FACTORS INFLUENCING THE CHOICE OF PRODUCT DISTRIBUTION CHANNELS IN KENYA

By

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DECLARATION

This thesis is my original work and has not been presented in any other university

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This thesis has been submitted for examination with our approval as university supervisors

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DEDICATION

This thesis is dedicated to my wife Wangari and children: Njeri, Wanja, Maina and Kimani. The latter are a most lovable and unpredictable set of variables.

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ABSTRACT

This study set out to identify factors that affect the choice of product distribution channels in Kenya and to quantify their relative importance. Alternative channel selection models were studied theoretically and estimated using linear and nonlinear regression methods. The models were fitted to survey data collected from manufacturing companies mainly from the Nairobi area. The data collection instrument was a self-administered questionnaire, which was completed and returned by marketing and sales managers of the companies which had been selected for the study.

Estimation results show that the probability of choice of an integrated or direct product distribution channel is positively correlated with product order size and with product order frequency, but a negative association is also found with respect to company size. However the probability of selecting a direct product distribution channel is insignificantly correlated with suitability of existing distribution channels, product complexity, product standardization, product age, degree of customer concentration and government policy.

On the basis of these findings, it is recommended that the business legal framework be changed to allow manufacturing companies flexibility in choosing the most appropriate channel structure for their markets. Care however should be taken to guard against creating a situation of unfair competition in the distribution of products.

The areas identified for future research include refinements

of the theoretical models developed in the thesis, improvements in the sampling procedures used, widening of the geographic coverage of the sample, and investigation of product distribution channels among small scale and export-oriented enterprises in urban and rural areas.

CHAPTER 1

INTRODUCTION

1.1. Functions of Distribution Channels

Distribution channels perform a set of essential economic functions in society in that they bridge the gap between production and consumption (Stern and Reve 1980). These functions are aimed at not only satisfying needs, by supplying quality products at the right place, price, and time, but also at stimulating demand through promotional activities. In order to reach its target market, a manufacturing firm can choose to perform all of the distributive tasks by itself or delegate them to channel intermediaries. The firm can also perform some of these tasks, while letting the intermediaries perform other functions. It is known that alternative task performance modes imply alternative channel structures (Rosenbloom 1987). How effectively a manufacturing company avails its product to the ultimate buyer largely depends on how well it allocates the distributive tasks among the various distribution channels.

Distribution channel selection is one of the most challenging decisions facing business managers today. It can be costly, complex, and it can sometimes involve long-term organizational commitments (Anderson and Coughlan 1985). Further, the long-term implications of the channel selection decision underscores its strategic importance (Dwyer and Welsh 1985). Despite its importance, channel selection by managers is ill

understood. Various marketing texts (see e.g., Kotler, 1984; Rosenbloom, 1987; Stern and El-Ansary, 1982) highlight some of the major factors that influence the channel selection decision. Unfortunately, these texts provide little guidance on how managers actually arrive at a channel selection decision. A review of some of the available literature on the distribution channel selection indicates a general emphasis on a limited number of factors that influence this selection in developed economies setting; I have not found a related literature in the context of a developing economy. In any case, generalization of available findings on channel selection to developing countries (Kenya included) cannot be justified, because firms in each of these countries operate in very different environments. There is therefore a need to study channel product selection in these countries.

1.2. The Manufacturing Industry in Kenya

Manufacturing companies in Kenya can be grouped into two broad categories: foreign owned, and locally owned companies. Foreign owned companies can be classified further on the basis of whether or not they have local manufacturing plants. Most of the foreign firms with local plants aim at manufacturing for domestic and the foreign markets. Examples of such companies include those involved in the processing of agricultural products and extractive activities. In an attempt to provide export incentives to such companies (including also the local firms),

the government has established a number of export promotion schemes (Republic of Kenya, 1986, pp. 154-57) such as export processing zones, manufacturing-under-bond, the green channel, export compensation facility, and export credit insurance and guarantee. Foreign companies with manufacturing plants located abroad normally have locally incorporated companies responsible for the assemblage and/or distribution of their finished product within the domestic economy and/or in the neighboring foreign countries. Kenyan examples include companies that manufacture automobiles and electronic products.

Locally owned manufacturing companies can be classified on the basis of whether or not they are government owned. The government owned companies include parastatal organizations which process and distribute agricultural products, such as the Kenya Co-operative Creameries and Kenya Tea Development Authority. Although government owned manufacturing firms are also meant to be profit making, management inefficiencies there have made it difficult for most of them to achieve this objective. This perhaps explains why the Kenya Government plans to "...progressively shift away from involvement in industrial and commercial concerns that are better suited to the private sector, except in cases where such concerns are deemed to be of strategic importance" (Republic of Kenya, 1986, p. 145). Privately owned local manufacturing companies can be classified as large-scale or small-scale manufacturing concerns. The former are quite similar to foreign owned companies with locally established manufacturing plants. However, except for companies involved in the processing of agricultural products, most locally owned

large-scale manufacturers import a substantial part of their raw materials and tend to concentrate on consumer products.

Table 1.2.1 shows the manufacturing production indices in Kenya for the period 1988-1992. It can be seen from the table that a marginal increase of 1.2 percent was recorded in the total production manufacturing between 1991 and 1992. Among the industries that achieved increased production over this time were non-metallic and mineral products, beverages and tobacco, plastic products, leather and footwear, clay and glass products, and paper and paper products. Industries that recorded decreased production include those producing metallic products, transport equipment, petroleum and other chemicals, non-electrical machinery, rubber products and electrical products.

Table 1.2.1: Quantum Index of Manufacturing Production 1988-1992 (1976=100)

Industry	1988	1989	1990	1991	1992	% Change 1991/1992
Food Manufacturing	167.5	171.0	173.2	174.8	164.8	-5.7
Beverages and Tobacco	201.9	204.1	210.7	203.9	230.7	13.1
Textiles	197.2	202.3	227.8	218.5	218.5	0.0
Clothing	368.3	378.6	347.2	323.9	320.6	-1.0
Leather and Footwear	88.1	94.7	99.2	90.8	97.2	7.0
Wood and Cork Products	66.4	68.1	70.2	73.1	74.0	1.2
Furniture and Fixtures	72.7	72.9	73.7	70.8	71.0	0.3
Paper and Paper Products	189.3	194.7	203.9	214.6	225.1	4.9
Printing and Publishing	389.1	392.9	401.8	405.8	411.2	1.3
Basic Industrial Chemicals	182.1	198.1	211.3	233.9	234.0	0.0
Petroleum and Other Chemicals	342.9	396.0	457.8	510.7	481.1	-5.8
Rubber Products	286.3	308.7	325.9	322.4	307.8	-4.5
Plastic Products	202.8	219.1	227.4	262.2	286.0	9.1
Clay and Glass Products	306.5	338.1	367.2	359.8	376.5	5.2
Non-Metallic Mineral Products	140.7	147.0	167.1	170.5	201.1	17.9
Metallic Products	133.1	154.6	177.0	205.5	186.0	-9.5
Non-Electrical Machinery	138.7	132.8	103.8	101.0	95.4	-5.5
Electrical Equipment	189.3	193.8	190.3	193.4	187.3	-3.2
Transport Equipment	612.4	638.0	673.5	662.0	603.7	-8.8
Miscellaneous Manufactures	360.3	375.0	406.1	441.0	442.9	0.4
TOTAL MANUFACTURING	**211.3**	**223.8**	**235.6**	**244.6**	**247.5**	**1.2**

Source: Economic Survey 1993, p.150.

According to the 1986-1993 Development Plan (Republic of Kenya, pp. 164-168), small-scale manufacturers have been found to be generally characterized by labor intensive techniques and relatively low initial capital requirement. Further, while profit maximization can be assumed to be a major objective of most large-scale manufacturing companies, this is not necessarily so for small-scale manufacturers. The majority of small-scale manufacturers aim at creating employment and economic security for immediate family members. There is also widespread belief that the bulk of new jobs in Kenya will be generated by small and medium sized firms, employing between 5 and 20 employees (Republic of Kenya, 1994).

Table 1.2.2 shows the results of a survey on the number of persons engaged in the informal sector by micro, small and medium

Table 1.2.2: Number of Persons Engaged by Activity in the Informal Sector, 1990 - 1993

Activity	1990	1991	1992	1993
Manufacturing	245,855	286,628	342,653	418,252
Construction	14,163	15,690	17,884	20,591
Wholesale and Retail Trade, Hotels and Restaurants	597,469	673,391	777,263	909,879
Transport and Communications	14,079	16,050	18,962	23,642
Community, Social and Personal Services	65,809	71,459	80,719	94,148
TOTAL	**937,395**	**1,063,218**	**1,237,481**	**1,466,512**

Source: Economic Survey 1994, P.62.

enterprises between 1990 and 1993. From the table, it is evident that there has been an upward trend in the number of persons employed in the informal sector. Consequently, the government is committed to creating an environment that would promote the survival and growth of small and large firms irrespective of whether or not they are locally or foreign owned. However, in cases where privately owned monopolists and oligopolists are involved in the manufacture of essential products, the governmenthas, since independence influenced the pricing of such products, in order to discourage monopoly profits and protect consumers from exploitation.

1.3. Distribution of Manufactured Products in Kenya

A number of factors influence the distribution of manufactured products. Since independence, the Kenya government has pursued a policy that requires manufacturers to delegate the product distribution to locally owned intermediary institutions whenever this is possible (Republic of Kenya, 1974, p. 366). This distribution policy is part of the government's efforts to ensure participation by more Kenyans in the economic development of the country. However, except for the Licensing Act, there is no other legal instrument that enforces this policy (Republic of Kenya, 1986b, p. 100). Since manufacturers are not legally prohibited from establishing intermediary institutions aimed at distributing their products, it is possible for a manufacturing company which is not favored by this distribution policy to form

a subsidiary company to distribute its products and still be within the confines of the law. This distribution policy has however, encouraged some manufacturing companies which had previously undertaken the distribution of their products to restructure their marketing operations (Republic of Kenya, 1982, p. 70). Since 1965 the government has controlled the distribution of a variety of essential products by distributing them through its own corporation, the Kenya National Trading Corporation. Unfortunately, due perhaps to its monopolistic status and poor management, the Kenya National Corporation has failed to perform its functions efficiently. In response to this problem, the government plans to review the list of products aimed at qualifying as essential products, including the operations of state enterprises (Republic of Kenya, 1986b, p. 159). As with most developing economies, there exists a dual market in Kenya, comprising of the rural and the urban market (Kinsey 1988). Compared to the former, the urban market is well served with all weather roads and other physical infrastructural facilities. Distances from the main urban centers to the rural areas can be considerable and communication within the rural areas is quite difficult; this situation should be a factor in the choice of product distribution channels by firms.

The majority of the rural population is served by small African owned shops which are operated with low working capital This phenomenon, coupled with the communication problem, makes the distribution of products through a wholesaler a particularly attractive distribution mode, for the rural market, and especially in the case of mass consumer products. Perhaps this

explains why according to Table 1.2.2 wholesale and retail trade, hotels and restaurants shows the largest employment numbers compared to the other activities surveyed. A wholesaler is likely to buy in larger and more economical quantities than independent retailers would, thus enjoying scale economics. Over the years, the number of small-scale general retailers seem to have been decreasing in the urban areas especially in the main towns. The Supermarket as a special kind of retail outlet has been gaining popularity in urban areas. This trend is likely to continue in the future. With an increasing urban market population, improved communication networks and other infrastructural amenities, and changing intermediary institutions, manufacturers (especially consumer goods manufacturers) are likely to re-examine their product distribution strategies in the urban areas with a view of adopting relatively shorter distribution channels.

1.4. Statement of the Problem

Once a commercial or a manufacturing firm has targeted its product(s) to a particular market, a primary question must be resolved: will the product(s) be distributed through an integrated/direct channel or through a non-integrated/indirect channel? The study addresses this question mainly in the context of urban-based firms in Kenya. Distribution through a direct channel entails performance of all the distribution tasks by the firm itself, while use of the indirect alternative requires the firm to involve the intermediaries in performing the same

distribution tasks.

In marketing and related literature, various factors have been suggested as the key determinants of choice of a particular distribution channel. Kotler (1984, p. 540) suggests that intermediaries are often preferred over other alternatives due to their superior efficiency in making the product available to the final buyer. Stigler (1951) argues that the product/industry life cycle is the most important factor in determining when a firm should vertically integrate its operations in product distribution. McGuire and Staelin (1983) and Coughlan (1985) focus attention on product differentiation as the major determinant of channel choice. Jeuland and Shugan (1983a) suggest that an integrated channel is used because it is also a mechanism to achieve coordination in product distribution. Drawing on transactions cost studies (Williamson 1981a, 1981b, 1979), Anderson (1985), and Anderson and Coughlan (1985) argue that distribution channel selection is influenced by among other factors, asset specificity and product characteristics. Despite the importance of these factors in designing an appropriate distribution strategy, they have received little formal consideration from scholars (Anderson and Gatignon 1985, p. 1). For most companies, distribution channels are assumed to evolve over time instead of being purposely planned or chosen (Stern and El-Ansary 1982, p. 222). Empirical studies on the choice of product distribution channels are relatively few and limited in their scope (Stern and Reve 1980). In cases where relevant empirical research efforts are evident (e.g. Anderson (1985), Coughlan (1985), Lilien (1977)), they are focused mainly on the

distribution of products in the developed countries.

A number of observations can be made from the literature. First, the factors believed to influence the choice of product distribution channel differ from study to study. There is thus a need to reexamine the importance of these factors using different analytical methods and data sets. Second, selection of product distribution channels in the developing countries has received little or no attention, a situation that needs to be remedied. Third, there is a general lack of empirical evidence to support policy decisions on product distribution in Kenya. This study is an effort to fill these gaps.

1.5. Objectives of the Study

The objectives of this study are to: (a) identify the factors that affect selection of product distribution channels by manufacturing firms in urban Kenya (b) determine relative importance of these factors via estimation of a model of channel choice using regression methods and (c) make policy recommendations on the basis of study findings.

1.6. Importance of the Study

The findings of this study are potentially valuable to firm managers, consumers, the government and the society in general. Firm managers, charged with the responsibility of selling

products in new or existing markets, can use the results of this study to improve their performance. They can use the channel selection model for example to distribute new products more effectively. In the case of established products in existing markets, information on product distribution channels can be used to determine whether or not the existing distribution methods should be continued. Consumers would gain from a more effective distribution of products because the products would be available to them on time and possibly in better quality. The government can use the results of the study to design public policy on product distribution channels. From an economic point of view, managers are concerned with utilization of scarce resources in the best way possible. If the study provides them with a basis for making better product distribution decisions, this might lead to a more efficient utilization of the company's resources. Such efficiency gains would accrue to society at large.

1.7. Definitions of Key Terms Used in the Study

The following are definitions of key terms used in the study.

a. **Channel configuration/structure.** This refers to different levels or stages of a channel (e.g., the various stages of a distribution process, from a manufacturer or a wholesaler to the final consumer). Persons or agents handling the product at different stages of the channel are referred to as channel members (Rosenbloom 1987, Stern and El-Ansary 1982).

b. **Distribution channel**. This is an entity consisting of a set of related marketing institutions responsible for the physical and title flow of products from the firm to the consumer (Boone and Kurtz 1992).

c. **Direct/integrated/captive distribution channel**. This set of terms describes a type of distribution channel whereby a firm organizes within itself (rather than through other firms or its agents) product distributive tasks that are aimed at availing the product to the final customer in the most expeditious way possible (Anderson 1985, Lilien 1979).

d. **Distributive tasks**. The term refers to distribution activities or functions (e.g., selling, transportation, advertising) performed in the process of moving the product from the firm to the final consumer (Rosenbloom 1987).

e. **End customer**. The phrase refers to an individual, household or firm that buys the product for incorporation into other products (e.g., industrial use) or for consumption.

f. **Immediate customer/marketing intermediary/middleman**. These terms refer to business firm, either wholesaler or retailer, that operates between the manufacturer/producer and the end customer (Boone and Kurtz 1992).

g. **Indirect/non-integrated distribution channel**. The phrases describe a distribution channel whereby a firm involves independent middlemen or distributors (e.g., wholesalers and retailers) in the performance of the distributive tasks aimed at availing the product to the final customer (Anderson 1985).

1.8. Organization of the Study

The rest of the study is organized into five parts. Literature is reviewed in Chapter 2 and the conceptual framework is developed in Chapter 3, where hypothesized effects of some of the factors are also discussed. Chapter 4 provides operational definitions of the variables used in the study, discusses the data and explains the strategy used to estimate the empirical model. The results are presented and discussed in Chapter 5. Descriptive results are presented and discussed first, followed by regression results. The summary, conclusions and suggestions for further research are in Chapter 6.

CHAPTER 2

LITERATURE REVIEW

In this chapter, the literature on the factors that determine the selection of the product distribution channel is surveyed. The general literature is reviewed first, followed by literature on selection of distribution channels in developing countries. Specific empirical literature is then examined, followed by a short summary of the studies surveyed.

2.1. General Literature

Stigler (1951) argues that vertical integration and the life cycle of a company (or an industry) are closely related. In the initial stage, a company will integrate marketing and other functions due to the unique demands of its product. In the next stage, the company will disintegrate these functions since the product will have gained greater familiarity in the market and specialists will have risen to take over functions that are quantitatively important enough to justify particular attention. Finally, in the declining stage, the company will re-integrate in order to re-absorb some of the functions previously performed by specialists but proved uneconomical. Stigler's arguments provide an economic view of explaining the effect of a company's product life cycle on the decision to either integrate or not integrate the distribution function. However, these arguments are

subject to a number of caveats. The integration decision depends on the company's financial resources. For instance, a small-scale manufacturer may not be in a position to absorb the various fixed product distribution costs. Further, the decision on whether or not to integrate a distribution function depends on a variety of other factors, not just the product life cycle.

Aspinwall (1958) suggests a channel selection approach based on product characteristics. According to this approach, products are first classified according to replacement rate, gross margin, adjustment, time of consumption and searching time. Based on the degree to which products possess each of these characteristics, they are further classified on the basis of a three-color spectrum: red, yellow and orange. "Red" products are characterized by high replacement rate while "yellow" characterizes products with low replacement rate. "Orange" products are characterized by medium values on all attributes. According to Aspinwall, "red" products have a high purchase frequency which allows for a high degree of standardization and performance of the distribution tasks. This in turn creates the opportunity for more specialized institutions to participate in the distribution tasks, resulting in relatively long distribution channels. Performance of distribution tasks for "yellow" products would be relatively expensive because of the lower opportunity for standardization and routinization compared with those of "red" goods. Hence, "yellow" goods tend to be characterized by relatively short channel structures. "Orange" products, though produced to standard specifications, will still require some degree of adjustment to adequately meet users' specifications.

Hence, they tend to be characterized by medium length channel structures, that is, channels generally comprising at least one level of middleman. Aspinwall's approach provides a useful way of describing the effect of product characteristics on channel structures. However, the approach puts too much emphasis on product characteristics as the determinant of channel structure, ignoring other potentially important variables such as firm size. Further, the association of product characteristics with color classification is rather subjective.

Bucklin (1966) advances a model for explaining the emergence of alternative channel structures. According to his model, consumers seek service outputs from the channel. These outputs can be provided by either the commercial channel members (i.e., manufacturers, wholesalers, agents, retailers) or the consumers themselves by performing various distributive tasks. He identifies four service outputs: spatial convenience (or market decentralization), lot size, waiting or delivery time, and product variety (assortment breadth). The more of the service outputs required by consumers, the more likely that intermediaries will be included in the channel, subject to budget constraints. By extending the service outputs identified by Bucklin, the model can be used as a basis for understanding the channel selection decision across a variety of situations. However, the usefulness of the model depends on the empirical validity of its concepts.

Lambert (1966) treats the channel selection decision as a long-term decision that is analogous to an investment decision of capital budgeting. Hence, it should be based on financial

rather than on marketing considerations. This implies that the choice of the most profitable channel structure should be based on the estimated returns on capital resulting from alternative structures. Thus, unless the firm can earn more than the cost of its capital, it should shift the performance of distributive tasks to the intermediaries. The major strength of the financial approach is that it emphasizes the financial dimension of the distribution channel selection and proposes a set of rigorous selection criteria. Unfortunately, like most capital budgeting decisions, it would be difficult to obtain accurate estimates of future revenues and costs from alternative channel structures, especially in the case of a new product. Moreover, other non-financial factors are likely to have a major effect on the choice of the channel structure.

Weigand (1977) discusses the application of the multimarketing concept (i.e., marketing strategies involving combinations of markets, channels and products) in business. Through the use of well selected vignettes, he demonstrates how companies apply the multimarketing concept. Specifically, he suggests that multimarketing in distribution channels may occur due to differences in quantitative needs of the buyers, served territories, and product offerings. He further recommends use of a direct channel, provided that the market is dense, the purchases are large, and the salesperson can manage to make relatively many calls a day. In the hinterlands, the manufacturer is likely to use agents since the market is too "thin" to support full time salesmen. On the other hand, a distant customer who buys through a distributor may avoid buying

from the factory if it involves paying uneconomical shipping rates, undue waiting time for goods, and higher administrative costs. The modest price differences between the manufacturer's and the distributor's prices may be taken up by higher explicit or implicit buying and transport costs, commonly known as transactions costs. Thus a manufacturer serving both densely and sparsely populated markets, and differentiated and undifferentiated markets is likely to use different distribution channels for such markets. By focusing on multichannel marketing, Weigand makes a useful contribution in the understanding of the selection of distribution channels. This is consistent with the choice of "middle level" vertical integration strategies (i.e., quasi-integration and taper-integration) suggested by Harrigan (1984). However, there is need to empirically test the conditions favoring the application of the multichannel concept.

Stern and Reve (1980) propose that the distribution channel be viewed as a social system consisting of interacting sets of internal, external, economic and social political forces which affect collective behavior and performance of the channel members. Hence, the political economy framework can be used in the analysis of these forces on channel members' behavior and performance. The framework defines the channel as a political economy, with internal and external components. These economies are further categorized as internal economy or polity, and external economy or polity. The internal economy and internal polity are further described as structures and processes. The internal economic structure refers to the transactional form linking channel members, that is, the vertical economic

arrangement within the distribution channel, while internal economic processes refer to the decision mechanisms within an economic structure, that is, operating terms of trade. On the other hand, the internal social political structure refers to the pattern of power dependence relations which exist among channel members, while the internal sociopolitical processes describe the resulting dominant sentiments within the channel, i.e., cooperation and/or conflict. Finally, Stern and Reve make a number of empirically testable propositions based on the internal political economy model and suggest that future efforts should also consider external economy framework. The framework proposed by Stern and Reve provides a unifying analysis of the distribution channels by considering both the internal and external influences of channel behavior and performance. As they note, this approach departs from other approaches that treat the analysis of distribution channels in a fragmented manner. Further, the propositions advanced there serve to provide a basis for empirical testing of the effects of the identified determinants. However, although the authors highlight the need to consider both the internal and external influences, their propositions are restricted to the former. Hence there is need to also identify and consider the effect of the external political economy factors.

Achrol, Reve and Stern (1983) extend the work by Stern and Reve (1980) by considering the impact of environmental variables on the structures and processes of distribution channels. They emphasize the nature of external political and economic dependencies as crucial to understanding the strategic options

available to channel members. Using the concept of environmental uncertainty, they generate propositions that illustrate the interrelationship between changes in the environment and corresponding changes in the configuration of marketing channels and the behavior of the channel members. Specifically, they propose that increased forward vertical integration or coordination will be associated with higher uncertainty in the output sector of the task environment of the marketing channel and increased competitive challenges. Achrol, Reve and Stern's work underscores the merits of the political economy framework as a basis for analyzing distribution channels. Further, they raise the following fundamental questions:

> ...if high levels of environmental uncertainty lead, eventually, to increased vertical coordination, what form should the coordination take, and how should the coordination be accomplished in order to generate optimum performance? Is it better to have quasi-market transactions mediated by negotiation and bargaining, where power is imbalanced and where conflictive processes are frequent, or would it be better to turn to hierarchical transactions where power is fully centralized but where conflictive processes may somehow be dampened? (Achrol, Reve and Stern, 1983, p. 66).

The propositions advanced by Achrol, Reve and Stern, however, need empirical verification. There is also a need to consider other environmental variables in addition to uncertainty.

McGuire and Staelin (1983) develop a model of retail channel choice in a duopoly wherein retailers carry only one manufacturer's product. They show that it is more profitable for a manufacturer to use its own retail outlet (integrated channel) than to use an independent outlet (non-integration channel) when consumers perceive the manufacturers' products to be unsubstitutable (differentiated). They reason that differentiated

products do not compete directly unlike non-differentiated products. Direct competition is likely to create price wars that adversely affect the manufacturers' profits in integrated channels. If non-differentiated products are sold through middlemen, however, the manufacturers' ability to respond to price changes is reduced, thereby protecting the manufacturers' profits. McGuire and Staelin's study serve to highlight the importance of product differentiation in the determination of channel structure. However, their game theoretic model comprising two manufacturers and two retailers is rather restrictive. Further, the applicability of such a model in a real market situation remains to be demonstrated.

Jeuland and Shugan (1983a) focus on the channel coordination problem in the context of a two member channel consisting of a manufacturer and retailer. Using the microeconomic approach they show total channel profits would be maximized when the channel members cooperate as opposed to when they act competitively. However, they note that coordination or cooperation is not a natural behavior pattern for channel members unless it is forced on all of them, because of existence of incentive not to cooperate on any voluntary cooperative agreement. In their model, integration is but one way of coordinating manufacturing and marketing actions to maximize channel profit. Other mechanisms include: simple contracts, implicit understandings, profit sharing, and quantity discounts. Jeuland and Shugan's model offers promise for a better understanding of institutional arrangements observed in distribution channels as well as for obtaining valuable managerial insights. However, the model can

be made more useful by relaxing some of its basic assumptions. For example, it would be useful to investigate the behavior of channel members in a situation characterized by a variety of manufacturers and different levels of intermediaries, with differing cost structures.

Harrigan (1984) uses corporate strategy approach to categorize vertical integration strategies into non-integration, quasi-integration, taper-integration, and full integration. Non-integration involves attaining materials and markets with no internal transfers and no ownership contracts. Quasi-integration involves joint business arrangements where firms do not need to wholly own adjacent business units in the vertical chain to enjoy the benefits of working jointly with other firms. Taper-integration arises when a firm relies on outside firms for part of their distributive tasks. Full integration involves high degrees of internal transfers. The choice of a particular vertical integration strategy is considered to be a function of industry evolution, competition in linked industries, the bargaining power of suppliers or distributors (and customers) and corporate strategy requirements. Contrary to Stigler's view, Harrigan argues that less vertical integration (non-integration) would be expected early and late in an industry's evolution, due to demand uncertainty in the initial stages of product development, and because of the need to effectively assess niches of enduring product demand in the case of the declining stage. Further, full integration should be avoided in settings characterized by intense competition, price warfare and depressed margins, as "... a highly integrated posture in such settings

could reduce a firm's maneuverability and damage its profitability" (p. 648). However, full integration would be a viable choice (a) if the firm's product is differentiated, since problems of price warfare would not exist; (b) in cases of complex products and products requiring trade secrets protection; (c) if a firm can use its bargaining power, where possible, to influence adjacent distributors to perform tasks that it would not like to perform in-house; and (d) if the strategy provides synergistic effects with other business units and the corporation's business mission. Harrigan makes a major contribution to product distribution theories by providing a broad conceptualization of the vertical integration concept. However, there is need to empirically test the effects of the identified variables on the choice of a particular vertical integration strategy.

2.2. Choice of Distribution Channels in Developing Economies

Kinsey (1988), observes that unlike in the developed countries, distribution channel systems in developing countries tend to be generally long, fragmented and inefficient. They are also characterized by small quantities of product offerings, inaccurate measures and high wastage. These characteristics are explained by among other factors: the existence of a large number of widely scattered manufacturers, each providing a limited output to a large number of intermediaries supplying an ever large number of small retailers;

the labor intensive nature of the channels; and lack of the necessary infrastructure for storage and transportation. Kinsey's observations are similar in many ways to those of Nwokoye (1981) and Malumo (1986). They serve to indicate the effect of the level of economic development on distribution channel structure. However, observations on long and fragmented channels tend to best explain the situation in the rural markets. Within the urban markets, the situation is likely to be akin to that encountered in developed countries in many respects. Regarding the proliferation of small retailers, this may be as a result of high unemployment and low levels of incomes, and is also likely to be generally associated with consumer goods rather than with industrial goods.

The argument about distribution channel inefficiency in developing countries may, however, not be valid unless it is restricted to technical inefficiency as opposed to economic inefficiency. As Nwokoye (1981, p. 141) observes:

> The involvement of an inordinately large number of intermediaries in the distribution process suggests redundancy and wastefulness of time and energy. But this does not suggest the system is inefficient economically. In the advanced countries, a great deal of capital is employed in the various stages of distribution. In developing countries, capital is scarce and unskilled labor is abundant leading to substitution of labor for capital.

Thus, the efficiency or inefficiency of a distribution channel depends upon the nature of the environment faced by the firm, among other factors (McAlister, 1983).

2.3. Empirical Literature

Anderson (1985) explores the question as to whether a company should integrate (sell direct) or not-integrate (sell through representatives). Drawing mainly on transaction cost analysis popularized by Williamson (1975, 1979, 1981a,b) among others, Anderson hypothesizes the following are important determinants of the probability that a firm will sell its products using a direct channel: transaction specificity of assets, difficulty of evaluating performance of agents, unpredictability of market environment, travel requirements, attractiveness of product line, company size, importance of non-selling activities, and time span between product release and feedback about its performance in the market. The hypothesized effects of these factors are tested using the logistic regression model whereby the dependent variable is the probability of using direct channel. Out of the seven asset specificity terms (company nature, products, confidential information, need to know accounts, customer complexity, customer loyalty and importance of key accounts), company nature and products are found to have significant effects with the expected positive signs, while the effect of customer loyalty is found to be significant but without the expected sign. Difficulty of evaluating performance, interaction between asset specificity and environmental unpredictability, attractiveness of product line, and importance of non-selling activities are also found to be significant and with the expected positive signs. The study provides a major empirical contribution particularly in identifying the factors

that are likely to affect the choice of product selling mode. Further, it provides an application of the transaction cost model widely popularized by Williamson. However, the study has a variety of limitations. First, its focus is limited to one aspect of product distribution, that is, to personal selling. Second, collection of data from one industry raises the issue of external validity of the results. Third, although "hybrid" companies (companies using a mixed selling mode) were observed in the survey, use of a binary logistic regression model imposes the unrealistic assumption that the other selling modes are irrelevant alternatives.

Coughlan (1985) develops a distribution channel choice model that extends and generalizes the model developed by McGuire and Staelin (1983). The model examines the effect of product substitutability (differentiation) and the type of channel used by the competitors on the choice of distribution channel in a duopolistic market, where among other assumptions, marketing and manufacturing costs are assumed to be zero. The model is empirically tested using data from the International Semiconductor Industry from the U.S. firms operating in foreign markets. The dependent variable is defined as a binary variable (0,1) where "1" turns on when the firm sells the technology through an integrated sales office as of date of first sale of technology in the foreign market and "0" turns on when the firm sells through a marketing middleman. Using this linear probability regression analysis, product substitutability, on its own, is found to have a positive but rather weak effect (significant at 10% level). Similarly, the type of channel used

is also found to have a positive and significant effect at the 5% level. When the two variables are considered together, only the latter is found to have a significant effect at the 5% level. The author suggests that this could be explained by some multicollineality between the variables. While the analysis supports the hypotheses advanced in the study, and the previous work by McGuire and Staelin (1983), it has a number of limitations. First, in practice, marketing and manufacturing costs are unlikely to be zero. There are at least transactions costs of dealing with the middlemen (Williamson 1979, 1981a,b). Second, the model fails to consider the possibility of using more than one level of middlemen. Third, it does not capture the effects of changes in demand and costs on channel choice.

Anderson and Coughlan (1985) investigate the impact of the following factors in the choice between independent versus integrated distribution channels for industrial products introduced into foreign markets: transaction specific assets, product age, product service requirements, product differentiation, existing distribution arrangements, product relatedness to core business, strength of patent under which product is produced, and competitive behavior of firm. The hypothesized effects were tested using logistic regression methods. Out of the eight variables examined, three variables were found to have positive signs and statistically significant effects, namely: transaction specifity of assets, product differentiation, and existing distribution arrangements. The study enhances understanding of the factors that influence the choice of foreign market entry mode. However, as the authors

suggest, an improvement in the study could be made by including other factors such as, company's international experience and the market size. Further, a larger sample could have been used in order to improve the explanatory power of the results.

Lilien (1979) examines the effect of size of the firm, size of the average order size, technical-purchase complexity, stage in product life cycle, degree of standardization, and purchase frequency on the distribution channel selection decision. Using the discriminant analysis model based on the Profit Impact on Management Strategies (PIMS) studies (Weitz and Wensley, 1984), size of the firm, size of the average order, and the product complexity are found to be positively related to the selection of the direct distribution channel, while product age, product standardization and purchase frequency are found to have a negative relationship. Although the discriminant analysis model is found to fit the data quite well, the study has a number of shortcomings because the factors considered are mainly restricted to product characteristics. It is also not clear why the observed effects occur.

Drawing from the political economy framework (Stern and Reve 1980; Achrol, Reve and Stern 1983), Dwyer and Welsh (1985) examine the effects of environmental heterogeneity and channel output sector variability on channel configuration and the consequential effects of the configurations on decision structure and process. Specifically, they hypothesize heterogeneity to be associated with complex configurations (relatively large number of intermediaries) while variability is associated with less complex configurations (fewer intermediaries and more corporate

systems). Using retailer informants data, they find no significant association between heterogeneity and complex channel structures. However, they observe a significant relationship between variability and less complex configurations. The interaction between heterogeneity and variability, is also found to reflect significant differences across channel configurations. The study provides empirical confirmation of the constructs proposed within the political economy framework (Stern and Reve 1980; Achrol, Reve and Stern 1983). Further, collection of the data from a variety of industries instead of from one industry (Anderson 1985, Anderson and Coughlan 1985) serves to increase confidence in the external validity of the results. However, the study has a number of drawbacks. First, it is narrowly focused on environmental characteristics as determinants of channel configuration. Moreover, the conceptualization of the channel environment on a two dimensional scheme (homogeneity/output sector variability) is rather restrictive. Second, only retailers were used as channel informants and their responses were quite low.

2.3. Summary of Literature

From the foregoing review of literature, a number of conclusions emerge. First, the various factors that influence the distribution channel selection decision include: product characteristics, company characteristics, customer characteristics, market and environmental characteristics.

Second, the effects of the factors considered in a particular distribution selection decision vary from situation to situation. Third, attempts have been made to develop models aimed at capturing the effects of various factors on the choice of distribution channels. The models vary in type and in variables included in them. Among these models are the qualitative choice models, which treat the channel selection decision as a dichotomous choice problem, that is, a choice between a direct and an indirect channel. Although existence of "hybrid" choices have been recognized, there are hardly studies with models developed to capture this option. Fourth, to the best knowledge of the current author, there is hardly any econometric research on the selection of distribution channels in Kenya or in the developing countries in general. This study advances the existing literature by developing and estimating a discrete choice econometric model of channel selection, using survey data from urban firms in Kenya. Policy implications of the estimation results are discussed.

CHAPTER 3

CONCEPTUAL FRAMEWORK

This chapter presents a framework for advancing a conceptual understanding of the process that underlies observed selection of product distribution channel. First, an overview of the distribution channel selection process of firms, as perceived by an observer, is presented. Second, effects of exogenous factors on firm behavior (choice of product distribution channel) are characterized, and finally, a set of testable hypotheses is stated.

3.1. Distribution Channel Selection Process

A company or a firm intent to distribute its product(s) is assumed to face a variety of choices. One choice that it faces is whether to distribute the product(s) through a direct channel (integrated channel), or through an indirect (non-integrated) channel. It also faces similar choices concerning related distributive functions, such as transportation, advertising, and so forth. These choices are influenced by factors internal and external to the firm (Stern and Reve 1980; Achrol, Reve and Stern 1983), both sets of factors being outside the control of the firm. The internal factors that the firm cannot manipulate in the short-run include product characteristics and company characteristics (its own attributes). Similarly, the exogenous

external factors that the firm faces include customer and distributor characteristics, and environmental conditions. Figure 3.1.1 depicts theoretically how these factors affect channel choice by a firm, and in turn its objectives (e.g., profit maximization, market share enhancement or an increase in sales turnover). The model depicted in Figure 3.1.1 shows that attainment of a firm's objectives depends on exogenous factors within and outside it, and on type of channel choice it is able to make given these constraining factors. In addition, the figure illustrates the factors that are important in predicting the evolution of configuration of product distribution channels over time. It further pinpoints the constraints that firms as well as policy-makers can strive to relax over time through joint R & D in an effort to increase firm profitability or to make certain products available in a particular area or to a social group at least cost. The model permits predictions concerning firm behavior (as to the choice of product distribution channel) given information on factors that constrain that behavior (first panel of Figure 3.1.1). Some of these predictions are stated and tested in subsequent sections.

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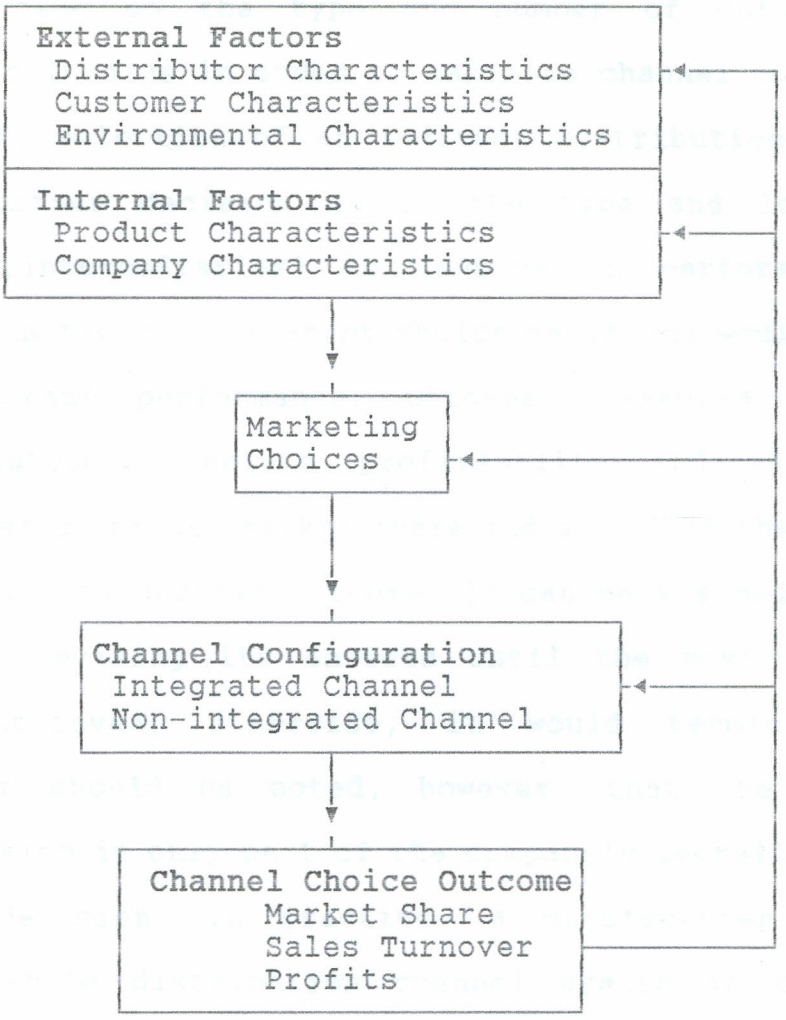
Figure 3.1.1: Distribution Channel Selection Process



If a company chooses to distribute its product(s) directly, it has to decide on the type and number of outlets and salespersons to involve in order to maximize channel output. On the other hand, selection of an indirect distribution channel requires a further decision as to the type and levels of distributors (intermediaries) to involve in performing the distributive functions. Different choice decisions would likely lead to different performance outcomes. Measures of such performance outcomes include profitability indices, sales turnover, market coverage, market share and so on. If the company fails to achieve its desired outcome, it can be assumed that it would keep on revising its choices until the most suitable outcome is achieved; otherwise, it would terminate its activities. It should be noted, however, that the channel selection decision is only part of the company's overall product distribution decision. In practice, a manufacturer has to consider the whole distribution channel system in order to maximize the firm's output (Montgomery and Urban 1974: 217).

To simplify the channel selection problem, it is assumed that intermediaries do not seek a manufacturer. This assumption may appear implausible in Kenya where demand for certain products exceeds supply. However, this would particularly apply in the case of essential products that are produced by monopolists or oligopolists, or in the case of non-essential products that have proved to be successful in the market over time. Such circumstances however only serve to strengthen the position of the manufacturer vis-a-vis that of the intermediary, thus providing the former with a larger set of intermediaries to consider

for involvement.

3.2. Channel Selection Determinants

As mentioned earlier, selection of product distribution channel depends on a variety of factors that are internal and external to the firm. This section explores the nature and the direction of the effects of these factors. First, the effects of internal factors are discussed. External factors are then considered.

Among the various product characteristics that are likely to affect choice of distribution channel are product complexity, product standardization/differentiation, and product age. Complex products are more likely to be distributed through an integrated channel than through a non-integrated channel. Since complex products are likely to be characterized by, among others, relatively high level of before and/or after service requirements, Bucklin's model would suggest involvement of channel intermediaries in their distribution especially through contractual agreements in order to ensure better services. Unfortunately this could pose the problem of ascertaining whether or not such intermediaries adhere to the contract, as there are few readily available indicators of service performance unless the company uses an integrated selling mode (Anderson 1985). Focusing on technical-purchase complexity, Lilien (1977) finds a negative relationship between product complexity and choice of direct distribution channel. According to the foregoing

reasoning, a positive relationship is expected between product complexity and probability of choosing direct distribution channel.

The extent of product standardization or differentiation can be expected to result from a combination of physical product characteristics, selling efforts by the channel members and from the process of consumer choice (Porter 1974). For example, if the selling effort is particularly crucial in the differentiation process of a certain product, and the manufacturer cannot entrust it to other commercial channel members, then an integrated distribution channel is more likely to be selected for such a product than a non-integrated distribution channel. Drawing from McGuire and Staelin (1983), profitability concern would be another reason for using an integrated distribution channel for differentiated products. They argue that distributing differentiated products through an integrated distribution channel is likely to be more profitable than through non-integrated distribution channels since such products do not compete directly, unlike standardized products, and that the manufacturer is not prone to the price wars that adversely affect the manufacturers' profits in integrated channels. Coughlan (1985), and Anderson and Coughlan (1985) find a positive relationship between product differentiation and choice of a direct distribution channel.

Compared to older product categories, newer products would be less established in the market and are likely to be characterized by uncertain demand. Channel intermediaries would generally be reluctant to include such products in their product

set to avoid jeopardizing their profitability level. On the other hand, manufacturers of older product categories would be in a position to find a relatively large number of intermediaries who are more familiar with their products and who can replace the non-performing intermediaries (Stigler (1951), Anderson and Coughlan (1985)). This view contrasts with the transaction cost theory (see e.g., Williamson (1975)). Assuming a positive relationship between product age and competition intensity, an integrated distribution channel is more likely to be selected than a non-integrated channel for products characterized by intense competition. Such competition becomes a source of variability in channel output environments leading to higher bargaining costs. Hence, a firm faced by intense competition would tend to adopt a vertical integration strategy in order to reduce bargaining costs (Achrol Reve and Stern (1983)).

Company size is a major determinant of distribution channel selection. Anderson (1985) argues that the larger the company, the more easily it can manage to carry administrative and short-term efficiency losses. Hence, larger companies are more likely than smaller companies to sell their products through an integrated selling mode (Lilien 1977). Stern and El-Ansary (1982) suggest that companies are likely to delegate the distribution function when they are small, and then assume this responsibility later. This is because a small company may not afford the cost of managing a non-integrated selling mode. However, the delegation of such responsibility would depend on whether the intermediary would be willing to assume the responsibility from the smaller company. The latter may lack the bargaining power to

convince the intermediary to carry its product (Harrigan 1984).

Interpretation of the suggested directional effects of the foregoing internal factors on the selection of product distribution channel is, however, not straight forward. By nature, internal factors are endogenous since they are subject to company control in the long run. One possible solution to this problem is to regress the endogenous variables on exogeneous variables, and then predict new endogenous variables (Pindyck and Rubinfeld 1976).

If a manufacturer is faced by lack of a suitable intermediary distributor for its product, such a manufacturer would have no choice but to integrate the distribution function. Kinsey (1988), for example, observes that due to existence of poorly established distribution channels in the developing countries, multinational firms operating in these countries have, where possible, established wholly owned distribution channels in order to facilitate their operations. Existing intermediaries could however be suitable to handle the manufacturer's product but may be inhibited by their commitment through contractual or other forms of agreements with competitors.

Customer characteristics that are likely to affect channel choice include concentration of customers, their order sizes and purchase frequencies. If customers are relatively geographically dispersed, e.g., in the case of the rural markets, distribution costs for such markets are likely to be relatively high because of the physical distances involved. Hence, delegating the performance of the distributive functions to intermediaries may be a more feasible alternative since such intermediaries would

generally be in a better position to take advantage of economies of scale of distribution due to the variety of the product lines that they normally carry (Kotler 1984, Weigand 1977). On the other hand, for markets characterized by relatively high concentration of customers, e.g., urban markets, distribution costs are likely to be relatively low due to physical proximity of customers. Manufacturers serving such markets would be unlikely to gain any substantial distribution cost advantages by delegating the performance of the distributive tasks to intermediaries.

For customer orders that are relatively large in size, a company would be able to take advantages of economies of scale of the distribution functions, for example, in order processing, transportation, and so on. On the other hand, large scale buyers (e.g., institutional buyers) may often prefer to buy directly from the manufacturer instead of from the middlemen in order to pay lower prices (Weigand 1977). In the case of relatively small orders, which are typical with household or individual customers distribution costs per unit are likely to be higher than for larger orders. Channel intermediaries would be in a better position than the company to take advantages of economies of scale of distribution since they would be dealing with a relatively wider variety of products. According to Bucklin (1966), purchasing in small lot sizes would imply higher service outputs which may require involvement of intermediaries in the distribution channel. On the basis of Bucklin's theory, Corstjens and Gautschi (1983) formulates an input-output economic model and finds a negative relationship between inputs (labor and capital)

and lot size. Lilien (1977) finds size of the average order to be positively related to choice of direct distribution channel while a negative relationship is observed in case of purchase frequency. Among the environmental characteristics that are likely to affect channel selection (Stern and Reve 1980) is government influence. For example, the Kenya government requires that manufacturers sell their products through locally owned intermediaries where such intermediaries exist. However, with trade liberalization this requirement is being increasingly watered down.

From the foregoing discussion, hypothesized signs of the coefficients of key explanatory variables are presented in Table 3.2.1. The dependent variable is probability of a firm choosing an integrated product distribution channel.

Table 3.2.1: Hypothesized Effects of Key Explanatory Variables

Explanatory Variable	Expected Sign of the Coefficient
1. Product complexity	Uncertain
2. Degree of product standardization	Positive
3. Product age	Negative
4. Company size	Uncertain
5. Suitability of existing distribution channels	Negative
6. Degree of Customer Concentration	Positive
7. Product order size	Positive
8. Product order frequency	Negative
9. Government policy on product distribution	Uncertain

CHAPTER 4

DATA AND MODEL ESTIMATION

4.1. Research Design

The data for this study were collected from the beginning of January through February in 1992. The sampling frame for the study was developed from directories of Kenya Association of Manufacturers and of the Kenya Chamber of Commerce and Industry. Although the initial sampling plan was to use disproportionate stratified random sampling of manufacturers classified on the basis of the various product categories, it was not possible to contact most of the manufacturers located outside Nairobi. Further it was also not possible to trace the physical location of some of the manufacturers. These practical limitations may have reduced the degree of sample representativeness. A self-administered structured questionnaire (Appendix B) was used to collect the data from manufacturers. A request was made for the questionnaire to be completed by the marketing or sales manager or by the product distribution manager. To reduce the single informant bias (Phillips 1981), respondents were requested, where necessary, to consult other managers within their organizations when completing the questionnaire. Further, they were asked to consider only the main product sold by their company. For each company, data were obtained concerning type of distribution channel used by the company, attributes of its product distributors, product characteristics, customer characteristics,

market and environmental characteristics, and company characteristics. In order to elicit extra information, space for comments was provided for in the questionnaire.

A total of 26 out of 77 companies returned the questionnaires that had been delivered to them. Table 4.1.1 shows the respondents' location, the year of incorporation of their businesses in Kenya, and the type of products they manufacture. From the table, it can be seen that most of the responding companies (85%) are located in Nairobi. In general, the spatial distribution of the respondents during the period 1960 through 1992 remained about the same. The composition of manufactured products is as follows: food products (31%); non-electrical machinery and metal products (19%); rubber, plastics and related products (15%); building and construction products (12%); other products (24%), which include pharmaceutical products, petroleum products, electrical machinery, packaging products and motor vehicle assemblage.

Table 4.1.1: Company Location, Year of Incorporation, and Type of Product Manufactured

Location:	Frequency	Percent
Nairobi	22	85
Other	4	15
	26	100
Year of Incorporation:		
1980 - 1992	6	23
1970 - 1979	8	30
1960 - 1969	6	23
Before 1960	6	23
	26	100
Type of Product Manufactured:		
Building and construction	3	12
Electrical machinery and related products	1	4
Rubber, plastics and related products	4	15
Pharmaceutical products	2	8
Petroleum products	1	4
Non-electrical machinery and metal product	5	19
Food products	8	31
Packaging and related products	1	4
Motor vehicle and assemblage	1	4
	26	100

4.2. Variable Definitions

As noted in the previous chapter, data were collected on various attributes from each company. The main dependent variable is the type of product distribution channel used by a manufacturer to reach its target market. Other dependent variables describe decisions of firms concerning product distribution and selling (other than selection of distribution channels). These include channel change over time, whether or not transportation is contracted out to another firm , whether or not advertising is contracted out to another firm, and whether or not other product distributive functions (other than transportation and advertising) are contracted out to another firm. In order to facilitate the interpretation of the regression results as probabilities, values of binary dependent variables are constrained to lie within the [0-1] interval (Anderson 1985, Aldrich and Nelson 1984, Anderson and Coughlan 1985, Anderson and Schmittlein 1985, Pindyck and Rubinfeld 1976). In particular, the main dependent variable is categorized as either integrated channel or non-integrated channel, where the latter includes mixed distribution channel choice cases, i.e., choice of both integrated and non-integrated distribution channels (Erramilli and Rao 1993).

There are ten main product characteristics: whether the company's product is categorized as an industrial or a consumer product; the extent to which the company's product is standardized; the amount of training required by the company's

sales person in order to sell its product successfully; the amount of training required by the company's product distributor in order to sell its product successfully; the product's shelf life; the product after-sale service requirement; the nature of product demand; the product age; and the size of the product line. Product after-service requirement is used as a measure of product complexity.

There are seven main company characteristics: the total values of the assets; the total value of sales; the total number of employees; the company's Kenyan market share; the company's Kenyan market share position; whether or not the company is a multinational company; and the company's profit trend over time. Total value of assets is used as a measure of company size (Anderson 1985).

Distributor characteristics are particularly aimed at measuring the suitability of the existing distribution channels. This variable describes the following dimensions for each distributor: financial strength; price offers; credit terms; market coverage; space or time allocated to company's product; servicing capability; capacity to carry complementary products; and capacity to carry substitute products. A distribution channel suitability index is constructed as a sum of the standardized scores of the above variables. The other characteristics in this category include level of profit margin required by distributor in order to carry manufacturer's product, and number of outlets used to distribute manufacturer's product.

The customer characteristics describe whether or not the buying end unit is an individual or a household or an

institution; the degree of concentration of customers in a an area; the average value per transaction of the product purchased by immediate and end customers; the average product purchase frequency by immediate and end customer; and the normal interval between receipt of an order from a customer and the start of delivery of that order. The average value per transaction of the product purchased by the company's end customer, and the average product purchase frequency by end customer are used as measures of order size, and order frequency respectively.

Environmental characteristics comprise the geographical scope of the market served by the company; whether or not the company uses distribution channels similar to competitors' channels; the number of local competitors; the number of foreign competitors; the effect of government's product distribution policy on how the company distributes its main product; and the effect of government's taxation policy on how the company distributes its main product. A number of composite variables are derived from these variables. The total number of competitors is derived as the sum of the number of local and foreign competitors. Government policy index is derived as the sum of the standardized scores of government product distribution policy, and of government taxation policy. Operational definitions of the foregoing variables are presented in Table 4.2.1.

Table 4.2.1: Operational Definitions of Variables

Variables	Variable Descriptions
Dependent Variables	
A. Main Dependent Variable	
CHANNEL_TYPE	Type of product distribution channel used by a manufacturer. CHANNEL_TYPE takes a value of 1 if a company distributes its product through an integrated channel (direct channel), and a value of 0 if a non-integrated channel (indirect channel) is used.
B. Other Dependent Variables (Distribution and Selling Decisions)	
CHANNEL_CHANGE	Whether or not a company has ever changed its product distribution channel since introducing its product within the Kenyan market. CHANNEL_CHANGE is equal to 1 if a channel has ever changed; otherwise it takes a value of 0.
TRANSPORT_CONTRACT	Whether or not transportation function of a manufacturer is performed by another organization or firm. TRANSPORT_CONTRACT is equal to 1 if transportation function is contracted to an outside firm; else TRANSPORT_CONTRACT is equal to 0.
AD_CONTRACT	Whether or not advertising function of a manufacturer is contracted out to another firm. AD_CONTRACT is equal to 1 if advertising function is contracted out and is equal to 0 otherwise.
OTHER_CONTRACT	Whether or not product distributive functions are contracted out to another firm. OTHER_CONTRACT is equal to 1 if other distributive functions are contracted out and is equal to 0 otherwise.

Table 4.2.1: (continued)

Explanatory Variables	
A. Product Characteristics	
PRODUCT_CATEGORY	Type of the main product produced by a manufacturing firm; 1=industrial product and 0=consumer product.
PRODUCT_STANDARD	Whether a product is standardized to be bought by any consumer or is customized to particular users; 1=customized product and 0=standardized product.
TRAIN_SALESPERSON	Amount of training (in weeks) required by manufacturer's salesperson in order to be able to sell its product successfully.
TRAIN_DISTRIBUTOR	Amount of training (in weeks) required by distributor in order to be able to sell a manufacturer's product successfully.
SHELF_LIFE	Duration the product takes to retain its value, measured in months.
PRODUCT_COMPLEXITY	Product after sale service; PRODUCT_COMPLEXITY is equal to 1 if after sale service is none; is equal to 2 if level of after sale service is low; is equal to 3 if it is moderate; and is equal to 4 if high.
PRODUCT_DEMAND	Whether or not product demand is regular; 0=regular; 1=otherwise.
PRODUCT_AGE	Duration the manufacturer has sold its product in the Kenyan market measured in years.
PRODUCT_LINE	Total number of products within the company's main product line.
B. Company Characteristics	
COMPANY_SIZE	Company size in shilling value of previous year's assets.
TOTAL_SALES	The total value of sales in the previous year, in Kenya shillings.

Table 4.2.1: (continued)

NUMBER_EMPLOYEES	Current number of the company's permanent and temporary employees.
MARKET_SHARE	The current product market share of the company in Kenya, expressed as a percentage.
MARKET_POSITION	Whether a company is a market leader; 1=market leader and 0=otherwise.
FIRM_MULTINATIONAL	Whether or not company is a multinational company; 1=multinational company and 0=otherwise.
PROFIT_TREND	Company's profit trend over time; 1=upward trend; 2=constant; and 3=downward trend.
C. Distributor or Seller Characteristics	
FINANCE_VIABILITY	Financial strength of a distributor, measured on a 1-7 semantic differential scale, where 1=extremely financially strong and 7=extremely financially weak.
PRICE_OFFERS	Degree of attractiveness of price offers of a distributor, measured on a 1-7 semantic differential scale, where 1=extremely favorable price offers, and 7=extremely unfavorable price offers.
CREDIT_OFFERS	Degree of attractiveness of credit terms offers by a distributor, measured on a 1-7 semantic differential scale, where 1=extremely favorable credit terms and 7=extremely unfavorable credit terms.
MARKET_COVERAGE	Extent of market coverage by a distributor, measured on a 1-7 semantic differential scale, where 1=extremely high market coverage and 7=extremely low market coverage.
SPACE_ALLOCATED	Amount of time or space allocated to manufacturer's product by a distributor, measured on a 1-7 semantic differential scale, where 1=unlimited allocation and 7=extremely limited allocation.

Table 4.2.1: (continued)

SERVICING_CAPABILITY	Distributor's product servicing capability, measured on a 1-7 semantic differential scale, where 1=extremely strong and 7=extremely weak servicing capability.
CARRY_COMPLEMENTARY	Extent to which a distributor carries products that are complementary to manufacturer's product, measured on a 1-7 semantic differential scale, where 1=carries a lot of complementary products and 7=does not carry any complementary products.
CARRY_SUBSTITUTE	Extent to which distributor carries products that are substitute to manufacturer's product, measured on a 1-7 semantic differential scale, where 1=carries a lot of substitute products and 7=does not carry any substitute products.
D_SUITABILITY	An index of suitability of existing distributors, expressed as the sum of standardized values for FINANCE_VIABILITY, PRICE_OFFERS, CREDIT_OFFERS, MARKET_COVERAGE, SPACE_ALLOCATION, SERVICE_CAPABILITY, and CARRY_COMPLEMENTARY.
PROFIT_MARGIN	Level of profit margin required by distributor in order to carry a manufacturer's product. PROFIT_MARGIN is equal to 1 if profit margin is low; is equal to 2 if moderate; is equal to 3 if high; and is equal to 0 if other.
NUMBER_OUTLETS	Number of outlets used to distribute manufacturer's product. NUMBER_OUTLETS is equal to 1 if one outlet is used; is equal to 2 if few outlets are used; and is equal to 3 if many outlets are used.

Table 4.2.1: (continued)

D. Customer Characteristics	
HOUSEHOLD_BUYER	Whether or not a manufacturer sells to a household/individual buyer; 1=household/individual buyer, 0=other.
INSTITUTION_BUYER	Whether or not a manufacturer sells to an institutional buyer such as a hospital or a school; 1=institutional buyer; 0=other.
CUSTOMER_SPREAD	The degree to which the company's customers are concentrated; 1=very concentrated; 2=fairly concentrated; 3=somewhat concentrated; and 4=not concentrated.
ORDER_SIZE1	The average value per transaction of the product purchased by the company's immediate customer, expressed in Kenya Shillings.
ORDER_SIZE2	The average value per transaction of the product purchased by the company's end customer, expressed in Kenya Shillings.
ORDER_FREQUENCY1	The average product purchase frequency by immediate customer, measured in number of times the purchase is made per week.
ORDER_FREQUENCY2	The average product purchase frequency by end customer, measured in number of times the purchase is made per week.
DELIVERY_TIME	The duration between receipt of an order from a customer and the start of delivery of that order, expressed in weeks.
E. Environmental Characteristics	
MARKET_SCOPE	The scope of the market served by the company; 1=region within the country; 2=entire country; 3=more than one country; and 4=combination of the above.
COMPETITOR_CHANNEL	Whether or not the company uses distribution channels similar to competitors'; 1=similar to competitors' and 0=otherwise.
LOCAL_COMPETITORS	Estimated number of local competitors.
FOREIGN_COMPETITORS	Estimated number of foreign competitors.

Table 4.2.1: (continued)

TOTAL_COMPETITORS	Estimated total number of competitors calculated as the sum of the LOCAL_COMPETITORS and FOREIGN_COMPETITORS.
DISTRIBUTION_POLICY	Degree to which government policy is favorable to product distribution; 1=favorable; 2=neutral; and 3=unfavorable.
TAXATION_POLICY	Degree to which government taxation is favorable to manufactured products; 1=favorable; 2=neutral; and 3=unfavorable.
GOVERNMENT_POLICY	Overall index of extent to which government policies are favorable to manufactured products, expressed as the sum of the standardized values of DISTRIBUTION_POLICY and TAXATION_POLICY.

4.3. Model Specification and Implementation

If channel selection decision is made on the basis of a single "most critical" factor (e.g., channel profitability), channel selection process is a single criterion problem. Such selection processes are typically characterized by financial models based on profit maximization objective (Cooper 1985, Lambert 1966, Corstjens and Doyle 1979, Lilien and Kotler 1983). These models treat the channel selection decision as analogous to a capital investment decision. Computational approaches such as the net present value (NPV) method, the break-even analysis and profit maximization procedures are then used. The importance of the single criterion models is underscored particularly by their conformity to the company's profit maximization objective.

However, their usefulness is conditional on the availability of financial input data. Such data are difficult to get. Furthermore, there is need to also consider the effects of non-financial factors in the channel selection decision.

Multiple criteria (multi-attribute) models account for numerous factors in channel selection. They typically avoid conventional economic inputs and rely more on subjective inputs regarding the phenomenon under consideration (Cooper 1985). Included in this category are checklists and scoring models (Rosenbloom 1987, Stern and El-Ansary 1982). In the case of the latter, ratings of alternative distribution channels are sought from respondents and then combined through some factor importance weighting procedure. The option with the highest score is selected. Unfortunately, the weighting scheme is normally subjective, depending much on the rater's perception of the channel selection process rather on objective factors that characterize it.

A possible solution to the subjectivity problem in the importance weighting scheme is to determine the weights using rigorous statistical procedures. Given that the selection of the distribution channel is a discrete event, it can be modelled as a discrete choice econometric problem (Maddala 1988a, 1988b; Domencich and MacFadden 1975), thereby introducing objectivity in channel selection since the weights of the factors affecting the selection decisions are estimated consistently. Following is an outline of this modelling approach.

Let Y and X be sets of vectors of the dependent and explanatory variables respectively and let the functional

relationship hypothesized among the variables be stated as

$$Y_{ij} = f(X_{imj}) + \epsilon_{ij} \quad (1)$$

where,

Y_{ij} = choice of distribution channel j by company i;

X_{imj}= exogenous factors (m=1,...,M) that affect selection of channel j by company i; ϵ_{ij} = a random error term characterizing choice of channel j by company i. The linear probability version of expression (1), adopting lower-case letters for dependent and independent variables is

$$P(y_{ij}|x_{imj}) = a_{ij} + \Sigma_m b_m x_{imj} + \epsilon_{ij} \quad (2)$$

where,

a and b are parameters to be estimated and m=1,..,M, is the number of explanatory variables. There are two major problems with the linear probability model specified in (2). The first is that the predicted probability values may lie outside the [0,1] interval. The second problem is that the variance of the error term is not constant and consequently the estimated values of the model parameters are not the best unbiased estimates (Pindyck and Rubinfeld 1976). A possible solution to these limitations is to use the discriminant model or the logit model. The logit is a more robust specification in that it overcomes some of the limiting assumptions of the discriminant analysis (Lo 1986; Morrison 1969). Further, the logit model has been found to perform very well in a variety of discrete decision frameworks (Coughlan 1985; Anderson and Coughlan 1985; Rao and Mclaughlin 1989). Hence, the logit model is adopted for this study. In a

logit specification, the probability that firm i will choose product distribution channel, k, over all the other channels, j, given the characteristics vector X, can (suppressing the the i subscript) be expressed in vector-matrix notation as

$$P(Y_j=k|X_j) = \frac{1}{1+ \Sigma_j \exp(X\beta)} \qquad (3)$$

where, β is a vector of parameters to be estimated. In contrast to the case of the linear probability model (equation (2)), where the parameter vector b are the changes in probability due to changes in vector X, in the logit model, the vector β stands for changes in the logit index brought about by changes in the same variables. Expression (3) applies also to decisions concerning other aspects of product distribution, e.g., whether or not a firm contracts its advertising or transportation functions to another firm.

In estimating equation (3), the dependent variable is treated as a binary choice, that is, a company is assumed to either choose an integrated distribution channel or a non-integrated distribution channel (including the mixed distribution channel). A rather versatile computer program, STATA, is used to perform model estimations. The logit models are first estimated using ordinary least squares (OLS) technique to provide starting values for the Maximum Likelihood Estimation (see for example Maddala, 1987). The OLS results are also reported to aid in the comparison of the two models. Hendry's (1987) model selection strategy is used. The strategy involves including all the vari-

ables in the regression equation first (the general model), then, dropping one at a time on the basis of some criteria. In the current case, backward stepwise regression technique was used to drop the variables with t-values of less than 1. This resulted in a reduced set of variables in the specific model.

CHAPTER 5

EMPIRICAL RESULTS

This chapter presents the empirical results of the study. The results are presented in two sections with summary statistics being presented before the regression results.

5.1. Descriptive Statistics

Table 5.1.1 shows unstandardized mean values for the various variables used in the study with their corresponding standard deviations. From the table, it can be seen that a third (30%) of the companies in the sample distributed their products through an integrated channel, with the remaining (70%) distributing through a combination of mixed and non-integrated channels. This finding is not surprising given that the Kenya Government requires a manufacturer to engage independent distributors whenever possible. According to Table 5.1.2, the channel selection criteria cited by firms included expected level of product sales, degree of company control over product selling, past experience of managers, expected level of product profits, distributor adaptability, expected demand levels, and expected return on investment.

Table 5.1.1: Sample Means and Standard Deviations

Variable	Mean	Standard Deviation
CHANNEL_TYPE	0.3	0.5
CHANNEL_CHANGE	0.7	0.6
TRANSPORT_CONTRACT	0.7	0.5
AD_CONTRACT	0.7	0.5
OTHER_CONTRACT	0.2	0.4
FINANCE_VIABILITY	2.0	1.2
PRICE_OFFERS	2.9	1.6
CREDIT_OFFERS	3.1	2.0
MARKET_COVERAGE	2.1	1.5
SPACE_ALLOCATED	2.8	1.5
SERVICING_CAPABILITY	2.6	1.8
CARRY_COMPLEMENTARY	2.6	1.4
CARRY_SUBSTITUTE	3.7	2.3
PROFIT_MARGIN	2.3	0.8
NUMBER_OUTLETS	2.1	0.9
PRODUCT_CATEGORY	0.5	0.5
PRODUCT_STANDARD	0.1	0.3
TRAIN_SALESPERSON	16.6	18.3
TRAIN_DISTRIBUTOR	12.4	24.6
SHELF_LIFE	68.1	50.2
PRODUCT_COMPLEXITY	2.1	0.9
PRODUCT_DEMAND	0.3	0.5
PRODUCT_AGE	17.2	9.7
PRODUCT_LINE	4.7	1.8
HOUSEHOLD_BUYER	0.7	0.5
INSTITUTION_BUYER	0.7	0.5
CUSTOMER_SPREAD	2.6	1.2
ORDER_SIZE1 ($x10^{-6}$)	2.5	4.7
ORDER_SIZE2 ($x10^{-5}$)	9.0	32.0
ORDER_FREQUENCY1	1.9	0.8
ORDER_FREQUENCY2	2.2	1.4
DELIVERY_TIME	2.2	0.7
MARKET_SCOPE	2.4	0.8
COMPETITOR_CHANNEL	0.2	0.4
LOCAL_COMPETITORS	9.2	19.6
FOREIGN_COMPETITORS	10.2	19.9
DISTRIBUTION_POLICY	2.1	2.1
TAXATION_POLICY	2.7	0.6
COMPANY_SIZE ($x10^{-8}$)	2.8	2.6
TOTAL_SALES ($x10^{-8}$)	2.9	2.6
NUMBER_EMPLOYEES	290.0	337.0
MARKET_SHARE	0.2	0.1
FIRM_MULTINATIONAL	0.4	0.5
PROFIT_TREND	1.6	0.7

Table 5.1.2: Type of Channel Selected and the Channel Selection Basis Used by Firms

Type of Channel Selected:	Frequency	Percent
Integrated channel	7	27
Integrated and non-integrated channels (Mixed Channels)	7	27
Wholesalers and retailers (non-integrated channels)	12	46
	26	100
Channel Selection Basis:		
No particular basis	2	8
Manager's past experience	9	35
Expected level of product sales	14	54
Expected level of product profits	6	23
Expected level of product return on investment	5	19
Expected level of company's control over product distribution	9	35
Distributor's adaptability	6	23
Other	6	23
	26	100

Relatively few (35%) companies said they had made channel distribution changes over the period analyzed. According to Table 5.1.3, any changes made involved mainly a movement from a direct distribution to an indirect distribution channel. A possible explanation for a general lack of changes within the distribution channel is that the changes are costly because they involve long-term organizational commitments (Anderson and Coughlan 1985, Dwyer and Welsh 1985).

Table 5.1.3: Channel Changes and Reasons for Change

Channel Changes:	Frequency	Percent
From direct to indirect distribution	4	44
From indirect to direct distribution	2	22
Other changes	3	34
	9	100
Reasons for Change:		
Minimization of financial risks	1	11
Market coverage improvement	2	22
Due to market growth	2	22
To keep up with international standards	1	11
Due to competition and market adaptation	1	11
To reduce costs, increase reliability and establish proper controls	1	11
Government requirement	1	11
	9	100

Thus once a company has selected a particular distribution channel, it is difficult to change it, since such a change typically involves additional organizational costs. For example, changing from a non-integrated to an integrated channel may result in the company incurring expenditures on the establishment of company owned outlets and other distribution facilities, and/or recruitment of own salesforce, among others. On the other hand, such investments are likely to serve as exit barriers for a company using an integrated distribution channel (Porter 1985).

As already noted on the basis of information shown in Table 5.1.1, most of the firms surveyed (about 70%) distributed their

products through non-integrated distribution channels. Further, these firms used only a limited number of outlets to reach their end customers. This perhaps explains the particularly strong relationship (χ^2 = 14.02, p-value = 0.001) found between the number of outlets and selection of product distribution channel.

An equal proportion of respondents (70%) indicated that they contracted other companies to transport and advertise their products respectively, while only about 20% said that they involved other organizations to perform for them "other" distributive functions such as warehousing, marketing research and clearing and forwarding. The degree of delegation of performance of these functions could be explained by a number of factors. First, it could be due to company's history. Companies which are used to delegation/non-delegation of performance of certain distributive tasks to outside firms may wish to adopt the same arrangement for a new product/market. Terpestra (1983) reports cases of multinational companies carrying over established domestic market practices to the foreign markets. Second, effective performance of the tasks may require specialized services of commercial intermediaries, otherwise the company would perform them in-house.

The sample means indicate that existing distributors are rated as suitable on dimensions of financial strength, market coverage and profit margins, and generally somewhat suitable on other dimensions. Variations in responses are approximately the same for distributor suitability on other dimensions. The mean score for training periods required by a company's salesperson and distributor in order to be able to sell a product effectively

are 17 and 12 weeks respectively, the corresponding standard deviations being 18 and 25 weeks. The mean score for product shelf life is about 68 weeks with a standard deviation of 50 weeks. After-sales service was indicated to be relatively low. About 30% of the respondents said there was a regular demand for their products. The mean product age was 17 years with a standard deviation of about 10 years, while the mean product line size was about 5 products with a standard deviation of about 2 products. An equal proportion of companies (50%) said they manufacture consumer and industrial products respectively, with about 90% of these products being standardized products.

About 70% of the companies said they sell their products to both household and institutional customers who are somewhat concentrated. The average values of the order sizes for the immediate customer and end customer were about Ksh 2.5 million and Ksh 1 million with corresponding standard deviations of about Ksh 5 million and Ksh 3 million. A possible explanation for the unexpected relatively large values for end customer order sizes could be large institutional orders. Purchase frequency for both immediate and end customers was about 2 weeks with the latter showing slightly more variation. The average delivery time was about 1 week with a similar variation.

On average, the companies surveyed said they sell their products in the entire country. The mean number of competitors was 14 with a standard deviation of 25. About 80% of the companies used channels similar to those used by their competitors probably to conform to the industry norms. Government policy on distribution channel policy was on average rated to be

ineffective.

The estimated average values for total company assets and sales were about Ksh 300 million each, with similar standard deviation values. The mean number of total employees per firm was 290 with a standard deviation of 337 employees. The responding companies had an average Kenyan market share of about 20 percent. This is consistent with the responses by most companies (70%) that they were either market leaders or multinational companies (40 percent). On average the profit trend of the responding firms over time analyzed had been constant.

5.2. Estimation Results

In this section, two main sets of estimation results are presented: ordinary least squares (OLS) results and results from binary logit models. As mentioned earlier, Hendry's (1987) strategy was used to arrive at the estimated models. The results from the general model are presented in Appendix Tables A.1 to A.5. Table 5.2.2 reports estimation results for the main decision made by firms, that is, the choice of a product distribution channel. Estimation results for other product distribution or selling decisions of firms are shown in Tables 5.2.5 to 5.2.8. The coefficients for the various explanatory variables are reported with their corresponding t-values in brackets, with levels of significance being denoted by asterisks. The ensuing sections discuss the issue of multicollineality among explanatory variables, the fit of the models, hypothesized effects,

elasticities of channel selection probabilities, and determinants of other product distribution or selling decisions of firms.

a. Multicollineality Among Explanatory Variables

To deal with the multicollinearity problem, three out of nine explanatory variables were dropped from the general model: suitability of existing distributors, product complexity, and customer concentration. The final model (specific model) includes product standardization, product age, order size, order frequency, government policy, and company size. Table 5.2.1 reports the correlations among these variables. Most of the variables in the table are weakly correlated, implying that there is not a serious multicollineality problem in the data used to estimate the models.

Table 5.2.1: Correlation Matrix of the Variables in Regression Equations

Variable	Correlation Coefficients					
PRODUCT_STANDARD	1.00					
PRODUCT_AGE	-.17	1.00				
COMPANY_SIZE	-.17	.35	1.00			
ORDER_SIZE2	-.50	-.04	.23	1.00		
ORDER_FREQUENCY2	.12	-.37	-.14	.18	1.00	
GOVERNMENT_POLICY	.07	-.45	-.22	-.11	-.09	1.00

Table 5.2.2: Probability of Choosing an Integrated Channel (T-values in Parentheses)

Variable	Linear Probability Model		Dichotomous Logit Model	
	Coef.	T-Ratio	Coef.	T-Ratio
PRODUCT_STANDARD	-.28	-1.02	-1.01	-.50
PRODUCT_AGE	.13	1.05	.91	.66
ORDER_SIZE2	.09	2.14**	1.46	1.96*
ORDER_FREQUENCY2	.12	1.80*	.97	1.29
GOVERNMENT_POLICY	.06	1.08	.77	.05
COMPANY_SIZE	-.09	-2.36**	-1.33	-1.91*
CONSTANT	1.10	1.48	11.88	1.27
Adjusted R^2/Pseudo R^2		.35		.59
Degrees of freedom		19.00		19.00
Log-Likelihood				-6.15
Chi-squared				18.00

* = Statistically signifiacant at the 10 percent level
** = Statistically significant at the 5 percent level

b. The Fit of the Models and the Hypothesized Effects

From Table 5.2.2, it can be seen that the adjusted R^2 in case of the OLS model, and the corresponding Pseudo R^2 in the case of the logit model, are equal to 0.35 and 0.59 respectively. Accordingly, the logit model seems to fit data better than the OLS model. However, since the upper limit of the R^2 is likely to be substantially less than 1 in case of a dichotomous dependent variable model, this statistic must be used with caution as a measure of goodness of fit (Aldrich and Nelson 1984). Thus in addition to the adjusted R^2 and the Pseudo R^2 model, predictions were made as shown in Table 5.2.3. In case of the OLS model, predicted negative probability values were set to zero (Pindyck and Rubinfeld 1976) since probability values can only be defined within [0,1] interval.

Table 5.2.3: Observed Channel Choice and Predicted Probabilities of Choosing an Integrated Distribution Channel

Observed Choice for Each Firm	Predicted Probabilities	
	Linear Model	Logit Model
1. non-integrated	.02	.50
2. non-integrated	.28	.52
3. non-integrated	.46	.66
4. integrated	.82	.72
5. non-integrated	.32	.51
6. non-integrated	0.00	.50
7. integrated	.57	.69
8. integrated	.70	.67
9. integrated	.96	.73
10. non-integrated	.62	.62
11. non-integrated	.08	.50
12. integrated	.68	.70
13. non-integrated	.28	.53
14. non-integrated	0.00	.50
15. non-integrated	.21	.51
16. non-integrated	0.00	.50
17. non-integrated	.21	.53
18. non-integrated	.10	.51
19. non-integrated	.17	.51
20. non-integrated	0.00	.50
21. non-integrated	0.00	.50
22. non-integrated	0.00	.50
23. non-integrated	.47	.56
24. non-integrated	0.00	.50
25. integrated	.47	.69
26. integrated	.26	.52
Percent correctly classified	88.00	62.00
Percent predicted outside [0,1] interval	27.00	0.00

The classification procedure involves comparing observed channel choices with predicted choices. In case of the predicted choices, a choice is classified as integrated if the predicted probability of choosing an integrated distribution is greater than 0.5; otherwise non-integrated. As shown in Table 5.2.3, 23 out of 26 (88%) and 16 out of 26 (62%) firm choices were correctly classified in case of the OLS model and the logit model respectively. These rates are higher than the rate expected by chance, which by the proportional chance criterion (Morrison

1969) is equal to 61 percent. Although OLS model in this case seems to provide a better fit than the Logit model, it should be noted that 7 out of 26 (27%) of its predicted probabilities lie outside the [0,1] restriction, a feature that reduces its attractiveness.

As already noted, the following six explanatory variables were retained in the specific model: product standardization, product age, product order size, product order frequency, government policy, and company size. According to the conceptual model outlined in Figure 3.1.1 (see also the summary of its predictions in Table 3.1.1), the probability of choosing an integrated distribution channel is higher the greater the degree of product standardization. This hypothesis is not supported by the negative sign of coefficient of this variable in Table 5.2.2. The estimated negative effect supports the argument advanced by Coughlan(1985), Anderson and Coughlan (1985) and McGuire and Staelin (1983) that non-integrated channels are more likely to be used for non-differentiated (standardized) products than for differentiated products. Lilien (1979) also found similar directional effects. The hypothesized relationship between channel choice and product age is also not supported by the data. The the coefficient on product age is positive rather than negative as predicted by the theoretical model and by results from previous studies. The results in Table 5.2.2 show that older products are more likely to be distributed through an integrated distribution channel, contrary to predictions of Stigler (1951) and Anderson and Coughlan (1985). However, the coefficient on product age is not statistically significant.

The probability of choosing an integrated distribution channel is hypothesized to be larger the larger the product order size (Table 3.1.1). This hypothesis is supported by the data. The coefficient on product order size is positive and significant in both models. Lilien (1979) found similar directional effects. This finding provides support for service output theory advanced by Bucklin (1966). According to that theory, large product order sizes are more likely than small order sizes to be characterized by less servicing by the firm. Since less product servicing would mean reduced distribution costs for the company, large orders are more likely to be handled via an integrated distribution channel.

The probability of choosing an integrated distribution channel was hypothesized to be greater, the higher the product purchase frequency (Table 3.1.1). This hypothesis finds support in the data at the 10% level in the linear model, but the estimated coefficients do not have the expected signs. This finding is intriguing. Contrary to the findings by Lilien (1979), and the service outputs theory advanced by Bucklin (1966), increased order frequencies are more likely to be handled through an integrated channel rather than via a non-integrated channel. The directional effects of government policy on the choice of integrated distribution channel were predicted to be uncertain. Insignificant effects were found for this variable. This implies that the probability of choosing an integrated distribution channel is unaffected by government policy.

The probability of choosing an integrated distribution channel was hypothesized to be uncertain with respect to company size. The results in Table 5.2.2 show that this probability is

inversely related to company size. The estimated directional effect implies that the probability of choosing an integrated channel is greater the smaller the company. This is contrary to the finding by Lilien (1977), and the argument by Anderson (1985), that the larger the company, the more easily it can manage to carry administrative and short-term efficiency losses. Hence, according to that argument large companies are more likely than small companies to sell their products through an integrated selling mode. The finding is supported by the Stern and El-Ansary (1982) argument, that small firms are more likely to distribute their products via an integrated channel if existing intermediaries are unwilling to carry those products.

c. Elasticities of Channel Selection Probabilities

Compared to the logit model, the linear model has smaller estimated coefficients. In a linear probability model the coefficients on regressors show effects of a unit change in a regressor on the probability of choosing an integrated distribution channel. For example, from Table 5.2.2, a unit increase in product order size would increase the probability of selecting an integrated distribution channel by nine percent. In the logit model however, the non-linearity of the relationship between channel selection and each of its determinants makes the interpretation of the logit coefficients less straightforward. One possible solution to this problem is to compute partial derivatives of the selection probability with respect to the explanatory variables (Aldrich and Nelson 1984, Pindyck and Rubinfeld 1976). Partial derivatives however show marginal

effects of regressors on the choice probability, thus making them dependent on the units in which the regressors are measured. To overcome this further problem, the elasticities associated with the derivatives are computed. Table 5.2.4 shows partial derivatives of selected variables (in regression equations) and the attendant elasticities.

It can be seen from the table that channel selection probability is most responsive to company size. Next in magnitudes are selection probabilities with respect to product order size, product age, product order frequency, product standardization and government policy. All the elasticities (except two) are greater than one, implying that channel selection responds elastically to changes in most of the variables shown in Table 5.2.4. For example, a unit percentage increase in product order size would increase the probability of choosing an integrated distribution by about 4 percent.

Table 5.2.4: Channel Selection Elasticities

Variable	Partial Derivative	Elasticity
PRODUCT_STANDARD	-0.20	-0.09
PRODUCT_AGE	0.18	1.54
ORDER_SIZE2	0.29	3.89
ORDER_FREQUENCY2	0.19	1.53
GOVERNMENT_POLICY	0.15	-0.01
COMPANY_SIZE	-0.27	-4.97

From the foregoing results, a number of key conclusions about product distribution in Kenya can be advanced. First, most (70%) of the manufacturing firms distribute their products indirectly. Second, marketing managers use a variety of distribution channel selection criteria. Third, relatively few (35%) companies make distribution channel changes over time.

Fourth, statistically significant effects are only found in case of product order size, product purchase frequency and company size. In particular, inverse relationships are found between the choice of an integrated channel and product order frequency, and company size.

d. Determinants of other Selling or Distribution Decisions of Firms

Estimation results for other selling or distribution decisions of firms are presented in Tables 5.2.5 to 5.2.8. Table 5.2.5. shows the estimated effects of factors that influence the probability of changing a distribution channel. According to the table, product standardization, and order size have positive and significant effects on channel change. That is, the probability of channel change increases with increases in the degree of product standardization, and with order sizes.

Table 5.2.5: Probability of Making a Channel Change (T-values in Parentheses)

Variable	Linear Probability Model		Dichotomous Logit Model	
	Coef.	T-Ratio	Coef.	T-Ratio
PRODUCT_STANDARD	.81	2.59***	5.29	2.11**
ORDER_SIZE2	.11	1.40	.69	1.44
ORDER_FREQUENCY2	0.00	2.37**	0.00	2.05**
CONSTANT	.09	.34	2.78	-1.61
Adjusted R^2/Pseudo R^2	.20		.27	
Degrees of freedom	22.00		22.00	
Log-Likelihood			-12.20	
Chi-squared			9.14	

* = Significant at 10 the percent level
** = Significant at the 1 percent level

Tables 5.2.6, 5.2.7 and 5.2.8 report estimated effects of the determinants of the probability of contracting out the transportation function, the advertising function, and other distributive functions.

Table 5.2.6: Probability of Contracting the Transportation Function (T-values in Parentheses)

Variable	Linear Probability Model		Dichotomous Logit Model	
	Coef.	T-Ratio	Coef.	T-Ratio
PRODUCT_COMPLEXITY	-.11	-1.05	-.76	-1.14
PRODUCT_AGE	.15	1.09	.79	.99
GOVERNMENT_POLICY	-.10	-1.50	-.72	-1.40
COMPANY_SIZE	.06	1.29	.36	1.24
CONSTANT	-.58	-.71	-6.05	-1.24
Adjusted R^2/Pseudo R^2	.18		.28	
Degrees of freedom	21.00		21.00	
Log-Likelihood			-12.11	
Chi-squared			9.32	

Table 5.2.7: Probability of Contracting an Advertising Function (T-values in Parentheses)

Variable	Linear Probability Model		Dichotomous Logit Model	
	Coef.	T-Ratio	Coef.	T-Ratio
D_SUITABILITY	.02	1.31	.18	1.45
PRODUCT_COMPLEXITY	.18	1.80*	1.44	1.74*
ORDER_FREQUENCY2	.09	1.37	.63	1.27
CONSTANT	.14	.44	-2.99	-1.46
Adjusted R^2/Pseudo R^2	.09		.21	
Degrees of freedom	22.00		22.00	
Log-Likelihood			-12.01	
Chi-squared			6.27	

* = Significant at the 10 percent level

Table 5.2.8: Probability of Contracting Other Distributive Functions (T-values in Parentheses)

Variables	Linear Probability Model		Dichotomous Logit Model	
	Coef.	T-Ratio	Coef.	T-Ratio
D_SUITABILITY	.04	2.28**	.43	1.71*
PRODUCT_AGE	-.16	-1.26	-1.39	-1.33
CUSTOMER_SPREAD	.09	1.27	.85	1.48
COMPANY_SIZE	.06	1.22	.37	1.25
CONSTANT	-.69	-.84	-7.93	-1.51
Adjusted R^2/Pseudo R^2	.09		.27	
Degrees of freedom	21.00		21.00	
Log-Likelihood			-10.28	
Chi-squared			7.53	

* = Significant at the 10 percent level
** = Significant at the 5 percent level

According to Table 5.2.6, none of the four variables included in the estimated model affects the probability of contracting out the transportation function. From Table 5.2.7, it can be seen that product complexity influences the probability of contracting out the advertising function. In particular, product complexity is associated with increases in the probability of contracting out the advertising function. According to Table 5.2.8, suitability of existing distribution channels has a positive and significant effect on probability of contracting out other distributive functions, implying that the probability of contracting out other distributive functions to other firms increases with their suitability of as distributors, a situation that one would expect.

CHAPTER 6

SUMMARY AND POLICY IMPLICATIONS

This chapter presents a summary of the study findings, its main conclusions and policy implications. The limitations of the study are also highlighted and suggestions for further research are made. The main aim of the thesis was to examine the factors that influence the choice of product distribution channels and to estimate their relative importance in channel selection. Data for the study were collected from manufacturing companies located mostly in Nairobi using a structured questionnaire. The effects of the identified factors on channel choice were estimated using ordinary least squares (OLS) and the maximum likelihood (ML) methods. The ML estimates are preferred over the OLS estimates on the basis of two major reasons. First, the OLS estimates under the linear model are likely to be inconsistent because of the heteroskedasticity problem. Second, the predicted probabilities under the OLS could be outside the [0,1] interval required for proper definition of a probability. The ML estimation avoids the above two problems. Hence its preference over the OLS estimation.

Based on previous studies, nine factors were hypothesized to affect the probability that a company would use an integrated distribution channel to distribute its product: suitability of existing distributing agents, product complexity, product standardization, product age, order size, order frequency, customer concentration, government policy, and company size. Three of the above variables were dropped from the general model

so that the estimated model comprised the following variables: product standardization, product age, product order size, product order frequency, government policy, and company size. Out of the six remaining variables significant effects on selection probabilities were found in the case of order size, order frequency, and company size. Insignificant effects were found in case of product standardization, product age, and government policy.

Positive effects on selection probabilities were estimated for product order size. This implies that larger order sizes are more likely than smaller sizes to be handled via an integrated distribution channel. This finding supports the service output theory advanced by Bucklin (1966). The point in this theory, is that unlike small order sizes, larger order sizes would be characterized by less service outputs and are thus more economical for the company to handle. From a managerial viewpoint, if end customers are willing to buy in large quantities (e.g., in case of institutional buyers), the company should aim at serving them directly. Otherwise, it would be more economical to serve them through channel intermediaries. Thus existence of demand for relatively small and large order sizes in the served market would justify the use of alternative channels for the same market as a strategic product distribution option (Weigand 1977).

Interestingly, negative product frequency effects were also found. This suggests that contrary to Bucklin's service output theory products with high order frequencies are more likely to be handled by the company itself (integrated channel) rather than

by intermediaries. The hypothesis however is weakly supported by data. Nonetheless a number of explanations can be advanced in its favor. Delegation of the responsibility for handling increased order frequencies is likely to depend on the suitability of existing distributors. If these are unsuitable according to the firm's requirements, the firm may opt to handle the increased orders through a direct distribution channel, at perhaps increased costs to the buyer. Alternatively, the firm could induce buyers to reduce their purchase frequencies by encouraging them to buy in large quantities through, for example, offering quantity discounts (Jeuland and Shugan 1983).

A negative effect on channel selection was found for company size: an increase in company size is likely to lead to the use of a non-integrated distribution channel. Although this finding is contrary to other findings (Lilien 1977, Anderson 1985), it seems plausible in the case of small firms faced by lack of suitable intermediaries willing to carry their products (Stern and El-Ansary 1982). A major challenge to a small business manager in that case is how to overcome operational inefficiencies due to company size (Anderson 1985). A possible strategic alternative is for the business to pool resources with other small businesses, perhaps through joint venture arrangements or co-marketing alliances (Bucklin and Sengupta 1993).

In terms of public policy, the legal framework should accord companies flexibility in choosing the most appropriate channel structure for the served market, without creating a situation of unfair competition practices. For instance, there should be legal

provision for dual distribution networks for served markets characterized by relatively small and large order sizes. Dual distribution refers to the practice whereby a company uses two or more distribution channel structures for distributing the same product to the target market (Rosenbloom 1987). Such distribution channel arrangement would, however, require policies safe-guarding against undue differences in prices charged to intermediaries, and to buyers buying directly from the manufacturer. For such price differences could lead to unfair competition and also serve as a source of channel conflict.

This study has a number of limitations which need the attention of future researchers in this area. First, a very small sample was used for the study, with most of the respondents being drawn mainly from Nairobi. This limits the extent to which the results can be generalized. Further, the sample size used is particularly small for maximum likelihood estimation purposes. This reduces the statistical power of the models estimated, i.e., the ability to predict the effects of explanatory variables on channel selection probabilities (Anderson and Coughlan 1985). Nonetheless, the small sample used here can be justified by invoking asymptotic theory (Pindyck and Rubinfeld, 1976 and Maddala, 1988). That is the qualitative conclusions of the study would only be strengthened by a larger sample size. Second, only a limited number of the variables that are likely to influence the channel selection decisions were examined. For example, although the financial implications for selecting a particular distribution channel are crucial for any manager, financial variables were ignored in this study. Third, a number of

constructs used in the thesis need to be refined and their measurements improved.

Future research efforts could be focused on a number of issues. First, a larger and a more representative sample should be drawn in order to provide a firmer basis for statistical inferences. Second, the set of independent variables considered should be expanded. For instance, the effects of financial variables on channel selection decisions should be considered. Third, there is need for improvements in the measurement of a number of variables. In particular, the measures used to quantify product complexity, product standardization, and government policy are first approximations only, and call for refinement. Fourth, due to the importance attached to small scale businesses by the Kenyan Government, attention could perhaps be focussed on investigating product distribution by small scale manufacturers and producers in urban as well as in rural areas. Fifth, with the recent government's shift from import substitution as a development strategy to export promotion, it would be of particular interest to investigate the factors that determine selection of product distribution channels in foreign markets by locally based businesses.

In conclusion, the following needs to be noted about the findings of the dissertation. The finding that only 30% of the manufacturers distribute their their products directly in Kenya is new. The computed channel selection elasticities shown on table 5.2.4 also constitute new results in the field of marketing in Kenya. This is also true of the channel selection model formulated in the thesis.

BIBLIOGRAPHY

Achrol, Ravi Singh, Torger Reve and Louis W. Stern (1983), " The Environment of Marketing Channel Dyads: A Framework for Comparative Analysis," Journal of Marketing, 47 (Fall), 55-67.

Aldrich, John H., and Forrest, D. Nelson (1984), Linear Probability and Probit Models, Sage University Paper Series on Quantitative Applications in the Social Sciences, Series No. 45, Beverly Hills, Sage Publications Ltd.

Anderson, Erin (1985), "The Salesperson as Outside Agent or Employee: A Transaction Cost Analysis," Marketing Science, Vol. 4, No. 3, (Summer), 234-254.

---------- and Ann Coughlan, T. (1985), "Distribution of Industrial Products Introduced to Foreign Markets: Independent Versus Integrated Channels," Working Paper No. 85 - 033, The Wharton School, University of Pennsylvania, Philadelphia, PA 19104.

---------- and David, C. Schmittlein (1984), "Integration of the Salesforce: An Empirical Examination," Rand Journal of Economics, Vol. 15, No. 3, (Autumn), 385-395.

---------- and Hubert Gatignon (1985), "Modes of Foreign Entry: A Transaction Cost Analysis and Propositions," Working Paper No. 85 - 025, The Wharton School, University of Pennsylvania, Philadelphia, PA 19104.

Baligh, Helmy H. (1965), "A Theoretical Framework for Channel Choice," in Marketing and Economic Development, Ed. Peter D. Bennett, American Marketing Association, Chicago, Illinois, 631-654.

Bates, Robert H. and Paul Collier (1995), "The Politics and Economics of Policy Reform in Zambia," Journal of African Economies, Vol. 4, (May), 115-143.

Bello, Daniel and Nicholas C. Williamson (1985), "Contractual Arrangement and Marketing Practices in the Indirect Export Channel," Journal of International Business Studies, 65-(Summer), 65-81.

Benson, J. K. (1975), "The Interorganizational Network as a Political Economy," Administrative Science Quarterly, 20 (June), 229-249.

Boone, Louis E. and David L. Kurtz (1992), Contemporary Marketing, Seventh Edition, The Dryden Press, Orlando.

Buzzell, Robert G. (1983), "Is Vertical Integration Profitable?," Harvard Business Review, (January - February), 92-102.

Bucklin, Louis P. (1966), A Theory of Distribution Channel Structure, Berkeley, Calif.: IBER Special Publications.

_____ and Sanjit Sengupta (1993), "Organizing Successful Co-Marketing Alliances," Journal of Marketing, (April), 32-46.

Cooper, Robert G. (1985), "Selecting Winning New Product Projects: Using the New Prod System," Journal of Product Innovation Management, Vol. 2, 34-44.

Corcoran and Tyrell (1982), A Marketing Man's Guide to Kenya, Corcoran and Tyrell Ltd.

Corstjens, Marcel and Peter Doyle (1979), "Channel Optimization in Complex Marketing Systems," Management Science, Vol. 25, (October), 1014-1025.

---------- and David A. Gautschi (1983), "Joint Productivity in Distribution," in Productivity and Efficiency in Distribution Systems, D. Gautschi, Ed., Elsevier Science Publishing Co., Inc., New York, 17-34.

Coughlan, Anne T. (1985), "Competition and Cooperation In Marketing Channel Choice: Theory and Application," Marketing Science, Vol. 4, No. 2, 110-129.

Cox, D.R. (1980), Analysis of Binary Data, London, Chapman and Hall Ltd.

Domencich, T.A. and Daniel Mcfadden (1979), Urban Travel Demand: A Behavioral Analysis, Amsterdam, North Holland.

Dwyer, F. Robert and M. Ann Welsh (1985), "Environmental Relationships of the Internal Political Economy of Marketing Channels," Journal of Marketing Research, Vol. XXII (November), 397-414.

Hendry, D.F. (1987), "Econometric Methodology: A Personal Perspective," in T. Bewley (ed.) Advances in Econometrics, Vol. II, Cambridge University Press.

Jeuland, Abel P. and Steven M. Shugan (1983a), "Managing Channel Profits," Marketing Science, Vol. 2, No. 3, Summer, 239-272.

---------- (1983b), "Coordination in Marketing Channels," in Productivity and Efficiency in Distribution Systems, D. Gautschi, Ed., Elsevier Science Publishing Co., Inc., New York, 17-34.

Kinsey, Joanna (1988), Marketing in Developing Countries, MacMillan Education Ltd., London.

Kotler, Philip (1984), Marketing Management: Analysis, Planning and Control, 5th Edition, Englewood Cliffs, New Jersey, Prentice-Hall Inc.

Koutsoyiannis A. (1984), Theory of Econometrics, Second Edition, MacMillan Publishers Ltd., London.

Lambert, Eugene W. (1966), "Financial Considerations in Choosing a Marketing Channel," MSU Business Topics, (Winter); 17-26.

Leo Aspinwall (1958), "The characteristics of Goods and Parallel Systems Theories," in Managerial Marketing, Ed. Eugene J. Kelly and William Lazer, Homewood, Richard D. Irwin, 434-450.

Lilien, Gary L. (1979), "Advisor2: Modeling the Marketing Mix Decision for Industrial Products," Management Science, Vol. 25, No. 2, (February), 191-203.

---------- and Philip Kotler (1983), Marketing Decision Making: A Model Building Approach, Harper and Row, New York.

Lo, Andrew W. (1986), "Logit Versus Discriminant Analysis: A Specification Test and Application to Corporate Bankruptcies," Journal of Econometrics, Vol. 31, No. 2, (March), 151-162.

McAlister Leigh (1983), "Distribution Channels: A Decision Theoretic Model with Efficiency Considerations," in Productivity and Efficiency in Distribution Systems, D. Gautschi, Ed., Elsevier Science Publishing Co., Inc., New York, 17-34.

Maddala, G.S. (1988a), Limited Dependent Qualitative Variables in Econometrics, New York, Cambridge University Press.

---------- (1988b), Introduction to Econometrics, New York, MacMillan Publishing Company.

Malumo, Siyanga (1986), Introduction to Marketing in Africa, MacMillan Publishers Ltd., London.

McQuire, Timothy W. and Richard Staelin (1983), "An Industry Equilibrium Analysis of Downstream Vertical integration," Marketing Science, Vol. 2, No. 2, (Spring), 161-192.

Montgomery, David B. and Glen L. Urban (1974), Management Science in Marketing, New Delhi, Prentice-Hall of India Private Ltd.

Morrison, Donald G. (1969), "On the Interpretation of Discriminant Analysis," Journal of Marketing Research, 6, (May), 156-163.

Nwokoye, Nonyelu G. (1981), Modern marketing for Nigeria, The MacMillan Press Ltd., London.

Pindyck, Robert S., and Daniel L. Rubinfeld (1976), Econometric Models and Economic Forecasts, New York, McGraw-Hill Inc.

Phillips, Lynn W. (1981), "Assessing Measurement Error in Key Informant Reports: A Methodological Note on Organizational Analysis in Marketing," Journal of Marketing Research, 18, (November), 395-415.

Porter, Michael E. (1985), Competitive Advantage, The Free Press, New York.

---------- (1974), "Consumer Behavior, Retailer Power and Market Performance in Consumer Goods Industries," The Review of Economics and Statistics, (November), Vol. LVI, No. 4.

Rao, Vithala R. and Edward W. Mclaughlin (1989), "Modeling the Decision to Add New Products by Channel Intermediaries," Journal of Marketing, Vol. 53, (January), 80-88.

Republic of Kenya, Development Plan, 1974 - 1978, Government Printer, Nairobi, Kenya.

---------- Development Plan, 1989 - 1993, Government Printer, Nairobi, Kenya.

---------- Economic Survey, 1988 - 1992, Government Printer, Nairobi, Kenya.

---------- Economic Survey, 1989 - 1993, Government Printer, Nairobi, Kenya.

---------- Economic Survey, 1990 - 1994, Government Printer, Nairobi, Kenya.

---------- Sessional Paper No. 1 of 1986, Government Printer, Nairobi, Kenya.

---------- UNDP (1994), Support Document: Programme for Small Enterprise Development and Employment Creation, Nairobi, June.

Rosson, Philip J. and L. David Ford (1982), "Manufacturer-Overseas Distributor Relations and Export Performance," Journal of International Business Studies, (Fall), 57-72.

Rosenbloom, Bert (1987), Marketing Channels: A Management View, The Dryden Press, New York.

Shenton, L.R. and K.O. Bowman (1977), Maximum Likelihood Estimation in Small Samples, London, Charles Griffin & Company Ltd.

Stern, Louis W. and Adel I. El-Ansary (1982), Marketing Channels, Englewood Cliffs, New Jersey, Prentice-Hall, Inc.

---------- and Torger Reve (1980), "Distribution Channels as Political Economies: A Framework for Comparative Analysis," Journal of Marketing, Vol. 44 (Summer), 52-64.

Stigler, George J. (1951), "The division of Labor is Limited by the Extent of the Market," Journal of Political Economy, Vol. 59, (June), 185-193.

Terpstra, Vern (1983), International Marketing, Third Edition, The Dryden Press, New York.

Urban, Glen L. and John H. Hauser (9180), Design and Marketing of New Products, Englewood Cliffs, New Jersey, Prentice-Hall Inc.

Weigand Robert, E. (1977), "Fit Products and Channels to Your Markets," Havard Business Review, (January-February), 95-105.

Weitz, Barton A. and Robin Wensley (1984), Strategic Marketing, Kent Publishing Company, Boston.

Williamson, Oliver E. (1981a), "The Economics of Organization: The transaction Cost Approach," American Journal of Sociology, 87 (3), 548-577.

---------- (1981b), "The Modern Corporation: Origins, Evolution, Attributes," Journal of Economic Literature, 19 (December), 1537-1568.

---------- (1979), "Transaction-Cost Economics: The Governance of Contractual Relations," Journal of Law and Economics, 22 (October), 233-262.

---------- (1975), Markets and Hierarchies: Analysis and Antitrust Implications, New York: The Free Press.

APPENDIX A: ADDITIONAL REGRESSION RESULTS

Table A.1: Probability of Choosing an Integrated Channel

Variable	Coef.	T-Ratio
D_SUITABILITY	-.01	-0.44
PRODUCT_COMPLEXITY	-0.00	-0.08
PRODUCT_STANDARD	.19	0.58
PRODUCT_AGE	.12	0.77
CUSTOMER_SPREAD	.05	0.56
ORDER_SIZE2	.10	2.05*
ORDER_FREQUENCY2	.10	1.35
GOVERNMENT_POLICY	-.07	-0.92
COMPANY_SIZE	-.09	-1.89*
CONSTANT	.88	0.99
Adjusted R^2		.25
Degrees of freedom		16.00

* = Significant at the 10 percent level

Table A.2: Probability of Making Channel Change

Variable	Coef.	T-Ratio
D_SUITABILITY	.01	0.22
PRODUCT_COMPLEXITY	-.01	-.24
PRODUCT_STANDARD	-.76	-1.82*
PRODUCT_AGE	.04	0.19
CUSTOMER_SPREAD	.10	0.98
ORDER_SIZE2	.11	1.84*
ORDER_FREQUENCY2	.02	0.16
GOVERNMENT_POLICY	-.04	-0.48
COMPANY_SIZE	-.01	-0.21
CONSTANT	.19	0.17
Adjusted R^2		.07
Degrees of freedom		16.00

* = Significant at the 10 percent level

Table A.3: Probability of Contracting the Transportation Function

Variable	Coef.	T-Ratio
D_SUITABILITY	0.00	0.09
PRODUCT_COMPLEXITY	-.07	-1.30
PRODUCT_STANDARD	-.35	-0.90
PRODUCT_AGE	.21	1.16
CUSTOMER_SPREAD	.07	0.69
ORDER_SIZE2	.08	1.51
ORDER_FREQUENCY2	-.06	-0.66
GOVERNMENT_POLICY	.05	0.61
COMPANY_SIZE	.05	0.85
CONSTANT	-.97	-0.93
Adjusted R^2		.09
Degrees of freedom		16.00

Table A.4: Probability of Contracting the Advertising Function

Variable	Coef.	T-Ratio
D_SUITABILITY	-.03	-1.02
PRODUCT_COMPLEXITY	.08	1.34
PRODUCT_STANDARD	-.04	-0.09
PRODUCT_AGE	-.08	-0.43
CUSTOMER_SPREAD	-.06	-0.59
ORDER_SIZE2	-.05	-0.93
ORDER_FREQUENCY2	.09	0.94
GOVERNMENT_POLICY	.08	0.92
COMPANY_SIZE	.04	0.62
CONSTANT	.41	0.38
Adjusted R^2		.05
Degrees of freedom		16.00

Table A.5: Probability of Contracting Other Distributive Functions

Variable	Coef.	T-Ratio
D_SUITABILITY	-.04	-1.72
PRODUCT_COMPLEXITY	.06	1.16
PRODUCT_STANDARD	.06	0.16
PRODUCT_AGE	-.15	-0.84
CUSTOMER_SPREAD	.09	0.92
ORDER_SIZE2	-.05	-1.00
ORDER_FREQUENCY2	.05	0.57
GOVERNMENT_POLICY	-.01	-0.07
COMPANY_SIZE	.05	1.04
CONSTANT	-.57	-0.57
Adjusted R^2		.05
Degrees of freedom		16.00

APPENDIX B: SURVEY QUESTIONNAIRE

General Instructions

1. We request that this questionnaire be completed by the Marketing/Sales Manager or the Product Distribution Manager.
2. If you have any difficulty in understanding any of the questions, please inform the researcher.
3. Where necessary, please consult other Managers in your organization.
4. Please attempt to answer every question by placing a tick in the appropriate space. More than one tick may be provided if the situation requires it.
5. Any informative comments can be given in the spaces provided.
6. If you do not have accurate data but can make a rough estimate, fill in that estimate as your response to the question.
7. If your response to a question is zero, fill in "0", not a dash.
8. If a question is not applicable, please check the space indicating this, or write "N.A." prominently.

Important Definitions

1. The term "product" refers to both products and services.
2. The term "manufacturer" refers to an individual or organization involved in the process of producing,

manufacturing or assembling a product for sale.

3. The term "distributor" refers to an independent individual or organization involved in making the manufacturer's product available to the buyer for use or resale.

4. The term "company" refers to any registered business or organization operating in Kenya.

1. Firm Identification

Company Name:_____

Company Address:_____

Location((Town):_____

Telephone:_____

Year Established/Incorporated in Kenya:_____

2. Product Characteristics

Q. 1a. Which of the following best describes the main product manufactured by your company?

1[ ] Durable consumer product (e.g. furniture)

2[ ] Non-durable consumer product

3[ ] Industrial capital product (e.g. machinery)

4[ ] Industrial raw and semi-finished product

5[ ] Industrial component for incorporation into finished product

6[ ] Assemblage of component parts into finished product

7[ ] Natural resources and agricultural product

8[ ] Other (specify)_____

Q.1b. How would you describe the extent to which your company's main product is standardized?

1[ ] More or less standardized for all customers

2[ ] Custom designed for individual customers

Q.1c. On average how much training is required by the following in order to sell your company's product if they are unfamiliar with the product or with similar products?

1[ ] Company's salesperson _____ Weeks

2[ ] Company's product distributor _____ Weeks

3[ ] Other (specify) _____ _____ Weeks

Comments:

_____

_____

_____

Q.1d. What is the normal shelf life of your company's main product? Indicate how long your product typically retains its value, not how long it usually remains in your stores or in your distributors' stores.

1[ ] Less than one day

2[ ] One day upto one week

3[ ] One week upto one month

4[ ] One month upto six months

5[ ] Six months upto one year

6[ ] One year upto five years

7[ ] More than five years

8[ ] Not applicable (e.g. service business)

Q.1e. Which of the following best describes the nature of demand for your company's main product?

1[ ] Regular

2[ ] Seasonal

3[ ] Irregular

4[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.1f. For how long (to the nearest year) has your company sold its main product in the Kenyan market?

1[ ] 1 - 5 years

2[ ] 6 - 10 years

3[ ] 11 - 15 years

4[ ] 16 - 20 years

5[ ] 21 - 25 years

6[ ] Over 25 years

Q.1g. Which of the following best describes the number of products/brands within your company's main product line?

1[ ] One product

2[ ] Two products

3[ ] Three products

4[ ] Four products

5[ ] Five products

6[ ] More than five products

Comments:

_____

_____

_____

3. Selling and Distribution Characteristics

Q.2a. In relation to your company's main product, which of the following functions are performed by other organizations for your company? (You can check more than one).

1[ ] Selling

2[ ] Warehousing

3[ ] Transportation

4[ ] Advertising

5[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.2b. Which of the following product distribution arrangement(s) does your company use to reach its end customers? End customers either consume the product or incorporate it into other products.

1[ ] Directly to end customers

2[ ] Through company owned retail or wholesale distribution facilities

3[ ] Through Retailers

4[ ] Through Wholesalers and Retailers

5[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.2c. Has your company made any changes in its product distribution arrangement since it introduced its in product in the Kenyan market?

1[ ] Yes

2[ ] No

Q.2d. If the answer to Q.2c. above is yes, please explain the type of change and the reasons for the change.

Type of change: _____ Reasons for Change: _____

_____ _____

Q.2e. For any one particular area (territory) served by your company, which of the following best describes the number of outlets used by the company to sell its main product?

1[ ] One outlet

2[ ] More than one outlet but not many outlets

3[ ] Relatively many outlets

4[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.2f. Which of the following best describes your company's main product after sales service requirement?

1[ ] None

2[ ] Low

3[ ] Moderate

4[ ] High

Q.2g. How would you rate the importance of the following factors in selecting a particular product distribution arrangement? (e.g., distributing through a Wholesaler).

Factor	Very Important	Fairly Important	Somewhat Important	Not Important
Nature of the product				
Suitability of existing distributors				
Type of customer				
Nature of company				
Type of competitors				
Government effects				
Other (specify)_____				

Comments:

Q.2h. In your opinion, which of the following is used by managers as the basis for selecting among product selling arrangements in Kenya? (You can check more than one).

1[ ] No particular basis

2[ ] Manager's past experience

3[ ] Expected level of product sales

4[ ] Expected level of product profits

5[ ] Expected level of product return on investment (ROI)

6[ ] Expected level of company's control over product distribution/selling

7[ ] Distributor's capability

8[ ] Other (specify) _____

Comments:

_____

_____

_____

4. Distributor Characteristics

Q.3a. How would you rate the following characteristics of existing distributors who distribute or can distribute your company's product? For example:

1 = extremely financially strong;

2 = quite financially strong;

3 = somewhat financially strong;

4 = neither financially strong nor financially weak;

5 = Somewhat financially weak;

6 = quite financially weak;

7 = extremely financially weak.

Financially strong	1	2	3	4	5	6	7	Financially weak
Favorable credit terms offers	1	2	3	4	5	6	7	Unfavorable credit terms offers
Extensive market coverage	1	2	3	4	5	6	7	Limited market coverage
Unlimited space/time allocated to company's products	1	2	3	4	5	6	7	Limited space/time allocated to company's products
Strong servicing capability	1	2	3	4	5	6	7	Weak servicing capability
Carries complementary products	1	2	3	4	5	6	7	Does not carry complementary products
Carries substitute products	1	2	3	4	5	6	7	Does not Ccrry substitute products

Q.3b. Which of the following best describes the profit margins required by existing distributors for your company's main product?

1[ ] Low

2[ ] Moderate

3[ ] High

4[ ] Other (specify) _____

Comments:

_____

_____

_____

5. Customer Characteristics

Q.4a. Which of the following best describes your company's end customer?

1[ ] Households/individual customers

2[ ] Other companies

3[ ] Public institutional customers (e.g. Schools, Hospitals etc.)

4[ ] The government

5[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.4b. In general how would you describe the concentration (density) of your company's end customers?

1[ ] Very concentrated

2[ ] Fairly concentrated

3[ ] Somewhat concentrated

4[ ] Not concentrated

Q.4c. On average, how much (to the nearest Kenya Shilling) of your company's main product is purchased by your immediate customer (e.g. Wholesaler) and end customer per transaction? (Check one in each column).

Amount Purchased	Immediate Customer	End Customer
Less than Ksh. 100		
Ksh. 100 - Ksh. 499		
Ksh. 500 - Ksh. 999		
Ksh. 1,000 - Ksh. 9,999		
Ksh. 10,000 - Ksh. 99,999		
Ksh. 100,000 - Ksh. 999,999		
Ksh. 1 million - Ksh. 9,999,999		
Over Ksh. 10 million		

Q.4d. How often does your immediate customer and end customer purchase your company's main product? (Check one in each column).

Frequency of purchase	Immediate Customer	End Customer
Weekly or more frequently		
Once/week upto once/month		
Once/month upto once/6 months		
Once/6 months upto once/1 year		
Once 1 year upto once/5 years		
Less frequently than once/5 years		
Once		
Irregular intervals		

Q.4e. In your company, what is the normal interval between receipt of an order from a customer and the start of delivery?

1[ ] Less than one day

2[ ] One day upto one week

3[ ] One week upto one month

4[ ] One month upto six months

5[ ] Six months upto one year

6[ ] One year upto five years

7[ ] More than five years

8[ ] No regular interval

6. Environmental and Market Characteristics

Q.5a. Which of the following best describes the geographic scope of your company's served market?

1[ ] Regional within the country

2[ ] Entire country

3[ ] More than one country

4[ ] Other (specify) _____

Comments:

_____

_____

_____

Q.5b. Which of the following best describes your company's position in the Kenyan market? A market leader is the company with the largest share of a particular market.

1[ ] Market leader

2[ ] Market follower

Q.5b. Approximately how many companies compete with your company within the Kenyan market? "Local" means having corporate headquarters in Kenya.

	Local	Foreign
None	1[ ]	1[ ]
1	2[ ]	2[ ]
2	3[ ]	3[ ]
3	4[ ]	4[ ]
4	5[ ]	5[ ]
5	6[ ]	6[ ]
6 - 10	7[ ]	7[ ]
11 - 20	8[ ]	8[ ]
21 - 50	9[ ]	9[ ]
51 or more	10[ ]	10[ ]

Q.5d. Compared to your company, which of the following would best describe your competitors' product distribution channels used to reach their end customers?

1[ ] About the same

2[ ] Different

3[ ] Other (specify) _____

Q.5e. How have the following government policies affected your company's distribution/selling of its main product?

Policy	Favorable Effect	No Effect	Unfavorable Effect
Distribution channel policy			
Manufacturers' tax policy			
Other (specify) _____			

Comments:

_____

_____

_____

7. Company Characteristics

Q.6a. In relation to your company's main product, what would be a reasonable estimate of your company's current market share in Kenya?

1[ ] 0 - 5%

2[ ] 6 - 10%

3[ ] 11 - 15%

4[ ] 16 - 20%

5[ ] 21 - 25%

6[ ] Over 25%

Q.6b. On the basis of the last company's financial year, which of the following best represents an estimate of your company's total assets?

1[ ] Less than Ksh. 100,000

2[ ] Ksh. 100,000 - Ksh. 500,000

3[ ] Ksh. 500,001 - Ksh. 1 million

4[ ] Ksh. 1,000,001 - Ksh. 10 million

5[ ] Ksh. 10,000,001 - Ksh 100 million

6[ ] Over Ksh. 100 million

Q.6c. On the basis of the last company's financial year, which of the following best represents an estimate of your company's total sales?

1[ ] Less than Ksh. 100,000

2[ ] Ksh. 100,000 - Ksh. 500,000

3[ ] Ksh. 500,001 - Ksh. 1 million

4[ ] Ksh. 1,000,001 - Ksh. 10 million

5[ ] Ksh. 10,000,001 - Ksh. 100 million

6[ ] Over Ksh. 100 million

Q.6d. How would you describe the general trend (movement over time) of your company's profits since the company started operating within the Kenyan market?

1[ ] Upward

2[ ] Constant

3[ ] Downward

4[ ] Other (specify) _____

Q.6e. What is the current number of your company's employees?

Permanent employees _____

Temporary employees _____

Q.6f. Which of the following best describes your company?

1[ ] Multinational company

2[ ] Parastatal organization

3[ ] Local indigenous company

4[ ] Local non-indigenous company

5[ ] Non-governmental organization (NGO)

6[ ] Co-operative society

7[ ] Other (specify) _____

Q.6g. Would you like to have a summary of the result findings of this study?

1[ ] Yes

2[ ] No

Thank you for your assistance.

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