7	0.67042	-0.18527	-0.18717
IMP8	0.56454	-0.56439	-0.16182
IMP9	0.64731	-0.24048	-0.40375
IMP10	0.69752	-0.17419	-0.13218
IMP11	0.62253	0.27129	0.19606
IMP12	0.54554	0.18635	0.20096
IMP13	0.63539	-0.28326	-0.33111
IMP14	0.45933	0.17167	-0.36549

	1	2	3	4	5	6
EIGENVALUE	2.056450	1.305364	0.868302	0.695175	0.607350	0 467359
DIFFERENCE	0.751085	0.437062	0 173127	0.087826	0.139991	
PROPORTION	0.3427	0.2176	0.1447	0.1159	0.1012	0.0779
CUMULATIVE	0 3427	0.5603	0.7050	0.8209	0.9221	1.0000

2 FACTORS WILL BE RETAINED BY THE MINEIGEN CRITERION

FACTOR PATTERN

	FACTOR1	FACTOR2	
PRODUCT1	0.52546	-0.34117	PRODUCT VALUE
PRODUCT2	0.53813	0.44472	PRODUCT DURABILITY
PRODUCT3	-0.61156	0.46989	HIGH OR LOW TRADE RESTRICTIONS
PRODUCT4	0.59844	0.48422	EASE OF HANDLING
PRODUCT5	-0.62479	0.55904	DUTY LEVEL
PRODUCT6	0.60684	0.47265	ACCOUNTABLE LOSSES

APPENDIX C

CORRELATION MATRIX USED IN STRUCTURAL EQUATIONS MODEL

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	AWARE7	AWARE9	AWARE13	IMP2	IMP3	IMP5	IMP6	IMP11	IMP12	ZQUAL13
AWARE7	1 00000	0 55661	0 45492	-0 01502	0 03745	0 02251	0 09685	-0 06585	-0 06387	0 08883
CASH FLOW AND INTEREST SAVINGS ON DUTY	0 0000	0 0001	0 0006	0 9158	0 7963	0 8741	0 4946	0 6496	0 6561	0 5482
	55	55	53	52	50	52	52	50	51	48
AWARE9	0 55661	1 00000	0 70092	-0 15284	-0 27621	0 02372	0 15628	-0 18336	-0 31426	0 36761
SIMPLIFIED CUSTOMS PROCEDURES	0 0001	0 0000	0 0001	0 2794	0 0522	0 8661	0 2686	0 2025	0 0247	0 0094
	55	56	53	52	50	53	52	50	51	49
AWARE13	0 45492	0 70092	1 00000	-0 03640	-0 11428	0 09991	0 01387	-0 18124	-0 21406	0 27343
BETTER DISCIPLINE IN INVENTORY CONTROL	0.0006	0 0001	0 0000	0 8018	0 4393	0 4854	0 9238	0 2177	0.1355	0 0629
	53	53	54	50	48	51	50	48	50	47
IMP2	-0.01502	-0 15284	-0.03640	1 00000	0.43530	-0 06409	-0 23251	0 21892	0 36845	0 04787
ECONOMIES OF BULKSHIPPING	0.9158	0 2794	0 8018	0 0000	0 0016	0 6517	0.0972	0.1266	0 0078	0 7549
	52	52	50	52	50	52	52	50	51	45
IMP3	0.03745	-0 27621	-0 11428	0 43530	1 00000	-0 03997	-0 01179	0 31749	0 34492	0 15193
NO INVENTORY TAX	0 7963	0 0522	0.4393	0 0016	0 0000	0 7828	0 9352	0 0279	0 0152	0 3308
	50	50	48	50	50	50	50	48	49	43
IMP5	0 02251	0 02372	0 09991	-0 06409	-0 03997	1 00000	0 40304	0 26758	0 21058	-0 10304
ABILITY TO MANIPULATE PRODUCTS	0 8741	0 8661	0 4854	0 6517	0 7828	0 0000	0 0031	0 0603	0 1340	0 4858
	52	53	51	52	50	55	52	50	52	48
IMP6	0 09685	0.15628	0 01387	-0 23251	-0 01179	0 40304	1 00000	0 34396	0 17397	0 11816
ABLE TO MANUFACTURE AND ASSEMBLE	0 4946	0 2686	0 9238	0 0972	0 9352	0 0031	0 0000	0 0145	0 2221	0 4395
	52	52	50	52	50	52	52	50	51	45
IMP11	-0 06585	-0 18336	-0 18124	0 21892	0 31749	0 26758	0 34396	1 00000	0 45545	0.09186
INVERTED TARIFFS	0 6496	0 2025	0 2177	0 1266	0 0279	0 0603	0 0145	0 0000	0 0010	0 5531
	50	50	48	50	48	50	50	50	49	44
IMP12	-0 06387	-0 31426	-0 21406	0 36845	0 34492	0 21058	0 17397	0 45545	1 00000	0 04831
QUOTA AVOIDANCE	0 6561	0 0247	0 1355	0 0078	0.0152	0 1340	0 2221	0.0010	0 0000	0 7526
	51	51	50	51	49	52	51	49	52	45
ZQUAL13	0.08883	0 36761	0 27343	0 04787	0 15193	-0 10304	0 11816	0 09186	0 04831	1 00000
ASSISTANCE IN DOCUMENTATION	0 5482	0 0094	0 0629	0 7549	0 3308	0 4858	0 4395	0 5531	0.7526	0 0000
	48	49	47	45	43	48	45	44	45	52

	AWARE7	AWARE9	AWARE13	IMP2	IMP3	IMP5	IMP6	IMP11	IMP12	ZQUAL13
ZQUAL11	0.14592	0 41249	0 29534	-0 13365	-0 05596	0 05010	0 07920	-0 05329	0 06463	0 73480
ZONE OPERATOR EXPERTISE	0.3119	0 0026	0 0416	0 3705	0 7119	0 7324	0 5967	0 7251	0 6696	0 0001
	50	51	48	47	46	49	47	46	46	49
ZQUAL12	0 14231	0 18714	0.11127	0 12158	0 01447	0 00000	-0 00691	0 02407	0 12468	0 76960
CUSTOMER-PERSONNEL RELATIONS	0 3242	0 1885	0 4466	0 4156	0 9248	1 0000	0 9632	0 8738	0 4037	0 0001
	50	51	49	47	45	50	47	46	47	51
FRFGN2	0.13712	-0 02562	0 06338	-0.14427	0 04014	0 07214	-0 07703	-0 07733	-0 16347	-0 01707
VOLUME FROM FOREIGN IN 84	0 3181	0 8513	0 6489	0 3075	0 7820	0 6007	0 5873	0.5935	0 2469	0 9044
	55	56	54	52	50	55	52	50	52	52
TODOM2	0 10879	0 11256	0 13337	-0 17274	-0.15660	0 14806	0 31065	0 22012	-0 13866	-0 06755
VOLUME TO DOMESTIC IN 84	0 4292	0 4088	0 3363	0 2207	0 2775	0 2807	0 0250	0 1245	0 3269	0 6342
	55	56	54	52	50	55	52	50	52	52
FRDOM2	0 11451	0 15222	0 15351	-0 21081	-0 03001	0 14534	0 25854	0 18770	-0 14068	-0 36758
VOLUME FROM DOMESTIC IN 84	0 4051	0 2627	0 2678	0.1336	0 8361	0 2897	0 0642	0 1918	0 3198	0 0073
	55	56	54	52	50	55	52	50	52	52
TOFGN2	0 21878	0 12133	0 19134	-0 13951	-0 05958	0 09830	0 22916	0 13559	-0 13958	0 00370
VOLUME TO FOREIGN IN 84	0.1086	0.3730	0.1658	0 3239	0.6810	0 4752	0 1022	0 3478	0 3237	0 9792
	55	56	54	52	50	55	52	50	52	52
SALES	-0.25294	0 09599	0.21264	0.09033	-0 15636	0 19259	0 01030	0 06034	-0.17169	0 01205
TOTAL ANNUAL SALES	0.0937	0 5257	0.1608	0 5694	0 3353	0 2104	0 9484	0 7115	0 2710	0 9389
	45	46	45	42	40	44	42	40	43	43
EMPLOYEE	0.11813	0 20611	0 30394	-0.09619	-0 10850	0 18177	0 30684	0 10568	-0 26160	-0 19604
NUMBER OF EMPLOYEES	0.3904	0 1275	0 0255	0 4975	0 4533	0 1841	0 0269	0 4651	0 0610	0 1637
	55	56	54	52	50	55	52	50	52	52
MANUFACT	0.17480	0.27182	0.24965	0 00173	-0 16614	0 25169	0 49954	0 10284	-0 00491	0 02398
MANUFACTURING ACTIVITIES	0.2018	0 0447	0 0687	0.9903	0.2489	0 0664	0 0002	0 4773	0 9724	0 8674
	55	55	54	52	50	54	52	50	52	51
IMPORTS	0 15568	-0 09903	-0.16535	0 21936	0 32135	-0 01147	-0 06900	0 15384	0 07170	-0 14138
IMPORTS AS A % OF TOTAL PURCHASES	0.2656	0 4762	0 2462	0 1259	0 0259	0 9357	0 6340	0 2965	0 6244	0 3274
	53	54	51	50	48	52	50	48	49	50
EXPORTS	-0.19883	-0 12140	-0.17905	0 24181	0 16794	0 18330	0 28403	0 19478	0 32563	0 12379
EXPORTS AS A % OF TOTAL SALES	0 1576	0 3865	0.2134	0 0941	0.2592	0 1979	0 0479	0.1895	0 0239	0 3967
	52	53	50	49	47	51	49	47	48	49
INVEN	0 16247	0 00779	0 14357	-0.15479	0.05531	0 04834	-0 07854	-0.12432	-0 21717	0 01289
AVERAGE DUTIABLE INVENTORY LEVEL	0 3039	0 9609	0.3584	0 3468	0 7451	0 7641	0 6346	0 4571	0 1842	0 9371
	42	42	43	39	37	41	39	38	39	40
FFFINF	-0 20799	-0 08257	-0 02959	0 31270	0 14382	-0 11144	-0 15700	0 15981	0 14304	-0 04404
FOREIGN FREIGHT FORWARDER INFLUENCE	0 1312	0 5490	0 8351	0 0255	0 3242	0 4269	0 2712	0 2727	0 3217	0 7614
	54	55	52	51	49	53	51	49	50	50

	AWARE7	AWARE9	AWARE13	IMP2	IMP3	IMP5	IMP6	IMP11	IMP12	ZQUAL13
TRANSCO	-0 24304	-0.25178	-0.20123	0 27532	0 18633	-0 17555	-0 19775	0 13660	0 07212	0 05395
TRANSPORTATION COMPANY INFLUENCE	0 0795	0 0663	0 1526	0 0530	0.2048	0 2086	0 1686	0 3493	0.6187	0.7069
	53	54	52	50	48	53	50	49	50	51
FININF	-0 26257	-0.29498	-0.19362	0.21650	0.23747	-0.11843	-0.11446	0.19372	0 12694	0 00000
FINANCIAL INSTITUTIONS INFLUENCE	0 0575	0 0304	0 1690	0 1310	0 1041	0 3983	0 4287	0 1823	0 3797	1 0000
	53	54	52	50	48	53	50	49	50	51
PRODUCT1	-0 02513	0 16406	0 08772	-0 02164	-0 25661	-0 02532	0.13423	0 18011	-0 06743	-0 00076
PRODUCT VALUE	0 8639	0 2549	0 5533	0 8865	0 0888	0 8629	0 3738	0 2420	0 6561	0 9960
	49	50	48	46	45	49	46	44	46	46
PRODUCT3	0 08155	0 31305	0 17960	-0.21048	-0 18251	0 07647	-0 00587	-0 16489	-0 34738	0 12651
HIGH OR LOW TRADE RESTRICTIONS	0 5858	0 0303	0 2323	0 1652	0 2357	0 6054	0 9695	0 2907	0 0194	0 4132
	47	48	46	45	44	48	45	43	45	44
PRODUCT5	-0 21154	-0.06252	-0.23751	-0 20022	-0 00985	0 10810	0 00261	0 21317	-0 13731	-0 22565
DUTY LEVEL	0 1630	0 6798	0 1206	0 2036	0 9513	0 4797	0 9869	0 1808	0 3859	0 1457
	45	46	44	42	41	45	42	41	42	43
PRODUCT2	-0 20022	-0 16712	0 14339	0 04764	0 15098	0 06305	-0 05128	0 14936	0 10225	0 03899
PRODUCT DURABILITY	0 1724	0 2511	0 3363	0 7560	0 3279	0 6703	0 7380	0 3391	0 5039	0 7993
	48	49	47	45	44	48	45	43	45	45
PRODUCT4	-0 27637	-0 05280	-0 01978	0.00927	0.07656	0 01420	0 06357	0 28453	-0 13314	0 06087
EASE OF HANDLING	0.0572	0 7186	0 8950	0 9518	0 6213	0 9237	0 6783	0 0644	0 3833	0 6912
	48	49	47	45	44	48	45	43	45	45
PRODUCT6	-0.10288	-0 14738	0 11908	-0 18089	0.20234	0 21366	0.08812	-0 11968	-0 05452	-0 01389
ACCOUNTABLE LOSSES	0 5013	0 3284	0.4413	0 2516	0 1988	0 1587	0 5789	0 4561	0 7317	0 9296
	45	46	44	42	42	45	42	41	42	43

	ZQUAL11	ZQUAL12	FRFGN2	TODOM2	FRDOM2	TOFGN2	SALES	EMPLOYEE	MANUFACT	IMPORTS
AWARE7	0 14592	0.14231	0 13712	0 10879	0 11451	0 21878	-0 25294	0.11813	0 17480	0 15568
CASH FLOW AND INTEREST SAVINGS ON DUTY	0 3119	0 3242	0 3181	0 4292	0 4051	0 1086	0 0937	0 3904	0 2018	0 2656
	50	50	55	55	55	55	45	55	55	53
AWARE9	0.41249	0 18714	-0.02562	0 11256	0 15222	0 12133	0 09599	0 20611	0 27182	-0 09903
SIMPLIFIED CUSTOMS PROCEDURES	0 0026	0 1885	0 8513	0.4088	0 2627	0 3730	0 5257	0 1275	0 0447	0 4762
	51	51	56	56	56	56	46	56	55	54
AWARE13	0.29534	0 11127	0 06338	0 13337	0 15351	0 19134	0 21264	0 30394	0 24965	-0 16535
BETTER DISCIPLINE IN INVENTORY CONTROL	0 0416	0 4466	0 6489	0 3363	0 2678	0 1658	0 1608	0 0255	0 0687	0 2462
	48	49	54	54	54	54	45	54	54	51
IMP2	-0.13365	0.12158	-0 14427	-0 17274	-0 21081	-0 13951	0 09033	-0 09619	0 00173	0 21936
ECONOMIES OF BULKSHIPPING	0 3705	0 4156	0.3075	0.2207	0 1336	0 3239	0 5694	0 4975	0 9903	0 1259
	47	47	52	52	52	52	42	52	52	50
IMP3	-0 05596	0 01447	0.04014	-0.15660	-0 03001	-0 05958	-0 15636	-0 10850	-0 16614	0 32135
NO INVENTORY TAX	0 7119	0 9248	0 7820	0 2775	0 8361	0 6810	0 3353	0 4533	0 2489	0 0259
	46	45	50	50	50	50	40	50	50	48

	ZQUAL11	ZQUAL12	FRFGN2	TODOM2	FRDOM2	TOFGN2	SALES	EMPLOYEE	MANUFACT	IMPORTS
IMP5	0.05010	0 00000	0 07214	0 14806	0.14534	0 09830	0 19259	0 18177	0 25169	-0 01147
ABILITY TO MANIPULATE PRODUCTS	0 7324	1 0000	0 6007	0 2807	0 2897	0 4752	0 2104	0 1841	0 0664	0 9357
	49	50	55	55	55	55	44	55	54	52
IMP6	0 07920	-0 00691	-0 07703	0 31065	0 25854	0 22916	0 01030	0 30684	0 49954	-0 06900
ABLE TO MANUFACTURE AND ASSEMBLE	0 5967	0 9632	0 5873	0 0250	0 0642	0 1022	0 9484	0 0269	0 0002	0 6340
	47	47	52	52	52	52	42	52	52	50
IMP11	-0 05329	0 02407	-0 07733	0 22012	0 18770	0 13559	0 06034	0 10568	0 10284	0 15384
INVERTED TARIFFS	0 7251	0 8738	0 5935	0 1245	0 1918	0 3478	0 7115	0 4651	0 4773	0 2965
	46	46	50	50	50	50	40	50	50	48
IMP12	0 06463	0 12468	-0 16347	-0 13866	-0 14068	-0 13958	-0 17169	-0 26160	-0 00491	0 07170
QUOTA AVOIDANCE	0 6696	0 4037	0 2469	0.3269	0 3198	0 3237	0.2710	0 0610	0 9724	0 6244
	46	47	52	52	52	52	43	52	52	49
ZQUAL13	0.73480	0.76960	-0 01707	-0 06755	-0 36758	0 00370	0 01205	-0 19604	0 02398	-0 14138
ASSISTANCE IN DOCUMENTATION	0 0001	0 0001	0 9044	0 6342	0 0073	0 9792	0 9389	0 1637	0 8674	0 3274
	49	51	52	52	52	52	43	52	51	50
ZQUAL11	1 00000	0 77629	-0 06011	-0 37866	0 12603	-0 15836	-0 00645	-0 23808	0 02322	-0 20340
ZONE OPERATOR EXPERTISE	0 0000	0 0001	0.6690	0 0052	0 3685	0 2574	0 9672	0 0860	0 8702	0 1481
	53	52	53	53	53	53	43	53	52	52
ZQUAL12	0 77629	1 00000	-0 04827	-0 11436	-0 12801	-0.01135	-0 04919	-0 30187	0 09423	-0 04757
CUSTOMER-PERSONNEL RELATIONS	0 0001	0 0000	0 7289	0.4103	0 3563	0 9351	0 7512	0 0265	0 5021	0 7377
	52	54	54	54	54	54	44	54	53	52
FRFGN2	-0.06011	-0.04827	1 00000	0.14923	-0 00307	0 51173	-0 00163	0 16480	0 10066	0 16958
VOLUME FROM FOREIGN IN 84	0 6690	0 7289	0 0000	0.2470	0 9811	0 0001	0 9909	0 2006	0 4402	0 1991
	53	54	62	62	62	62	51	62	61	59
TODOM2	-0 37866	-0 11436	0.14923	1 00000	0 08516	0 86418	0.20976	0 24771	0 28310	0 07222
VOLUME TO DOMESTIC IN 84	0 0052	0 4103	0 2470	0.0000	0 5105	0 0001	0 1396	0 0522	0 0270	0 5867
	53	54	62	62	62	62	51	62	61	59
FRDOM2	0.12603	-0 12801	-0.00307	0 08516	1.00000	0 05243	0 21892	0 22164	0 09652	-0 15742
VOLUME FROM DOMESTIC IN 84	0 3685	0 3563	0 9811	0.5105	0 0000	0 6857	0 1227	0 0834	0 4593	0 2338
	53	54	62	62	62	62	51	62	61	59
TOFGN2	-0 15836	-0 01135	0 51173	0.86418	0 05243	1 00000	0.15446	0.26876	0 23126	0 17479
VOLUME TO FOREIGN IN 84	0.2574	0 9351	0 0001	0 0001	0 6857	0 0000	0 2792	0 0347	0 0729	0 1855
	53	54	62	62	62	62	51	62	61	59
SALES	-0 00645	-0 04919	-0 00163	0 20976	0.21892	0 15446	1 00000	0 40564	0 20192	-0 31372
TOTAL ANNUAL SALES	0 9672	0.7512	0 9909	0.1396	0.1227	0 2792	0 0000	0.0031	0 1597	0 0265
	43	44	51	51	51	51	51	51	50	50
EMPLOYEE	-0 23808	-0 30187	0 16480	0 24771	0 22164	0 26876	0 40564	1 00000	0 60809	-0 28383
NUMBER OF EMPLOYEES	0 0860	0 0265	0 2006	0 0522	0 0834	0 0347	0 0031	0 0000	0 0001	0 0294
	53	54	62	62	62	62	51	62	61	59

	ZQUAL11	ZQUAL12	FRFGN2	TODOM2	FRDOM2	TOFGN2	SALES	EMPLOYEE	MANUFACT	IMPORTS
MANUFACT	0 02322	0 09423	0 10066	0 28310	0 09652	0 23126	0.20192	0.60809	1 00000	-0 22586
MANUFACTURING ACTIVITIES	0 8702	0 5021	0 4402	0 0270	0.4593	0 0729	0 1597	0 0001	0 0000	0 0882
	52	53	61	61	61	61	50	61	61	58
IMPORTS	-0 20340	-0 04757	0.16958	0.07222	-0.15742	0 17479	-0.31372	-0 28383	-0.22586	1.00000
IMPORTS AS A % OF TOTAL PURCHASES	0.1481	0.7377	0 1991	0 5867	0 2338	0 1855	0.0265	0 0294	0 0882	0 0000
	52	52	59	59	59	59	50	59	58	59
EXPORTS	0.06857	0 04589	-0 04292	0.06042	-0 04740	0 13345	0 15314	0 05208	0 11786	-0 04278
EXPORTS AS A % OF TOTAL SALES	0 6326	0 7491	0 7490	0 6523	0 7239	0 3179	0 2935	0.6978	0 3826	0 7498
	51	51	58	58	58	58	49	58	57	58
INVEN	-0 06311	-0 01225	0.95993	0 03338	-0 02485	0 45954	-0 00972	0.21877	0 14828	0 13981
AVERAGE DUTIABLE INVENTORY LEVEL	0 6951	0 9386	0 0001	0 8238	0 8683	0 0012	0 9507	0 1396	0 3199	0 3541
	41	42	47	47	47	47	43	47	47	46
FFFINF	-0 32120	-0 16629	-0 08872	-0 11949	-0 11361	-0 12767	0 21500	0.04916	-0 06172	0 18943
FOREIGN FREIGHT FORWARDER INFLUENCE	0 0202	0 2387	0 5040	0 3674	0 3916	0.3352	0 1422	0 7116	0 6453	0 1582
	52	52	59	59	59	59	48	59	58	57
TRANSCO	-0 21930	0 03724	-0 02526	-0 12330	-0 12459	-0 10420	0 19678	-0 11971	-0 08310	0 12681
TRANSPORTATION COMPANY INFLUENCE	0 1183	0 7912	0 8494	0 3522	0 3471	0 4322	0 1801	0 3665	0 5351	0 3517
	52	53	59	59	59	59	48	59	58	56
FININF	-0 30330	-0 05891	0.07283	-0 09824	-0 11315	-0 02176	0 16233	-0 09376	-0 08778	0 11764
FINANCIAL INSTITUTIONS INFLUENCE	0.0288	0 6752	0 5836	0 4592	0 3935	0 8701	0 2703	0 4800	0.5123	0 3879
	52	53	59	59	59	59	48	59	58	56
PRODUCT1	-0 03776	-0 03776	-0 11124	0 15344	0 13988	0 10520	0 16242	0 06958	0 15424	-0 14403
PRODUCT VALUE	0 8032	0 8010	0.4188	0 2634	0 3084	0 4446	0 2808	0 6137	0 2654	0 3035
	46	47	55	55	55	55	46	55	54	53
PRODUCT3	0 23643	0 06750	-0 01497	0 09926	0 19412	0 05987	-0 05108	0 17301	0 24178	-0 04024
HIGH OR LOW TRADE RESTRICTIONS	0 1223	0 6595	0 9153	0.4795	0 1637	0 6702	0.7390	0 2154	0 0842	0 7792
	44	45	53	53	53	53	45	53	52	51
PRODUCT5	-0 11318	-0 30685	0 06788	0 17461	0 05708	0 09188	-0 00292	0 19615	0 19372	-0 06182
DUTY LEVEL	0 4699	0 0428	0 6360	0 2204	0 6907	0 5214	0 9850	0 1677	0 1777	0 6731
	43	44	51	51	51	51	44	51	50	49
PRODUCT2	-0 08643	0 04752	-0 16600	-0 12660	-0 14771	-0 10750	0 15811	0 03013	-0 19475	-0 07438
PRODUCT DURABILITY	0 5724	0 7538	0 2303	0 3617	0 2865	0 4391	0 2940	0 8288	0 1623	0 6002
	45	46	54	54	54	54	46	54	53	52
PRODUCT4	0 00106	0 08402	-0 05051	0 25568	0 26341	0 20432	0 24636	0 17847	0 23052	0 04318
EASE OF HANDLING	0 9945	0 5788	0 7168	0 0620	0 0543	0 1383	0 1028	0 1966	0 0968	0 7612
	45	46	54	54	54	54	45	54	53	52
PRODUCT6	-0 02418	-0 05289	0 04890	-0.04879	0 23604	0 01407	0 05287	0.21631	-0 10771	-0 12933
ACCOUNTABLE LOSSES	0 8762	0 7331	0.7359	0.7365	0 0989	0 9228	0 7395	0 1313	0 4613	0 3810
	44	44	50	50	50	50	42	50	49	48

	EXPORTS	INVEN	FFFINF	TRANSCO	FININF	PRODUCT1	PRODUCT3	PRODUCT5	PRODUCT2	PRODUCT4
AWARE7	-0.19883	0 16247	-0 20799	-0 24304	-0 26257	-0 02513	0.08155	-0 21154	-0 20022	-0.27637
CASH FLOW AND INTEREST_SAVINGS ON DUTY	0.1576	0 3039	0 1312	0 0795	0 0575	0 8639	0.5858	0 1630	0 1724	0 0572
	52	42	54	53	53	49	47	45	48	48
AWARE9	-0.12140	0 00779	-0 08257	-0 25178	-0 29498	0.16406	0.31305	-0 06252	-0 16712	-0 05280
SIMPLIFIED CUSTOMS PROCEDURES	0 3865	0 9609	0 5490	0 0663	0 0304	0 2549	0 0303	0 6798	0 2511	0 7186
	53	42	55	54	54	50	48	46	49	49
AWARE13	-0 17905	0.14357	-0.02959	-0 20123	-0 19362	0.08772	0 17960	-0.23751	0 14339	-0 01978
BETTER DISCIPLINE IN INVENTORY CONTROL	0 2134	0 3584	0.8351	0 1526	0.1690	0 5533	0 2323	0 1206	0 3363	0 8950
	50	43	52	52	52	48	46	44	47	47
IMP2	0 24181	-0 15479	0 31270	0.27532	0 21650	-0 02164	-0 21048	-0 20022	0 04764	0 00927
ECONOMIES OF BULKSHIPPING	0 0941	0 3468	0 0255	0 0530	0.1310	0.8865	0 1652	0 2036	0 7560	0 9518
	49	39	51	50	50	46	45	42	45	45
IMP3	0 16794	0 05531	0.14382	0 18633	0.23747	-0 25661	-0.18251	-0 00985	0 15098	0 07656
NO INVENTORY TAX	0.2592	0 7451	0 3242	0 2048	0 1041	0 0888	0.2357	0 9513	0 3279	0 6213
	47	37	49	48	48	45	44	41	44	44
IMP5	0 18330	0 04834	-0 11144	-0 17555	-0 11843	-0 02532	0 07647	0 10810	0.06305	0 01420
ABILITY TO MANIPULATE PRODUCTS	0.1979	0 7641	0 4269	0 2086	0.3983	0 8629	0 6054	0 4797	0 6703	0 9237
	51	41	53	53	53	49	48	45	48	48
IMP6	0.28403	-0.07854	-0 15700	-0 19775	-0.11446	0 13423	-0.00587	0 00261	-0 05128	0 06357
ABLE TO MANUFACTURE AND ASSEMBLE	0 0479	0 6346	0 2712	0 1686	0 4287	0 3738	0.9695	0 9869	0 7380	0 6783
	49	39	51	50	50	46	45	42	45	45
IMP11	0 19478	-0 12432	0 15981	0 13660	0.19372	0 18011	-0 16489	0 21317	0 14936	0 28453
INVERTED TARIFFS	0 1895	0 4571	0 2727	0 3493	0.1823	0 2420	0 2907	0 1808	0 3391	0 0644
	47	38	49	49	49	44	43	41	43	43
IMP12	0.32563	-0 21717	0 14304	0 07212	0 12694	-0 06743	-0 34738	-0 13731	0 10225	-0 13314
QUOTA AVOIDANCE	0 0239	0 1842	0 3217	0 6187	0 3797	0 6561	0 0194	0 3859	0 5039	0 3833
	48	39	50	50	50	46	45	42	45	45
ZQUAL13	0.12379	0 01289	-0.04404	0 05395	0 00000	-0 00076	0 12651	-0 22565	0.03899	0 06087
ASSISTANCE IN DOCUMENTATION	0 3967	0 9371	0 7614	0 7069	1 0000	0 9960	0 4132	0 1457	0 7993	0 6912
	49	40	50	51	51	46	44	43	45	45
ZQUAL11	0 06857	-0 06311	-0.32120	-0 21930	-0.30330	-0 03776	0 23643	-0 11318	-0 08643	0 00106
ZONE OPERATOR EXPERTISE	0.6326	0 6951	0 0202	0 1183	0 0288	0 8032	0 1223	0 4699	0 5724	0 9945
	51	41	52	52	52	46	44	43	45	45
ZQUAL12	0 04589	-0 01225	-0.16629	0 03724	-0 05891	-0 03776	0 06750	-0.30685	0 04752	0 08402
CUSTOMER-PERSONNEL RELATIONS	0 7491	0 9386	0 2387	0 7912	0 6752	0 8010	0 6595	0 0428	0 7538	0 5788
	51	42	52	53	53	47	45	44	46	46
FRFGN2	-0 04292	0 95993	-0.08872	-0 02526	0.07283	-0.11124	-0 01497	0 06788	-0.16600	-0 05051
VOLUME FROM FOREIGN IN 84	0 7490	0 0001	0 5040	0 8494	0 5836	0 4188	0 9153	0 6360	0 2303	0 7168
	58	47	59	59	59	55	53	51	54	54

	EXPORTS	INVEN	FFFINF	TRANSCO	FININF	PRODUCT1	PRODUCT3	PRODUCT5	PRODUCT2	PRODUCT4
TODOM2	0 06042	0.03338	-0 11949	-0 12330	-0 09824	0 15344	0 09926	0.17461	-0 12660	0 25568
VOLUME TO DOMESTIC IN 84	0 6523	0 8238	0 3674	0 3522	0 4592	0 2634	0 4795	0 2204	0 3617	0.0620
	58	47	59	59	59	55	53	51	54	54
FRDOM2	-0 04740	-0 02485	-0 11361	-0 12459	-0 11315	0 13988	0 19412	0 05708	-0 14771	0 26341
VOLUME FROM DOMESTIC IN 84	0 7239	0 8683	0 3916	0.3471	0.3935	0 3084	0.1637	0 6907	0 2865	0 0543
	58	47	59	59	59	55	53	51	54	54
TOFGN2	0.13345	0 45954	-0 12767	-0 10420	-0 02176	0 10520	0.05987	0 09188	-0 10750	0 20432
VOLUME TO FOREIGN IN 84	0 3179	0 0012	0 3352	0.4322	0 8701	0 4446	0 6702	0 5214	0.4391	0.1383
	58	47	59	59	59	55	53	51	54	54
SALES	0 15314	-0 00972	0 21500	0.19678	0.16233	0 16242	-0 05108	-0 00292	0 15811	0 24636
TOTAL ANNUAL SALES	0 2935	0 9507	0 1422	0 1801	0.2703	0 2808	0.7390	0.9850	0 2940	0 1028
	49	43	48	48	48	46	45	44	46	45
EMPLOYEE	0 05208	0 21877	0.04916	-0 11971	-0 09376	0 06958	0.17301	0 19615	0 03013	0.17847
NUMBER OF EMPLOYEES	0 6978	0 1396	0 7116	0 3665	0 4800	0 6137	0 2154	0 1677	0 8288	0 1966
	58	47	59	59	59	55	53	51	54	54
MANUFACT	0 11786	0 14828	-0 06172	-0 08310	-0 08778	0 15424	0 24178	0 19372	-0 19475	0 23052
MANUFACTURING ACTIVITIES	0 3826	0 3199	0 6453	0.5351	0.5123	0 2654	0 0842	0 1777	0 1623	0 0968
	57	47	58	58	58	54	52	50	53	53
IMPORTS	-0 04278	0 13981	0.18943	0 12681	0 11764	-0 14403	-0.04024	-0 06182	-0 07438	0 04318
IMPORTS AS A % OF TOTAL PURCHASES	0 7498	0 3541	0 1582	0 3517	0 3879	0 3035	0 7792	0 6731	0 6002	0 7612
	58	46	57	56	56	53	51	49	52	52
EXPORTS	1 00000	-0 04630	0 05626	0 10806	0 06185	0 01859	0 10202	0 04951	-0 15132	0 07627
EXPORTS AS A % OF TOTAL SALES	0 0000	0 7627	0 6805	0 4323	0 6537	0 8959	0.4808	0.7383	0 2891	0 5947
	58	45	56	55	55	52	50	48	51	51
INVEN	-0 04630	1 00000	-0 13396	-0 01901	0 12190	-0 06605	-0 03885	-0 01953	-0 13590	-0 06622
AVERAGE DUTIABLE INVENTORY LEVEL	0 7627	0 0000	0 3803	0 9002	0 4197	0 6777	0 8094	0 9048	0 3969	0 6808
	45	47	45	46	46	42	41	40	41	41
FFFINF	0 05626	-0 13396	1 00000	0 77239	0 61635	0.20700	-0.08137	-0 09811	0 12888	-0 02726
FOREIGN FREIGHT FORWARDER INFLUENCE	0.6805	0 3803	0 0000	0 0001	0 0001	0 1370	0 5703	0.5024	0 3625	0 8479
	56	45	59	58	58	53	51	49	52	52
TRANSCO	0.10806	-0 01901	0 77239	1 00000	0 85382	0 22969	-0 17649	-0 21340	0 17921	0 17062
TRANSPORTATION COMPANY INFLUENCE	0 4323	0 9002	0 0001	0 0000	0 0001	0 0980	0.2154	0 1368	0 2037	0 2265
	55	46	58	59	59	53	51	50	52	52
FININF	0 06185	0 12190	0 61635	0 85382	1 00000	0 21102	-0 28170	-0 14957	0 25774	0 16981
FINANCIAL INSTITUTIONS INFLUENCE	0 6537	0 4197	0 0001	0 0001	0 0000	0 1293	0 0452	0 2999	0 0651	0 2288
	55	46	58	59	59	53	51	50	52	52
PRODUCT1	0 01859	-0 06605	0 20700	0 22969	0.21102	1 00000	-0 14669	-0 11479	0 09321	0 10922
PRODUCT VALUE	0 8959	0 6777	0 1370	0 0980	0 1293	0 0000	0 2946	0 4225	0 5026	0 4317
	52	42	53	53	53	55	53	51	54	54

	EXPORTS	INVEN	FFFINF	TRANSCO	FININF	PRODUCT1	PRODUCT3	PRODUCT5	PRODUCT2	PRODUCT4
PRODUCT3	0 10202	-0.03885	-0.08137	-0 17649	-0.28170	-0 14669	1 00000	0 43305	-0 39748	-0 01071
HIGH OR LOW TRADE RESTRICTIONS	0.4808	0.8094	0 5703	0 2154	0 0452	0 2946	0 0000	0 0017	0 0035	0 9399
	50	41	51	51	51	53	53	50	52	52
PRODUCT5	0 04951	-0 01953	-0 09811	-0.21340	-0.14957	-0.11479	0 43305	1 00000	-0 13935	0 07132
DUTY LEVEL	0 7383	0 9048	0.5024	0 1368	0 2999	0 4225	0 0017	0 0000	0 3295	0 6226
	48	40	49	50	50	51	50	51	51	50
PRODUCT2	-0 15132	-0 13590	0 12888	0 17921	0 25774	0 09321	-0 39748	-0 13935	1 00000	0 36343
PRODUCT DURABILITY	0 2891	0 3969	0 3625	0.2037	0 0651	0 5026	0 0035	0 3295	0 0000	0 0075
	51	41	52	52	52	54	52	51	54	53
PRODUCT4	0 07627	-0 06622	-0 02726	0 17062	0.16981	0 10922	-0 01071	0 07132	0 36343	1 00000
EASE OF HANDLING	0.5947	0 6808	0 8479	0 2265	0 2288	0 4317	0 9399	0 6226	0 0075	0 0000
	51	41	52	52	52	54	52	50	53	54
PRODUCT6	0 10362	0 05850	-0.01360	0 00615	0 01344	-0 10226	-0 00065	-0.13961	0 36725	0 42746
ACCOUNTABLE LOSSES	0 4882	0 7199	0 9261	0 9662	0 9262	0 4798	0 9965	0 3439	0 0094	0 0020
	47	40	49	50	50	50	49	48	49	50

	PRODUCT6
AWARE7	-0.10288
CASH FLOW AND INTEREST SAVINGS ON DUTY	0 5013
	45
AWARE9	-0 14738
SIMPLIFIED CUSTOMS PROCEDURES	0 3284
	46
AWARE13	0 11908
BETTER DISCIPLINE IN INVENTORY CONTROL	0 4413
	44
IMP2	-0 18089
ECONOMIES OF BULKSHIPPING	0 2516
	42
IMP3	0 20234
NO INVENTORY TAX	0 1988
	42
IMP5	0 21366
ABILITY TO MANIPULATE PRODUCTS	0 1587
	45
IMP6	0 08812
ABLE TO MANUFACTURE AND ASSEMBLE	0 5789
	42
IMP11	-0.11968
INVERTED TARIFFS	0 4561
	41

	PRODUCT6
IMP12	-0 05452
QUOTA AVOIDANCE	0 7317
	42
ZQUAL13	-0 01389
ASSISTANCE IN DOCUMENTATION	0 9296
	43
ZQUAL11	-0 02418
ZONE OPERATOR EXPERTISE	0 8762
	44
ZQUAL12	-0 05289
CUSTOMER-PERSONNEL RELATIONS	0 7331
	44
FRFGN2	0 04890
VOLUME FROM FOREIGN IN 84	0 7359
	50
TODOM2	-0 04879
VOLUME TO DOMESTIC IN 84	0 7365
	50
FRDOM2	0 23604
VOLUME FROM DOMESTIC IN 84	0 0989
	50
TOFGN2	0 01407
VOLUME TO FOREIGN IN 84	0.9228
	50
SALES	0 05287
TOTAL ANNUAL SALES	0 7395
	42
EMPLOYEE	0 21631
NUMBER OF EMPLOYEES	0 1313
	50
MANUFACT	-0 10771
MANUFACTURING ACTIVITIES	0 4613
	49
IMPORTS	-0 12933
IMPORTS AS A % OF TOTAL PURCHASES	0 3810
	48
EXPORTS	0 10362
EXPORTS AS A % OF TOTAL SALES	0 4882
	47

	PRODUCT6
INVEN	0.05850
AVERAGE DUTIABLE INVENTORY LEVEL	0 7199
	40
FFFINF	-0 01360
FOREIGN FREIGHT FORWARDER INFLUENCE	0.9261
	49
TRANSCO	0 00615
TRANSPORTATION COMPANY INFLUENCE	0 9662
	50
FININF	0 01344
FINANCIAL INSTITUTIONS INFLUENCE	0 9262
	50
PRODUCT1	-0 10226
PRODUCT VALUE	0 4798
	50
PRODUCT3	-0.00065
HIGH OR LOW TRADE RESTRICTIONS	0 9965
	49
PRODUCT5	-0 13961
DUTY LEVEL	0 3439
	48
PRODUCT2	0 36725
PRODUCT DURABILITY	0.0094
	49
PRODUCT4	0 42746
EASE OF HANDLING	0 0020
	50
PRODUCT6	1.00000
ACCOUNTABLE LOSSES	0 0000
	50

VITA

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Doctor of Philosophy

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