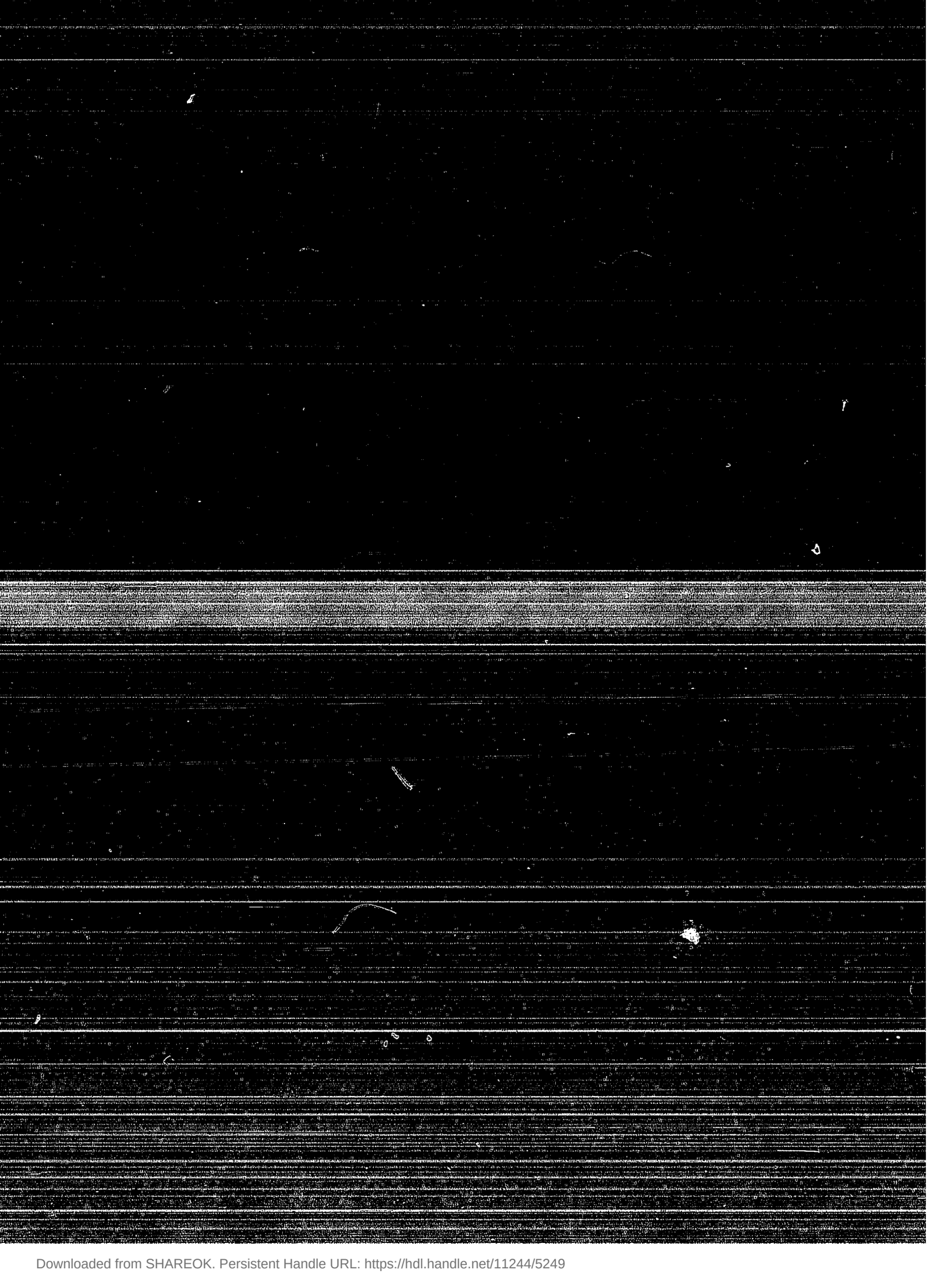


Downloaded from SHAREOK. Persistent Handle URL: https://hdl.handle.net/11244/5249

THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

# A COMPARATIVE ANALYSIS OF WHOLESALE ORGANIZATIONS IN THE CHANNEL OF DISTRIBUTION FOR HOUSEHOLD APPLIANCES: NIGERIA vs USA

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirements for the

degree of

DOCTOR OF PHILOSOPHY

BY

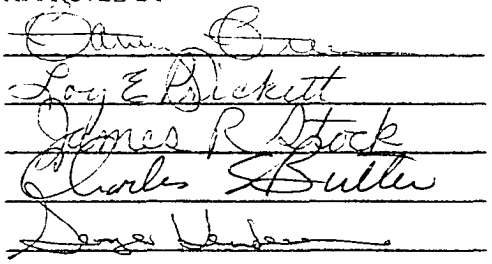
ROWLAND CHIDI CHIDOMERE

Norman, Oklahoma

1984

A COMPARATIVE ANALYSIS OF WHOLESALE ORGANIZATIONS IN THE CHANNEL OF DISTRIBUTION FOR HOUSEHOLD APPLIANCES: NIGERIA vs USA

APPROVED BY



DISSERTATION COMMITTEE

© Copyright by Rowland Chidi Chidomere 1984
ALL RIGHTS RESERVED

ACKNOWLEDGEMENTS

The completion of this dissertation is due to efforts of numerous people. It is not practical to mention all who have provided some measure of support. However, my deepest appreciation goes to all who have assisted.

I gratefully acknowledge the guidance of all the members of my advisory committee in the formulation and execution of the ideas in this research effort. To my Chairman, Dr. Gary Green, I am deeply indebted for his assistance, counsel, and encouragement throughout the project. His professionalism and unique knowledge of research methods throughout this venture has been a source of personal growth for me, and have set an example toward which I shall always strive. I also sincerely appreciate the invaluable advice, direction and assistance provided by Dr. James Stock during the conceptualization, implementation, and completion of this research. Among the qualities he instilled in his students are the determination to get a job completed, the rigorousness of academic research, and the values of hard work and dedication. Also deserving my gratitude are Dr. Loy Prickett, Dr. Charles Butler, and George Henderson. Their comments and suggestions at critical moments and the assistance they provided unhesitatingly in all regards were instrumental in the successful completion of this research.

Special recognition goes to the many individuals who completed the lengthy questionnaire used in this research. Acknowledgement is also given to the distribution executives who provided helpful comments during the pretesting of the data collection instruments used in this study. Appreciation to Marlene Tsosie for her superb typing of this dissertation cannot be expressed adequately.

Finally, my deepest gratitude goes to my family who have contributed so definitively to my realization of a long-desired goal. I acknowledge the immeasurable contributions of my parents Rowland and Rechael Chidomere, and uncle Lambert, whose life-long confident in me has encouraged me to achieve far beyond that which I thought possible. I express special appreciation to my uncle Dr. Evans Chidomere, for the generous assistance in collecting data from Nigeria. A debt, which can never be fully repaid, is owed to my wife Carolyn, and our child Derrick for their patience, assistance, and understanding during the innumerable hours I have devoted to this study and my doctoral program. Their sacrifice and loving guidance have made this dissertation possible. It is with pride that I dedicate this dissertation to them.

TABLE OF CONTENTS

Page

ACKNOWLEDGEMENT . . . . . iii

LIST OF TABLES . . . . . vii

LIST OF FIGURES . . . . . xiii

CHAPTER

I. INTRODUCTION . . . . . 1

Background and the Need for the Study
Purpose of the Study
Research Questions and Hypotheses
The Research Model
Definitions and Descriptions of the Environmental Variables in the Model
Delimitations
Limitations
Organization of the Study

II. REVIEW OF THE LITERATURE . . . . . 22

Introduction
Alternatives Approaches to Channel Research
Functional Approach
Institution Approach
System Approach
The Study of the Channel as an Organizational System
The Wholesale Organization as a Channel Intermediary
Classifications of the Wholesale Trade
Wholesaler Classified by Type of Operation
Wholesaler Classified by Functions Performed
Studies on Organization—Environment Relationship
Summary

III. METHODOLOGY . . . . . 57

Introduction
Research Design
Sampling Procedure
Defining the Population
Sampling Unit
Sampling Frame
Sampling Units and Methods
Determining the Sample Size
Sampling Plan

TABLE OF CONTENTS (Con't)

Chapter III (Con't) Page

Measurement
Size
Assortment
Market Coverage
Validity and Reliability
Content Validity
Construct Validity
Criterion Validity
Reliablity
Data Analysis

IV. PRESENTATION OF THE RESEARCH FINDINGS . . . . . 87

Introduction
Results
Examination of the Hypotheses
Summary

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . 195

Summary of the Study
Hypotheses
Conclusions
Implications of the Study
Suggestions for Further Research

BIBLIOGRAPHY . . . . . 223

APPENDIX . . . . . 231

A . . . . . 232

B . . . . . 244

C . . . . . 247

D . . . . . 253

LIST OF TABLES


| TABLE | | Page |
|---|---|---|
| 1. | The Flow Approach Model | 8 |
| 2. | The Actor-Process-Structure-Function-Environment Model | 10 |
| 3. | Standard Coefficient (Bets) for the Regression of Newspaper Differentiation Measures of Metropolitan Environment and Organizational Size, and in Noncompetitive Market Conditions | 44 |
| 4. | Correlation Coefficient and Significance Level Derived by Correlating the Independent Variables with Change in Sales and Net Profit over a Five Year Period | 50 |
| 5. | Significant Relationships between Increases in Sales and Net Profit Correlated with Interface Variables | 51 |
| 6. | Operationalization of the Variables | 59 |
| 7. | Internal Consistency of Measure of Organizational Structure for Nigerian Wholesalers | 75 |
| 8. | Internal Consistency of Measures of Organizational Structure of United States Wholesalers | 76 |
| 9. | Internal Consistency of Measures of Environmental Factors of Nigerian Wholesalers | 77 |
| 10. | Internal Consistency of Measures of Environmental Factors of United States Wholesalers | 78 |
| 11. | Components of Redundancy Measure for the Economic Variables and Size Measures of United States Wholesale Firms | 89 |
| 12. | Relationships Between Economic Variables, Size Measures and Canonical Functions for United States Wholesale Firms | 90 |
| 13. | United States Wholesalers' Perceptions of the Influence of Economic Variables on the Size of the Firm | 92 |
| 14. | Components of Redundancy Measure for the Economic Variables and Assortment Structure Measures of United States Wholesale Firms | 95 |
| 15. | Relationships Between Economic Variables, Assortment Structure Measures, and Canonical Functions for United States Wholesale Firms | 96 |

LIST OF TABLES (Con't)


| TABLE | | Page |
|---|---|---|
| 16. | United States Wholesalers' Perceptions of the Influence of Economic Variables on the Assortment Structure of the Firm | 98 |
| 17. | Components of Redundancy Measure of the Economic Variables and Market Coverage Measures of United States Wholesale Firms | 100 |
| 18. | Relationships Between Economic Variables, Market Coverage Measures, and Canonical Functions for United States Wholesale Firms | 101 |
| 19. | United States Wholesalers' Perceptions of the Influence of Economic Variables of the Extent of Market Coverage by the Firm | 104 |
| 20. | Components of Redundancy Measure for the Technological Variables and Size Measures of United States Wholesale Firms | 107 |
| 21. | Relationships Between the Technological Variables, Size Measures, and Canonical Functions for United States Wholesale Firms | 108 |
| 22. | United States Wholesalers' Perceptions of the Influence of Technological Variables on the Size of the Firm | 109 |
| 23. | Components of Redundancy Measure for Technological Variables and Assortment Structure Measures of United States Wholesale Firms | 112 |
| 24. | Relationships Between Technological Variables, Assortment Structure Measures, Canonical Functions for United States Wholesale Firms | 113 |
| 25. | United States Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm | 114 |
| 26. | Components of Redundancy Measure for Technological Variables and Market Coverage Measures of United States Wholesale Firms | 117 |
| 27. | Relationships Between Technological Variables, Market Coverage Measures, and Canonical Functions for United States Wholesale Firms | 118 |

LIST OF TABLES (Con't)


| TABLE | | Page |
|---|---|---|
| 28. | United States Wholesalers' Perceptions of the Influence of Technological Variables on the Extent of Market Coverage by the Firm | 119 |
| 29 | Components of Redundancy Measure for the Socio-Cultural Variables and Size Measures of United States Wholesale Firms | 121 |
| 30. | Relationships Between the Socio-Cultural Variables, Size Measures, and Canonical Functions for United States Wholesale Firms | 122 |
| 31. | United States Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm | 124 |
| 32. | Components of Redundancy Measure for the Socio-Cultural Varibles and Assortment Structure Measures of United States Wholesale Firms | 127 |
| 33. | Relationships Between Socio-Cultural Variables, Assortment Structure Measures, and Canonical Function for United States Wholesale Firms | 128 |
| 34. | United States Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm | 129 |
| 35. | Components of Redundancy Measure for the Socio-Cultural Variables and Market Coverage Measures of United States Wholesale Firms | 131 |
| 36. | Relationships Between Socio-Cultural Variables, Market Coverage Measures, and Canonical Functions for United States Wholesale Firms | 132 |
| 37. | United States Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm | 134 |
| 38. | Results of the Split-Sample Analysis of the Canonical Weights for United States Wholesalers | 136 |
| 39. | Results of the Split-Sample Analysis of the Factor Loadings for United States Wholesalers | 137 |
| 40. | Components of Redundancy Measure for the Economic Variables and Size Measures of Nigerian Wholesale Firms | 140 |

LIST OF TABLES (Con't)


| TABLE | | Page |
|---|---|---|
| 41. | Relationships Between Economic Variables, Size Measures and Canonical Functions for Nigerian Wholesale Firms | 142 |
| 42. | Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Size of the Firm | 142 |
| 43. | Components of Redundancy Measure of the Economic Variables and Assortment Structure Measures of Nigerian Wholesale Firms | 145 |
| 44. | Relationships Between Economic Variables, Assortment Structure Measures, and Canonical Functions for Nigerian Wholesale Firms | 146 |
| 45. | Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Assortment Structure of the Firm | 147 |
| 46. | Components of Redundancy Measure for the Economic Variables and Market Coverage Measures of Nigerian Wholesale Firms | 150 |
| 47. | Relationships Between Economic Variables, Market Coverage Measures, and Canonical Funtions for Nigerian Wholesale Firms | 151 |
| 48. | Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Extent of Market Coverage by the Firm | 152 |
| 49. | Components of Redundancy Measure for the Technological Variables and Size Measures of Nigerian Wholesale Firms | 155 |
| 50. | Relationships Between the Technological Variables, Size Measures, and Canonical Functions for Nigerian Wholesale Firms | 156 |
| 51. | Nigerian Wholesalers' Perceptions of the Influence of Technological Variables of the Size of the Firm | 157 |
| 52. | Components of Redundancy Measure for Technological Variables and Assortment Structure Measures of Nigerian Wholesale Firms | 159 |
| 53. | Relationships Between Technological Variables, Assortment Structure Measures, and Canonical Functions for Nigerian Wholesale Firms | 160 |
| 54. | Nigerian Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm | 161 |

LIST OF TABLES (Con't)


| TABLE | | Page |
|---|---|---|
| 55. | Components of Redundancy Measure for Technological Variables and Market Coverage Measures of Nigerian Wholesale Firms | 165 |
| 56. | Relationships Between Technological Variables, Market Coverage Measures, and Canonical Functions for Nigerian Wholesale Firms | 166 |
| 57. | Nigerian Wholesalers' Perception of the Influence of Technological Variables on the Extent of Market Coverage by the Firm | 167 |
| 58. | Components of Redundancy Measure of the Socio-Cultural Variables and Size Measures of Nigerian Wholesale Firms | 169 |
| 59. | Relationships Between the Socio-Cultural Variables, Size Measures, and Canonical Functions for Nigerian Wholesale Firms | 170 |
| 60. | Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm | 171 |
| 61. | Components of Redundancy Measure for the Socio-Cultural Variables and Assortment Structure Measures of Nigerian Wholesale Firms | 174 |
| 62. | Relationships Between Socio-Cultural Variables, Assortment Structure Measures, and Canonical Functions for Nigerian Wholesale Firms | 175 |
| 63. | Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm | 176 |
| 64. | Components of Redundancy Measure for the Socio-Cultural Variables and Market Coverage Measures of Nigerian Wholesale Firms | 178 |
| 65. | Relationships Between Socio-Cultural Variables, Market Coverage Measures and Canonical Functions for Nigerian Wholesale Firms | 179 |
| 66. | Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm | 180 |
| 67. | Results of the Split-Sample Analysis of the Canonical Weights for Nigerian Wholesalers | 182 |

LIST OF TABLES (Con't)


| TABLE | | Page |
|---|---|---|
| 68. | Results of the Split-Sample Analysis of the Factor Loadings for Nigerian Wholesalers | 183 |
| 69. | Results of the Student T-Test Analysis for the Difference Between the Size of Wholesalers in Nigerian and the United States | 186 |
| 70. | Results of the Student T-Test Analysis for the Difference Between the Assortment Structure of Wholesalers in Nigerian and the United States | 188 |
| 71. | Results of the Student T-Test Analysis for the Difference Between the Extent of Market Coverage by the Wholesalers in Nigeria and the United States | 190 |
| 72. | Summary of Hypotheses Testing | 219 |
| 73. | Results of the Student T-Test Analysis for Difference in the Size, Assortment Structure, and Market Coverage of Respondents and Nonrespondents in the United States. | 254 |
| 74. | Results of the Student T-Test Analysis for Difference in the Size, Assortment, Structure, and Market Coverage of Respondents and Nonrespondents in Nigeria | 255 |

LIST OF FIGURES


| FIGURE | | Page |
|---|---|---|
| 1 | Bartels' Model for Comparative Analysis | 12 |
| 2 | The Research Model | 14 |

# A COMPARATIVE ANALYSIS OF WHOLESALE ORGANIZATIONS IN THE CHANNEL OF DISTRIBUTION FOR HOUSEHOLD APPLIANCES: NIGERIA vs. USA

## CHAPTER I

### Introduction

> A modern factory can be transplanted from the United States to Asia, Africa, or Latin America. The machine will function the same way and the product will be identical.... Our distribution methods-developed to a high degree of sophistication in our intensely competitive marketplace-cannot be directly transplanted.... I would be the last to suggest that American marketing techniques will, or necessarily should, ever fit India's particular requirements. Rather, I would plead that—together with India and other developing nations—we explore what portions of our experiences and know-how in marketing that can be adapted to their needs.[1]

In marketing, as in other areas of social and economic activities, institutions and methodology do not arise simply through chance. Rather, they are often a reflection of the particular environment in which they are found.[2] An important theoretical concept widely held by marketing scholars is that the development of the marketing system of a nation is a function of the

---

[1] Michael Michaelis, "Distribution in Developing Economies," in George Wadinambiaratchi, "Channel of Distribution in Developing Economies," The Business Quarterly Vol. 30 (Winter, 1965), p. 41.

[2] Leo G. Erickson, "Analyzing Brazilian Consumer Markets," MSU Business Topics, (Summer, 1963), pp. 7-27.

development of its social, economic, technology, and cultural environment.[3] This concept has provided some frameworks from which the differences and similarities between marketing activities, practices, and structures in different environments have been investigated.[4]

In developing nations, marketing has been the most backward part of the economic system, while greater emphasis has been put on industrialization and production. This has been attributed to the low social status of the merchants, and low evaluation of economic function of distribution in these countries. The inefficiency in the distribution systems within these countries, has translated itself into constant product shortages and higher prices for the goods and services. Furthermore, some failures in industrialization plans in most of these countries have been attributed to the lack of an efficient distribution system for the manufactured products that are locally produced.[5]

A major segment of any marketing organization is the channel of distribution for the products and services. This distribution channel, which is bounded by geographic, economic and human factors, is a part of a larger system which provides it with inputs, and imposes restrictions on its operation. The distribution structure is a subsystem of the national environment, which in turn, is a subsystem of the international environment. Both the national and

---

[3]Susan P. Douglas, "Patterns and Parallels of Marketing Structures in Several Countries" MSU Business Topics, Vol. 19 (Spring, 1971) p. 38.

[4]Susan P. Douglas and Yoram Wind, "Environmental Factors and Marketing Practices." European Journal of Marketing, Vol. 7, No. 3, (1973), pp. 155-165.

[5]Abdulla Ali Abdulelah, "A Description and Analysis of the Channels of Distribution for Food Products in the State of Kuwait." (An Unpublished Doctoral Dissertation. North Texas State University, 1977.)

the international environments encompass physical, economic, social, cultural, and political subsystems that influence the development of, and impose constraints on the channel system.[6]

## Background and the Need for the Study

The marketing channel, like most disciplines, has been perceived in more than one way, depending on the intent of the conversation. This diversity in perception has led to differences in the definition of the term.

Viewing the marketing channel as an entity, Revzan defined it as a "pathway taken by goods as they flow from point of production to points of intermediate and final use."[7] Using a slightly different definition, Alderson viewed it as "a group of firms that constitute a loose coalition engaged in exploiting a joint opportunity in the market."[8] Following a similar trend of thought, Walters and Bergiel defined the channel as "a team of merchant and/or agent institutions that function to create and distribute assortments of products to specific markets or market segments."[9] The implication for an independent or separate existence of the marketing channel in these definitions is obvious.

---

[6]Louis W. Stern and Adell I. El-Ansary, Marketing Channels (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1977), p. 12.

[7]David A. Revzan, "Marketing Organization Through the Channel" Wholesaling in Marketing Organization. (New York: John Wiley and Sons, 1961), p. 108.

[8]Wroe Alderson, "Factors Governing the Development of Marketing Channels" in Richard M. Clewett, Marketing Channels for Manufactured Goods. (Homewood, IL.: Richard D. Irwin, Inc., 1954), p. 30.

[9]Charles G. Walters and Blaise J. Bergel, Marketing Channels. 2nd. ed. (Glenview, IL.: Scott, Foresman and Company, 1982), p. 3.

As an interdependent system, Stern and El-Ansary offered the definition of the channel as "an interorganizational system, comprised of a set of interdependent institutions and agencies involved with the task of moving things of value from its point of conception, extraction or production to points of consumption."[10] This definition, as opposed to the ones given earlier, considers the channel as a system made up of institutions performing necessary functions. It implies the existence of some interdependency within this interorganizational system.

The channel has been defined with the viewpoint of the manufacturer being the controller, and other channel members as subordinates. According to the Committee on Definitions of the American Marketing Association, the channel is "the structure of intra-company organization units and extra-company agents and dealers, wholesale and retail, through which a commodity, product, or service is marketed."[11]

Any of the above definitions are workable, but for the research at hand, a definition given by Michman was adopted. He viewed channels of distribution as "an integral part of a complex system that have evolved from cultural and social forces in order to facilitate exchange and consumption transactions, and are governed by legal, economic, social, and political constraints."[12]

This decision was based on the following rationale: (1) the reference of the channel as an integral part, suggests the existence of an entity within a

---

[10]Louis W. Stern and Adell I. El-Ansary, Marketing Channels, p. 4.

[11]A Glossary of Marketing Terms, Committee on Definition of the American Marketing Association. (Chicago: American Marketing Association, 1960), pp. 9-23.

[12]Ronald Michman, Marketing Channels (Columbus, OH.: Grid, Inc., 1974), p. 2.

mutually complex system; and (2) by implying the evolution of channel system from the cultural and social forces, it tends to highlight the relationship between the development of the marketing system of a country with its environment.

## Purpose of the Study

It was noted earlier in this study that a theoretical concept widely held by marketing scholars is that the development of the marketing system of a country is closely related to the development of its various environmental variables. The purpose of this study was to examine the organizational structures of household appliance wholesalers of two countries in different stages of development, and determine their relationship to selected environmental variables.

First, the various elements of the organizational structure of the wholesaler were explained, and a descriptive model was developed. Secondly, hypotheses were tested concerning the similarities and differences in these structural variables, with regard to the environment in which they existed.

This study was intended to facilitate increased understanding of the channel organizations and its management through the examination of similiarities and differences of wholesale structures in different environments; and through the promotion of more effective channel development in the following ways:

1. A description of wholesale structure would aid marketers not only to design a marketing organization abroad, but also help them to appreciate what has to be done to change the underlying factors to design a structure more suitable for their requirements.

2. Similarly, it would help in the more successful transferring of marketing techniques between these two countries which are at different stages of economic development.
3. It would provide marketing educators with more facts on the influence of the environment on the structural development of the wholesale organization.
4. It would provide a conceptual basis for additional research into Nigerian distribution systems and in cross-cultural marketing research studies.

## Research Questions and Hypotheses

The research question of this study was: Do environmental factors such as economics, technology, society and culture affect wholesalers' organizational structure?

In particular, attempts were made to answer the following questions:

1. To what extent are specific environmental conditions such as economic, social and technological patterns associated with the wholesalers' size, assortment structure, and market coverage?
2. What differences and similarities exist in the organizational structures of wholesalers in Nigeria and the United States? Can these differences and similarities be explained as a result of environmental conditions?

## The Research Model

According to Blau, only systematic comparisons of many organizations can establish relationships between characteristics of organizations and stipulate the conditions under which these relationships hold. This provides the

materials that need to be explained by theoretical principles and important guides for deriving these principles.[13]

To provide the answers to the research questions it was necessary to utilize a construct that would allow a comparative analysis of the structure of these wholesale organizations to be performed. Various conceptual models for effectively comparing the relationships between marketing and its environment had been developed by many theorists and researchers. A few of those approaches were reviewed in this study namely: (1) the Flow Approach Model, (2) the Actor-Process-Structure-Function-Environment Model, and (3) Bartels' Model for Comparative Analysis.

1. The Flow Approach Model

Central to the flow approach are the concepts of the distribution channel and marketing flows. It considered the distribution channel as an organized behavior system that directs and supports the movement of goods and services from producers to users. The term "movement" includes various functions, and were arranged under five broad headings: ownership, communication, physical possession, financing and risking, as shown in Table 1.

Using this approach, questions as to how goods and services are exchanged in a given system, or a comparison of how goods are exhanged in Country X vs. Country Y, can be answered by a study of what marketing agencies take part in ownership flows, how they participate in the flows i.e. what functions they perform, and the amount of work that each does.[14]

---

[13]P.M. Blau, "The Comparative Study of Organizations" Industrial and Labor Relations Review. Vol. 18 (April, 1965) pp. 323-338.

[14]Eugene D. Jaffe, "A Flow Approach To The Comparative Study of Marketing Systems" in J. Boddewyn Comparative Management and Marketing: Text and Reading. (Glenview, IL: Scott, Foresman and Co., 1969) p. 162.

TABLE 1

THE FLOW APPROACH MODEL

| *Comparative Marketing Issues* | *Comparative Marketing Functions* | *Comparative Marketing Flows** |
|---|---|---|
| What goods and services are exchanged, and in what quantities?<br>How are goods and services exchanged? | Functions of Exchange<br>1. Buying<br>2. Selling<br>Contacting<br>Pricing<br>Merchandising<br>Terminating | Ownership<br>1. Transfer of title<br>2. Transfer of rights or authority<br>3. Transfer of control |
| How are goods and services physically transferred from seller to buyer? | Functions of Physical Supply<br>1. Transportation<br>2. Storage<br>Physical Distribution | Physical Possession<br>1. Collecting<br>2. Sorting<br>3. Dispersing |
| How do producers and marketing agencies gain knowledge of consumer demand?<br>How do producers and marketing agencies disseminate promotional information to consumers? | Market Information<br>Propaganda | Communication<br>1. Logistical<br>2. Problem solving<br>3. Persuasive |
| How are goods and services paid for by consumers? by marketing institutions?<br>What are the functions of financing and payment in facilitating the movement of goods and services? | Financing and Payment | Financing and Payment |
| How are risks of *ownership*, *physical possession* and *financing* passed on to successive agencies? | Hedging<br>Pooling uncertainty | Risking |

Source: Eugene D. Jaffe "A Flow-Approach To The Comparative Study of Marketing Systems" in J. Boddewyn Comparative Management and Marketing: Text and Reading. (Glenview, IL.: Scott, Foresman and Co., 1969) p. 163.

2. The Actor-Process-Structure-Function-Environment Model

Comparative studies using this framework can either be centered on any one of the elements listed or suggested in Table 2, or concentrate on the relationships among function, structure, process, actors and environment. On the other hand, one can study in a comparative manner, the changes in these elements and their relationships, or the strains, problems and dysfunctions present in the system.[15] As used in this model, function refers to what marketing contributes to society at large, to the smaller economic unit represented by the firm, and to the ultimate consumer. Structure deals with relationships among marketers in their social roles. The locus of such a web of relationships among marketers is, to a large extent, found in the "market". Process encompasses the various activities, e.g. buying, selling, advertising, that bring marketers into interaction. Actors applies to consumers, middlemen, managers, regulators and other relevant participants. The marketing environment has various physical, economic, political, social and cultural dimensions that interact with marketing's actors, processes, structures and functions in many direct and indirect ways.

---

[15] Jean Boddewyn, "A Construct for Comparative Marketing Research", Journal of Marketing Research, Vol. III (May, 1966) pp. 149-152.

TABLE 2

THE ACTOR-PROCESS-STRUCTURE-FUNCTION-ENVIRONMENT MODEL

| CONCEPTIONS OF MARKETING[a] | | | ASPECTS TO BE STUDIED COMPARATIVELY[a] Types, amounts and relative importance of: |
|---|---|---|---|
| *Problem* | *Corresponding concept* | *Example of relevant studies*[b] | |
| "Who are the marketers?" | "Marketing is about marketers" OR *Marketing as actors* | E. A. Duddy and D. A. Revzan, *Marketing: An Institutional Approach* | The actors' characteristics:[d] *Physical:* number (absolute and relative), location, density *Economic:* wealth, income, borrowing power, know-how (education and training) *Political:* power (single and joint) *Social:* membership in classes, castes, ethnic groups, professions status, reputation, image *Cultural:* needs, values, attitudes, expectations, role perceptions |
| "What do marketers do?" | "Marketing is what marketers do" OR *Marketing as a process* | R. S. Vaile, E. T. Grether and R. Cox, *Marketing in the American Economy* | The actors' activities and interactions: *Activities:* assembling, transporting, dispersing (space separation)[e] financing, risk-managing, storing (time separation) informing, persuading (perception separation) aligning offers and bids (evaluation separation) contacting, terminating (ownership separation) *Initiatives* (Who initiates the contacts between the actors?): buyer-seller-third party *Techniques* (How do the actors use their resources in behaving towards each other?):[f] command-manipulation-competition-cooperation |
| "How are marketers related to each other?" | "Marketing is about markets" OR *Marketing as a structure* | W. Alderson, *Marketing Behavior and Executive Action* [1] | The actors' relationships:[g] *Membership* (Who is a marketer?): membership criteria, barriers of entry *Arena* (To whom is he related?): similar types of marketers— preceding or succeeding marketers —facilitating agencies *Scope* (Over what matters?): Geographical areas, products, activities *Nature* (In what types of relationships?): rational-traditional personal (loyalty)-impersonal egoistic-altruistic hierarchical-egalitarian |
| "What do marketers contribute?" | "Marketing is what marketers contribute" OR *Marketing as a function* | R. Cox *et al.*, *Distribution in a High-level Economy* | The actors' contributions: *Nature:* psychological, economic, political, social, cultural *Recipients:* society, lower-level organizations, ultimate consumers *Size, quality and efficiency* |
| "How are marketers affected by their environment?" | "Marketing takes place within an environment" OR *Marketing as system-cum-environment* | R. Bartels (ed.), *Comparative Marketing* [2] | The interdependence between environmental factors and the actors' characteristics,[h] activities, interactions, relationships and contributions: *Physical environment* *Economic* " *Political* " *Social* " *Cultural* " |

Source: Jean Boddewyn "A Construct for Comparative Marketing Research" Journal of Marketing Research, Vol. III (May 1966), pp. 149-152.

Bartels' Model for Comparative Analysis

According to Boddewyn, Bartels' analytical framework in Figure 1 conceived marketing as both a social system and social process. It was a system because marketing included and integrated various elements such as "technology" and a variety of "marketers" connected through "relationships" and involved in "interactions". As a process, marketing was a series of "work flows" required to bridge the "separation" between producers and consumers engaging in "behavior". These systems and processes, according to her, were social because: (1) marketing was a socially evoked, socially oriented means of meeting needs for goods and services; and (2) it required the interaction of individuals who incurred "responsibility" in performing their roles as buyers, sellers, managers, and regulators.[16]

Bartels suggested the integration and vitalization of what he referred to as the traditional conceptions of marketing, by focusing on (1) the "marketing interaction" among the role players, and (2) the interplay between marketing and its societal environment in terms of external influences on marketing and marketing's contributions to economy and society.

This framework stressed that the proper focus of the comparative approach was on the relationships between marketing elements, rather than on the environment. The comparison of marketing in two countries by the symbols A:B (comparing both marketing processes), was more of a descriptive statement than an analytical one. So too was the relationship of C:D, (Home environment vs. Foreign environment) which indicated a comparison of

---

[16]Jean Boddewyn, Comparative Managment and Marketing: Text and Readings (Glenview, IL: Scott, Foresman and Company), 1969, p. 105.

BARTELS' MODEL FOR COMPARATIVE ANALYSIS

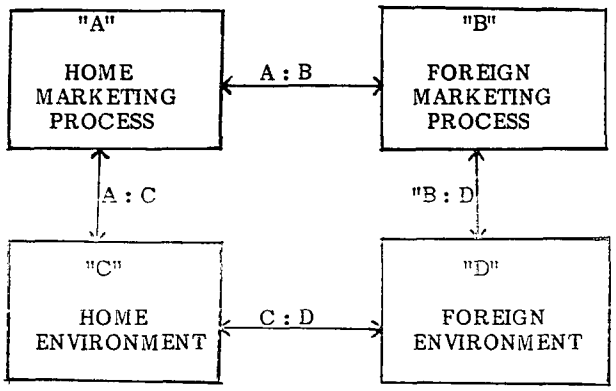



FIGURE 1

Source: Robert Bartels "Are Domestic and International Marketing Dissimilar?" Journal of Marketing. Vol. XXXII (July, 1968) pp. 56-61.

environments. The relationships of A:C and B:D on the other hand, were statements referring only to the environment. A comparative analysis of any organization and its environment should be based on A:C=B:D. This notion indicates that research should be focused on the comparison of relationships between marketing and its environment in two or more countries.[17]

For the research at hand, Bartels' model of comparative analysis was utilized, based on the following rationale:

1. Due to the breadth and the flexibility of this model, its use in this study enabled the researcher to analyze the various environmental and organizational structure variables being investigated.
2. The answer to the first research question was sought by examining A:C, at position 1, and B:D, at position 2. The second question concerning the differences and the similarities of the two wholesale structures was examined at position 3.
3. Boddewyn's remark that this model related to Alderson's systematic-functionalist conception and resembled Duddy and Revzan's "holistic-institutional" approach which viewed the marketing system within the entire economic order as an organic whole functioning through a great variety of interrelated marketing structures to achieve the purposes attributed to marketing, was taken by the researcher as an inference to its validity.[18]

Using this model, the problem under investigation was looked at as specified in Figure 2.

---

[17]Robert Bartels, "Are Domestic and International Marketing Dissimilar," Journal of Marketing, Vol. XXXII (July, 1968) pp. 56-61.

[18]Jean Boddewyn, Comparative Management and Marketing: Text and Readings, p. 107.

THE RESEARCH MODEL

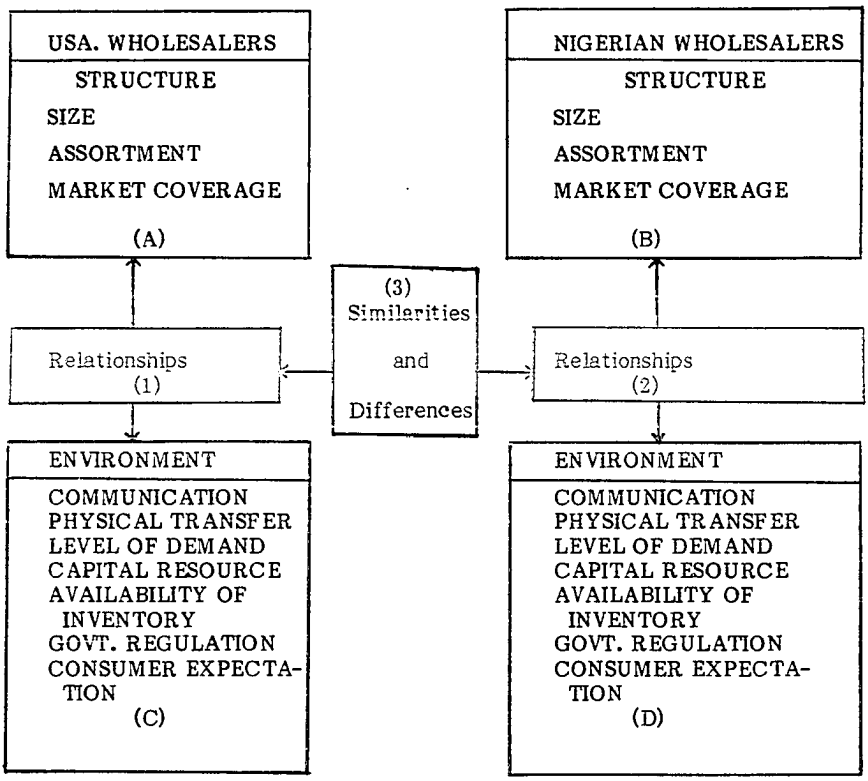



FIGURE 2

Definitions and Descriptions of the Environmental Variables in the Model

According to Duncan, one of the shortcomings of much of the theoretical and empirical research on organizational environments has been the failure to clearly conceptualize organization environment or the elements comprising it.[19] A major advantage of an environmental definition was that it specified the factors within the boundaries of the organization or specific decision making units that must be considered as part of the environment. Based on this notion, environment was defined in this study as "the totality of physical and social factors that are taken directly into consideration in the decision-making behavior of individuals in the organization."[20]

Three environmental variables were selected for analysis in this study: technology, socio-cultural, and economic. Each of these variables was commented upon, in the following section, and a set of hypotheses were generated for testing between the wholesalers in Nigeria and the United States.

Technology

Various studies have suggested that there is a relationship between the level of technology and the design of an effective organizational structure.[21] Technology has been defined as "as technique or a set of techniques employed to alter materials (human or non-human, mental or physical) in an anticipated

---

[19]Robert B. Duncan, "Characteristics of Organizational Environments and Perceived Environmental Uncertainty," Administrative Science Quarterly, Vol. 17, No. 3, (September, 1972), p. 314.

[20]Ibid.

[21]See George Wadinambiaratchi, "Channels of Distribution in Developing Economies," The Business Quarterly, Vol. 30, (Winter, 1965) pp. 74-82, Donald W. Beard, "The Structure of Organizational Environments: A Factor Analytic Approach," Organization and Administrative Sciences. Vol. 8, No. 4 (Winter, 1977/1978), pp. 85-102, and John Child, "Organizational Structure, Environment and Performance: The Role of Strategic Choice," Sociology, Vol. 6, No. 1 (1972) pp. 2-20.

manner."[22] In organizational studies, technology has been viewed in both operational and material aspects. While operation technology refers to the equipping and sequencing of activities in an organization's work-flow, the material technology concerns the physical and informational materials used.[23]

When referred to marketing, technology consists of the modes and the procedures by which marketing inputs are used to create customer utility and to create a sale.[24] Technology has come to be considered increasingly important as a determinant of organizational structure and functioning of a marketing system.

In an environment where technological advancement is often relatively backward, there will be little opportunity or incentive to develop large-scale operation; marketing organizations are likely to be characterized by small firms.[25] On the other hand, improved communications and transportation will facilitate a shift toward broader geographic patterns of distribution and variation between local markets may decline.[26] In other words, market coverage or "closing of distance" by the wholesaler is bound to increase as communication and physical distribution techniques advance. Secondly,

---

[22]Charles Perrow, "Hospitals: Technology, Structure, and Goals," in J. G. March, ed. Handbook of Organizations, (Chicago: Rand McNally, 1965), pp. 910-971.

[23]Ibid.

[24]Michael Etgar, "Channel Environment and Channel Leadership," Journal of Marketing Research, Vol. XIV (February, 1977) pp. 69-76.

[25]Reed Moyer, "The Structure of Markets in Developing Economies," MSU Business Topics, (Autumn) 1964.

[26]Susan P. Douglas, "Patterns and Parallels of Marketing Structures in Several Countries," MSU Business Topics, p. 39.

firms with advanced technology tend to have relatively large management groups, and organizational personnels.[27]

A portion of this study focused on the material technology aspect of marketing; more specifically, the extent of its availability, the level of development, and the rate of usage of communication and physical transfer facilities. (see Table 6)

These variables have been used in previous studies to investigate the relationships between marketing structures and their environment.[28] Based on this discussion, it was hypothesized that:

There exists no relationship between the development in technology, and such wholesalers' organizational structures as;

$H_1$: Size

$H_2$: Assortment Structure

$H_3$: Market Coverage

Socio-Cultural

According to Udy, every organization is located in some society, and therefore, subject to its social-cultural influence. In this sense, one thinks of any organization as existing within a social setting.[29] While culture has been referred to as "the body of ideas and structures that a society has developed in order to cope with its environment and provide for the orderly regulation of

---

[27] John Woodward, Industrial Organization: Theory and Practice, (Fair Lawn, NJ.: Oxford University Press, 1965), p. 51.

[28] Susan P. Douglas, "Patterns and Parallels of Marketing Structures in Several Countries," p. 39, and George Wadinambiaratchi, "Channels of Distribution in Developing Economics," pp. 74-82.

[29] Stanley H. Udy Jr., "The Comparative Analysis of Organization," in James G. March ed., Handbook of Organizations, (Chicago: Rand McNally, 1965), pp. 678-709.

behavior," social organization represents "the forms and nature of social grouping, formed to meet the objectives of social and personal values."[30]

It has been suggested that such basic cultural factors as law, values, customs, and mores, influence the structure of any organization existing within it.[31] According to Walters and Bergiel, literacy level, consumer expectation of product quality and services, and government regulations, have been noted to exert indirect influence on channels of distribution by their direct influence on their structure, pricing, promotion, and the like.[32] Governmental regulations in some countries limit the breadth of line which can be carried by middlemen, thereby stifling progress in the distributive trades, discourage more advanced merchandising techniques, and allowing premium to inefficient practices.[33] Adopting some of these aspects of socio-cultural variables: the existence of government regulations, the level of enforcement of these regulations, and the level of consumer expectation of various services; it was hypothesized that:

There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as:

$H_4$: Size

$H_5$: Assortment Structure

$H_6$: Market Coverage

---

[30]Vern Terpstra, The Cultural Environment of International Business, (Cincinnati: South-Western Publishing Co., 1978), p. 96.

[31]Robert Bartels, Marketing Theory and Metatheory, (Homewood, IL.: Richard D. Irwin, Inc., 1970), p. 221.

[32]Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 61.

[33]Philip R. Catero and John M. Hess, International Marketing, (Homewood, IL.: Richard D. Irwin, Inc., 1971), p. 154.

Economic

Over the last several years, the economic environment has been the most visible environmental force affecting managers in all types of business and non-business organizations. Those responsible for channel management are faced with the task of understanding the implication of economic changes on the marketing channel, and adapting channel strategy so as to operate successfully in spite of them.[34]

Economic system or environment has been referred to primarily as the level of economic activity of a country.[35] According to Fayerweather, as a nation develops, its capacity to produce develops pressures, typically in the distributive structure. As a result, stages of growth in the marketing process evolve to meet the needs of the expanding economy.[36] In a low income economy, marked by low consumer demand, and little flexibility in choices, a marketing system exists to accomplish this exchange, but the volume is small, and the variety of goods involved is limited.[37] On the other hand, as the standard of living rises and the economy grows more complex, it is reasonable to expect that there will be continuing opportunities of market organizations to be more specialized, and more efficient.

Meager capital resources place an obvious limit on the variety of merchandise which a middleman can carry in inventory. Under such conditions,

---

[34]Bert Rosenbloom, Marketing Channels: A Management View, (Hinsdale, IL: The Dryden Press, 1978) p. 142.

[35]Philip R. Catero and John M. Hess, International Marketing, p. 115.

[36]John Fayerweather, International Marketing, (Englewood Cliffs, N.J.: Prentice-Hall, 1970), p. 215.

[37]Ibid.

the choice between specialty and general-line wholesaling is largely a financial decision. An equally important decision factor is whether there is enough demand for a given class of goods or enough customers of a given type in an area to support a specialty business? Operationalizing the economic environment as level of demand, amount of capital resources, and availability of inventory, (see Table 6) it was hypothesized that:

There exists no relationship between the economic environment, and such wholesalers' organizational structure as:

$H_7$: Size

$H_8$: Assortment Structure

$H_9$: Market Coverage

To examine the second research question which related to the differences and similiarities between the wholesaler organizational structure, it was hypothesized that:

$H_{10}$: There exist no differences in the organizational structure of wholesalers in Nigeria and the United States.

## Delimitations

This study was limited in scope to the analysis of distribution channels of household appliances in Nigeria and the United States. It did not attempt to analyze the channels of distribution for other consumer goods. The analysis was further limited to focusing only on the relationships between three environmental variables; technology, social-cultural, and economic, and three organizational structural variables; size, assortment structure, and market coverage of wholesalers in the distribution channel for air conditioners and refrigerators. These two products were chosen because of their durability and

value, and because of their importance in Nigeria due to climatic conditions. It was also noted that these products were handled by single wholesalers both in Nigeria and the United States. The study was concerned with the organizational structures at the point in time of the research, and how they reflected these environmental factors at the time.

## Limitations

The research methodology employed in this study required certain procedures and techniques be followed and applied. As some secondary information, and data were obtained from mail survey, the study was therefore subject to the limitations associated with mail survey. Inadequacy of published information and the limited statistics about marketing in Nigeria, particularly, in the area of distribution channels, also imposed a limitation on the study.

Time and financial restraints became crucial factors in carrying out this study, as no outside financial assistance was available for use.

## Organization of the Study

This study will be organized into five chapters. Chapter one will introduce the research problem for the study. In addition, the purpose of the research will be discussed, a conceptual model of the research questions developed, and the limitations and delimitation of the study outlined. Chapter two will provide a review of related literature, while chapter three outlines the research design for the study. Chapter four will contain a presentation of the research findings, and chapter five will include a summary of the findings, conclusions, and recommendations.

## CHAPTER II

## REVIEW OF THE LITERATURE

### Introduction

Channels of distribution, as all social systems, are often a reflection of the particular environment in which they are found. In order to study the nature of this relationship within the wholesale organizations, it is necessary to review the various conceptual approaches for looking into the channel, and literature on the relationship between organizational structures and their environment in both the behavioral science and channles of distribution literature. This chapter will undertake this review, and identify some areas in apparent need for further research.

### Alternative Approaches to Channel Research

The existence of various "schools of thought" in the channel system was evidenced by the numerous definitions of channel. These ideologies have provided various conceptual approaches for looking into the channel from a research standpoint. A few of these approaches are examined in the following pages.

### Functional Approach to Channel Research

The "marketing functions approach" is based on an analysis of the task accomplished in, and by, the channel of distribution. This approach has long been recognized and utilized by many economic and marketing scholars in their various attempts to conceptualize distribution channel structure.

---

[38] John Gattorna, "Channels of Distribution Conceptualizations: A State-of-the-Art Review" European Journal of Marketing, Vol. 12 (1978), p. 485.

Central to the functional approach is the drive for economic efficiency.[38] It attempts to answer the two fundamental questions: (1) what is the most efficient functional mix in a given situation, and (2) how will this functional mix affect and influence channel structural arrangements?

One of the earliest contributors to this approach was Weld, who enumerated the functional mixes of the middlemen as: assembling, storing, risk bearing, financing, rearranging, selling and transportation.[39] Viewing marketing as an "activity involved in fulfilling certain tasks, rather than as any set list of activities or functions themselves," Breyer classified the functional marketing tasks as "contractual, negotiatory, storage, measurement, quality determination, packing, transportation, payment, financial and risk bearing."[40]

Through his concept of "functional spin-off," Mallen sought the evaluation of the apparent drive for efficiency and its anticipated effects on the number of channel levels, the number of channels to be used, the types of middlemen involved, and the number of middlemen that would develop at each level. He suggested that "it is economically beneficial to spin-off to marketing specialists those distributive functions which have a decreasing cost curve as volume increases when the firm has a relatively small volume."[41]

The contributions of Alderson to the functional approach have been significant. His conviction that this approach had a universal quality was

---

[39] L.D.H. Weld, "Marketing Functions and Mercantile Organization" American Economic Review, Vol. 7 (June, 1917), pp. 306-318.

[40] Ralph F. Breyer, "Some Observations on Structural Formation and the Growth of Marketing Channels" in R. Cox, W. Alderson, and S. J. Shapiro (eds). Theory inMarketing, 2nd Series, (Homewood, IL.: Richard D. Irwin Inc., 1964), pp. 163-175.

[41] Bruce E. Mallen, "Functional Spin-off: A Key to Anticipating Change In Distribution Structure" Journal of Marketing, Vol. 37 (July, 1973), pp. 18-25.

evidenced in his writing that "the concept can be applied to all types of commodities and all types of firms which participate in marketing."[42] According to him, the approach commenced with the study of an organized behavioral system constituting "a group taken in conjunction with the environment in which it moves and has its being." The functions of the channel have also been described in terms of transvection, which, in a sense, is the outcome of a series of transactions. A transvection not only includes the complete sequence of exchanges, but also involves various sorting and transformations which take place along the way. Transactions involve a transfer in ownership of use privileges covering not only sales, but all forms of short-term rent and lease agreements.[43]

Beckman, Davidson, and Talarzyk viewed the channel as a provider of the marketing-based utilities of time, place and possession,[44] while Lewis and Erickson classified the channel functions as: (1) demand generating, which includes advertising, personal selling, and sales promotion, (2) demand servicing, including warehousing, inventory management, transportation, and order processing or handling.[45]

---

[42]Wroe Alderson, Marketing Behaviour and Executive Action. (Homewood, IL.: Richard D. Irwin, Inc., 1957), p. 23.

[43]Wroe Alderson and Miles W. Martin, "Toward a Formal Theory of Transaction and Transvections" Journal of Marketing Research, Vol. 2 (May, 1965), pp. 117-127.

[44]Theodore N. Beckman, William R. Davidson, and Wayne W. Talarzyk. Marketing, 9th Ed., (New York: Ronald Press, 1973), p. 8.

[45]Richard J. Lewis and Leo G. Erickson, "Marketing Functions and Marketing Systems: A Synthesis," Journal of Marketing, (July, 1969), p. 12.

In conclusion, the functional approach to channel research has contributed to the understanding of the tasks accomplished by the channel system as an entity. Most of the ideas generated by that approach was useful in this study.

Institutional Approach to Channel Research

Until recently, most definitions of the channel of distribution have heavily emphasized the institutional aspect. This aspect has been to describe the channel in terms of the intermediaries comprising it. The institutional approach does not reveal anything about the evolution of the channel.[46] Rather, the studies have concentrated mostly on describing the structure and the competitive environment.

According to Gattorna, the "depot theory" formulated in 1945, by Aspinall, was perhaps the first genuine attempt to explain the organizational structure of the wholesaling institution, focusing on the performance of all direct and supporting storage, handling, and transportation activities performed by middlemen on an actual cost of service basis.[47]

A wide variety of views are available in the literature on the issue of what should be included in the institutional description of the channel. Some traditionalists excluded the producers and consumers, viewing it as a loose coalition of member firms or intermediaries.[48] Other views have centered on

---

[46] John Gattorna, "Channels of Distribution Conceptualizations: A State-of-the-Art Review", p. 482.

[47] Ibid.

[48] See R. S. Vaile, E. T. Grether and R. Cox. Marketing in American Economy (New York: Ronald Press, 1952), pp. 113-121, and J. A. Howard, Marketing Management: Analysis and Decision (Homewood, IL.: Richard D. Irwin Inc., 1975), p. 179.

the actual length of the channel, while Goble and Shaw included the producer in their descriptions, but not the consumer.[49]

Another major area of contention has been the issue of whether or not facilitating agencies including financial institutions, common carriers, public warehouses, advertising agencies, and many others who do not generally take title, should be included in institutional description. While some authors, through their definition of the channel have excluded these agencies, due to their non-possession of title and specialized role,[50] others have taken opposing views due to the important functions performed by these agencies in the channel system.[51]

System Approach to Channel Research

The emergence of the system approach in studying marketing phenomena in the last three decades can be attributed to Clark's assertion of the intra-and inter-functional and structural interdependencies existing in organizations.[52] One such phenomenon was that of marketing or distribution channels.

A system has been defined as an "organized or complex whole: an assemblage or combination of things or parts forming a complex or unitary whole."[53] Extending this definition to the channel, Breyer noted that in the

---

[49]R. L. Goble and R. T. Shaw, Controversy and Dialogue in Marketing. (Englewood Cliffs, N.J.: Prentice-Hall Inc., 1975), p. 283.

[50]See A. W. Frey, Marketing Handbook (New York: The Ronald Press Co., 1965) and Theodore N. Beckman and W. R. Davidson, Marketing, (New York: The Ronald Press Co., 1967), p. 230.

[51]Bert McCammon Jr. and R. W. Little "Marketing Channels: Analytical Systems and Approaches" in G. Schwartz (ed) Science in Marketing (New York: John Wiley & Sons, Inc., 1965), pp. 321-385.

[52]Fred Clark, Principles of Marketing (New York: Macmillan, 1922), p. 16.

[53]Fremont E. Kast and James E. Rosenzweig, Organization and Management: A Systems Approach (New York: McGraw-Hill, 1970), p. 110.

specific case of distribution channels, because they are composed of both human beings and machines, it can be referred to as "man-machine" systems.[54]

Using this approach, the marketing channel has been described in various terms, including behavioral and ecological. Viewing the channel as an organized behavior, according to McCammon and Little, has some distinct advantages, among which are: (1) it recognizes that a channel is a purposive and rational assemblage of firms rather than a random collection of enterprises, (2) emphasizes the existence of cooperative, as well as antagonistic, behavior within the channel, and (3) reflects the hopes, goals, and aspirations of its participants.[55]

The ecological approach focuses on position and survival within a complex channel system and adaptation to environmental forces. This view of the organization as being totally immersed in the environment, projects the concept that the objectives and the performance of the marketing channel are centered between the firm and the environment. The role of any channel strategy under this approach is to assess performance from the viewpoint of survival, growth, profitability and customer satisfaction, with a continuous adaptation to environmental forces.[56]

The Study of the Channel as an Organizational System

In studying an organization from a systems viewpoint, certain critical research areas dealing with the basic dimensions of such systems, present

---

[54]John Gattorna, "Channels of Distribution Conceptualizations: A State-of-the-Art Review", p. 494.

[55]Bert C. McCammon Jr., and R. W. Little, "Marketing Channels: Analytical Systems and Approaches", pp. 321-385.

[56]Ronald Michman, Marketing Channels, pp. 4-6.

themselves. There are indications that theorists are not in total harmony regarding which of these areas are more important for study. Further, the fact that different theorists use different terminology to refer to virtually the same concept has complicated the issue.

According to Heydebrand, one way of approaching the study of an organization from a systems viewpoint was to emphasize the relation between organization and the larger context, starting out with a focus on environmental complexity, autonomy, and change, concluding with studies of the internal structure of the organization. He distinguished several clusters of variables as the basic dimensions of organizational analysis. Some of these clusters include:

1. The nature and complexity of the organizational environment and the problem of organizational autonomy.
2. The organizational goal and task structure. This includes the number and diversity of major objectives, geographical dispersion, the variability of task, and organizational size as well as the dimensions of effectiveness and change.
3. The internal structural differentiation of organizations, that is, internal division of labor, technological complexity, and skill structure.
4. The dimensions of organizational coordination and control.[57]

Katz and Kahn, having the notion that the primary problem in understanding an organization was its location and identification, suggested solving the problem by seeking answers to a series of questions:

1. How do we know that we are dealing with an organization?
2. What are its boundaries?
3. What behavior belongs to the organization, and what behavior lies outside it?

---

[57] Wolf, V. Heydedrand, Comparative Organizations: The Result of Empirical Research, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1973).

4. Who are the individuals whose actions are to be studied and what segments of their behavior are to be included.[58]

They proposed seeking answers to those questions as an approach to studying the organization. Alternatively, Blau suggested that the aim of organizational analysis from a systems viewpoint, was to explain the interrelationship of the elements that characterized various kinds of organizations. To do that, "the interdependence between different attributes of organizations must be established—their size, complexity, specialization, authority structure, professionalization, bureaucratization, and so forth."[59]

Kast and Rosenzweig on the other hand, proposed viewing the organization as an open-system in interaction with its environment, and suggested studying it from the systems viewpoint, with four primary components:

1. Goals and values, which are based on its conformity to social requirements.

2. Technical Subsystem, which refers to the knowledge required for the performance of task, including the techniques used in the transformation of inputs into outputs.

3. Psychosocial Subsystem, which is composed of individuals and groups in interactions.

4. Structural Subsystem, involving the ways in which the tasks of the organization are divided (differentiation) and coordinated (integration).

5. Managerial Subsystems, spans the entire organization by relating the organization to its environment, setting the goals, developing comprehensive strategic and operational plans, designing the structure, and establishing control process.[60]

---

[58]Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations, (New York: John Wiley & Sons, Inc., 1966), p. 14.

[59]Peter M. Blau, "The Comparative Study of Organizations" pp. 323-338.

[60]Fremont E. Kast and James E. Rosenzweig, Organization and Management: A Systems Approach, p. 111.

Summarizing the approaches to studying or analyzing organizational systems suggested by Heydebrand, Blau, Kast and Rosenzweig, and Katz and Kahn, some of the important or critical areas include:

1. Studying the relationships between the system, its subsystems, and the larger system in which it belongs.
2. Studying the mechanisms which the system adapts to changes in its internal and external environment.
3. Analyzing the organizational goals and structures.

In as much as this list was by no means exhaustive (its broadness in the dimension of any organization is apparent) in studying the wholesaler as an organizational system, it became necessary to focus on two areas which seemed to have significant managerial and theoretical implications: analyzing the organizational structures; and the relationship between the system, the subsystems, and the supersystem. The decision to focus on those areas was made based on some major assumptions. First organizational theorists have emphasized that organizations must continuously adapt to their environment if they are to remain viable. Acording to Sadler and Barry, "an organization cannot evolve or develop in ways which merely reflect the goals, motives,—it must always bow to the constraints imposed on it by the nature of its relationship with the environment."[61] Different environmental conditions and relationships with outside parties will, it was argued, require different types of organizational structural accommodation for a high level of performance to be achieved.[62] With that knowledge, a study of wholesale organizations and their

---

[61]P. J. Sadler and B. A. Barry, Organizational Development (London: Longmans, 1970) p. 58.

[62]John Child, "Organizational Structure, Environment and Performance: The Role of Strategic Choice," p. 3.

interaction with the internal and external environment would serve the best interest of channel members and society-at-large.

Second, it has been noted that one of the most important factors in the performance of complex organizations was their structure.[63] An organizational structure has been defined as "the formal allocation of work roles and the administrative mechanisms that control and integrate work activities, including those which cross formal organizational boundaries."[64] Incorporating some elements in that definition, organizational researchers like Lawrence and Lorsch, Burns and Stalker, as well as Negandhi and Reiman have shown the importance to an organization's effectiveness in choosing a structural design appropriate for its situation.[65]

The term "structure," when applied to an industry or trade, connotes composition, size, organization, and spatial pattern.[66] Conforming to that notion of structure, the wholesale trade has been treated in terms of types of establishments, their organizational characteristics, the kinds of market in which they operate, the nature of their geographical distribution and the extent

---

[63]Rensis Likert, The Human Organization: Its Management and Value, (New York: McGraw-Hill, 1967).

[64]John Child, "Organizational Structure, Environment and Performance: The Role of Strategic Choice," p. 2.

[65]See P. R. Lawrence, and J. W. Lorsch, Organization and Environment (Homewood, IL.: Irwin-Dorsey, 1969), Tom Burns, and G. M. Stalker, The Management of Innovation, (London: Tavistock Publications, 1961) and Anant R. Negandhi and Bernard C. Reimann, "A contingency theory of organization re-examined in the context of a developing country," Academy of Management Journal, Vol. 15 (1972), pp. 137-146.

[66]Richard M. Hill, Wholesaling Management: Text and Cases (Homewood, IL.: Richard D. Irwin, 1963), p. 53.

of their market coverage.[67] Many researchers of channels of distribution have used some of those elements as variables in analyzing the wholesale structure.[68] Others have suggested that since the heterogeneity of supply and demand constituted obstacles to efficient exchange, such problems as physical movement, matching assortments, and stimulation became part of the inherent structure for designing the channel system.[69] The research at hand utilized some of those structural elements to investigate the interaction between the structure of wholesale organizations in two different settings, and their environment. To do that, it was necessary to describe and specify the various types of wholesale organizations.

The Wholesale Organization as a Channel Intermediary

According to Revzan, the field of wholesaling represents by far the most significant segment of marketing based on several points of view.[70] This concept would be true whether the wholesaling is viewed in terms of aggregate volume of business, kind of business range or array, levels of operation, structural composition, partial or total functional shiftability, or overall complexity of the subject.[71]

---

[67] Ibid., p. 24.

[68] See Robert Bartels, Comparative Marketing: Wholesaling in Fifteen Countries, (Homewood, IL.: Richard D. Irwin, Inc., 1963), Raph Cassady Jr. and Wylie L. Jones, "The Los Angeles Wholesale Grocery Structure: 1920-1946: A Case Study", Journal of Marketing, Vol. XIV (September, 1949), p. 169, and Louis W. Stern and Adell I. El-Ansary, Marketing Channels, p. 101.

[69] Ronald Michman, Marketing Channels, p. 6.

[70] David A. Revzan, Wholesaling in Marketing Organization, (New York: John Wiley & Sons, Inc., 1961), p. 1.

[71] Theodore N. Beckman, "Changes in Wholesaling Structure and Performance" in Peter D. Bennet (ed). Marketing and Economic Development. (Chicago: American Marketing Association, 1965).

Wholesaling or wholesale transactions have been defined as "one in which the purchaser does not buy for his own private or personal use or that of his family, but is actuated by a profit or business motive in making the purchase."[72] Following a similar trend of thought, but rather limited view, Walters and Bergiel referred to wholesaling as all sales by merchant institutions in a channel of distribution except to final household consumers.[73] This definition, in contrast to the one given earlier, limits wholesaling to the merchant institution. Nevertheless, both excluded the household consumers. Taking a more detailed approach, Boone and Johnson defined wholesaling as "the activities of persons or firms selling to retailers and other wholesalers or to industrial users but who do not sell in significant amounts to ultimate consumers."[74] This definition, as opposed to the two given earlier, included the selling to the final consumers within the scope of wholesale transaction.

A wholesaler has been defined structurally, as a particular type of institution that performs the wholesaling functions. According to the American Marketing Association, "a wholesaler is a business unit which buys and resells merchandise to retailers and other merchants and/or to industrial institutions and commercial users but who does not sell in significant amounts to ultimate consumers."[75] For the purpose of this study, this view of the wholesaler was taken, as it included selling to the ultimate consumers in its scope.

---

[72]Theodore N. Beckman, Nathanel H. Engle, and Robert D. Buzzell, Wholesaling, 3rd ed. (New York: The Ronald Press Co., 1959), p. 26.

[73]Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 107.

[74]Louis E. Boone and James C. Johnson, Marketing Channels, 2nd ed, (Tulsa, OK: Petroleum Publishing Co., 1977), p. 81.

[75]A Glossary of Marketing Terms, Committee on Definition of the American Marketing Association. pp. 9-23.

The reason underlying this decision was its broadness to encompass the various types of wholesale organizations to be focused on in this study.

## Classifications of the Wholesale Trade

The wholesale establishment has been classified in various ways, depending on the conceptualization of this institution. Two of these classifications, which have been said to be the most important methods of classifying the wholesalers,[76] are reviewed in the following sections.

### Wholesaler Classified by Type of Operation

Wholesalers have been classified by the U. S. Bureau of the Census into five broad categories by type of operation: merchant wholesalers, manufacturers' sales branches, merchandise agents and brokers, petroleum bulk stations, and assemblers. According to Bucklin, the bases for these five categories are diverse, being partly product distinction, function orientation, political, and pragmatic.[77]

Merchant Wholesaler: The merchant wholesalers are primarily engaged in buying and selling in the domestic market. More specifically, they buy and sell merchandise on their own account, taking title to the goods they buy; sell principally to retailers or to industrial, commercial, or professional users; usually carry stocks; assemble in large lots and generally redistribute in small quantities, usually through salespersons; extend credit to customers; make deliveries; service merchandise sold; and provide advice to the trade.[78]

---

[76] Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 110.

[77] Louis P. Bucklin, Competition and Evolution in the Distributive Trades, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972), p. 204.

[78] Richard S. Lopata, "Faster Pace in Wholesaling," Harvard Business Review, Vol. 47 (July-August, 1969), pp. 130-143.

Manufacturers' Sales Branches and Offices: These are separate, but integrated businesses operated by large manufacturers for the sale of their products and services at wholesale. They are usually located away from the manufacturing facility and may either maintain inventories closer to their customers or operate as sales offices without inventories.[79]

Merchandise agents and brokers: In this category are wholesalers that are regarded as functional middlemen due to the fact that they do not perform the complete range of functions carried out by merchant wholesalers. Merchandise agents are strictly bound by the principal for the territory, prices, terms, and conditions for sale. They normally negotiate sales for several principals, but have jurisdiction over only a part of the manufacturers' total output.

Petroleum Bulk Stations: These groups have a unique product line and highly distinctive method of storage. They handle a wide range of liquid petroleum products in bulk. Their classification within the wholesale establishment stems from the importance of petroleum product to the economy.[80]

Assemblers: The assemblers are merchants or agents engaged chiefly in the gathering of farm crops. Their distinction from other wholesalers that handle farm products is based solely on the stage of distribution; assemblers are concerned with the stages of concentration.[81] They purchase relatively small quantities from numerous producers and concentrate large quantities for economical shipments to major market centers.

---

[79] Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 111.

[80] Ibid., p. 112.

[81] Louis P. Bucklin, Competition and Evolution in the Distributive Trades, p. 205.

Wholesaler Classified by Functions Performed

The wholesaler has been classified by method of functions in two classes: full-service wholesalers; and limited-function wholesalers.

Full-Service Wholesalers: These are "traditional" wholesalers who perform all or most of the marketing functions normally associated with wholesaling. These functions include buying, selling, transporting, storing, dividing, pricing and risk taking. Included also are such services as granting of credit, delivery, accounting and inventory advice, and sometimes financial aid. The full-service wholesalers participate directly in all or most of the flows of marketing, and carry a relatively complete inventory of products.[82]

Limited-Function Wholesaler: These are wholesalers who do not perform all of the marketing functions, either by eliminating them entirely or passing them on to someone else. Some limited-function wholesalers participate in all of the marketing flows, but their degree of participation in any one flow may be considerably less than that of a full-service wholesaler. Some of these limited-function wholesalers and their limitations are illustrated by the following examples: (a) Mail order wholesaler - No salespeople, central handling of products; (b) Cash and Carry wholesaler - No credit and delivery, restricted number of goods; (c) Drop Shipper - No storage, telephone operation, low overhead; (d) Rack Jobber -Service specialist, services own racks in retail store; and (e) Wagon Jobber -Specializes in speedy handling of perishable goods.

---

[82] Louis W. Stern and Adell I. El-Ansary, Marketing Channels, p. 132.

Studies on Organizations - Environment Relationship

A survey of published books, monographs, as well as articles on the organization of firms revealed that the traditional approach of treating organizational structure has been prescriptive, often with the implicit if not explicit notion that effectiveness is enhanced by organizing in some specific ways.[83] However, in the past few years there has been a growth in the perception of organizational structure as something with a form dependent upon such forces as the organization's environment.[84] These publications have examined the influence of the environment on firms' organizational structure by looking at such topics as organizational design, organizational effectiveness, organizational interactions, and others.

Much of the literature has been concerned with the aggregate organizational level, as opposed to divisional or departmental-approach, and few have taken a comparative view. In this research, the existing literature on the influence of environmental variables on firms' organizational structure will be examined with the purpose of developing a better understanding of the procedures and criteria necessary in determining such influences. The

---

[83]See Max Weber, The Theory of Social Economic Organization (New York: Free Press, 1964), Rensis Likert, New Patterns of Management (London: Sir Issac Pitman, 1949) and Lawrence B. Mohr, "Organizational Technology and Organizational Structure", Administrative Science Quarterly, Vol. 16, No. 4, (December, 1971) p. 444.

[84]See F. E. Emery and E. L. Trist, "The Casual Texture of Organization Environment", Human Relations, Vol. 18 (1965), pp. 21.-31, James D. Thompson, Organization in Action (New York: McGraw-Hill Book Company, 1967), Wilson R. Dill, "Environment as an Influence on Managerial Autonomy", Administrative Science Quarterly, Vol II (1958) pp. 409-443 and John Woodward, Industrial Organization: Theory and Practice (London: Oxford University Press, 1965).

research by acdemicians such as Douglas[85], Douglas and Wind[86], Dubick[87], Wadinambiaratchi[88] and others are examples of studies that have examined the organization-environment relationship in various settings.

Few studies have examined the relationship between the organization of firms and the environment in which they exist using a comparative view; that is, few researchers have compared the organizational structures of firms in different countries in their attempt to test specific hypotheses about the relationship between environmental factors and marketing practices. The study by Douglas was one such example.[89] As stated by the author, the research was designed to:

1. determine how far, and in what ways the level of environmental development affect marketing systems.
2. examine the extent of similarity of marketing structures in countries at similiar levels of development, and
3. identify some process of market development comparable to that of economic development.

In Douglas' study, the marketing system of five countries (Japan, Chile, Italy, Ceylon, and Greece), were examined through direct interviews with representatives of three categories of firms: manufactures, wholesalers, and

---

[85]Merrill E. Douglas, "Organizational Environment Interaction Patterns and Firm Performance' Management International Review, Vol. 16, No. 1, (1976) pp. 79-87.

[86]Susan P. Douglas and Yoram Wind, "Environmental Factors and Marketing Practices" pp. 155-165.

[87]Michael A. DuBick, "The Organizational Structure of Newspapers in Relation to their Metropolitian Environments" Administrative Science Quarterly, Vol. 23 (September, 1978), pp. 418-433.

[88]George Widinambiaratchi, "Channels of Distribution in Developing Economies", pp. 41-49.

[89]Susan P. Douglas, "Patterns and Parallels of Marketing Structures in Several Countries", pp. 38-48.

retailers. The criteria which Douglas used to compare the marketing system in these countries included number of employees, sales volume, managerial attitudes, channel structure and channel relationships. These five countries were segmented into various levels, based on the stages of their economic, demographic, social, and cultural development.

The author found few significant differences between these five countries with respect to managerial attitudes, size and organization of the firms. Except in certain respects in Japan and Ceylon, the level of development of the marketing environment did not appear to be an important determinant of the organizational or attitudinal characteristics of firms, or of channel structure and relationship.

Analogous to the work by Douglas was a study by Douglas and Wind[90] in 1973, entitled "Environmental Factors and Marketing Practices". In that study, a sample of manufacturers, wholesalers, and retailers was drawn from five countries (the same countries used by Douglas in her earlier study) to examine the relationship between marketing strategies and environmental conditions. Using similar environmental variables as in the 1971 study, and focusing on such marketing strategies as product, communication, transactional and financing activities, Douglas and Wind examined the following research questions:

1. To what extent are specific environmental conditions such as the level of economic development and cultural patterns associated with certain marketing practices?

2. How similiar are marketing practices of firms within a given environment and is there a typical pattern of marketing practices within a country?

---

[90]Susan P. Douglas and Yorman Wind, "Environmental Factors and Marketing", pp. 155-165.

3. To what extent can differences in marketing practices in a given environment be explained in terms of specific firm characteristics such as size, or managerial attitudes?

The data for this study was collected through personal interviews and standard questionnaires from firms in each of the five countries. Using a simple cross classification technique, the authors found no direct relationship between environmental factors and marketing practices, at least in so far as the specific factors examined were concerned. Firm characteristics such as size and managerial attitudes did not help in explaining differences among firms. However, systematic patterns in product policy; communication, transactional and financing activities were found in Japan and Ceylon. These results were consistent with earlier findings by Douglas.[91]

One should be cautious in generalizing the results of those studies due to the fact that the techniques employed in collecting and analyzing the data were not appropriate for providing the answers to all the stated research questions. First, a major drawback was that the questionnaire used in the data collection was not adequately modified to reflect the local conditions existing in the various countries studied. For example, the phasing of the questions was often not adapted to local conditions. The potential bias resulting from the standardized questionnaire would be a major factor to be considered. Second, a review of the samples of questions used in those studies revealed that they were not designed in such a nature so as to provide the researchers with appropriate data to answer the research questions posed. No effort was made to ask the respondents if, and how, some of those marketing practices were influenced by their environmental settings. Lastly, no direct measurement was made between

---

[91]Susan P. Douglas, "Patterns and Parallels of Marekting Structures in Several Countries", pp. 38-48.

the environmental units and the marketing practices in those countries. Consequently, the authors were not able to provide adequate answers to their first research question concerning the extent of relationship between specific environmental conditions, and marketing practices.

Another pertinent study that considered the influence of environmental conditions on marketing organizations was conducted by Wadinambiaratchi .[92] From a comparative study of Japan, Brazil, Venzuela, Puerto Rico, Turkey, Egypt, India and tropical Africa, he found that:

1. The more developed countries have more levels of distribution, more specialty stores, and supermarkets, more department stores, and more stores in the rural areas.
2. The influence of the foreign import agent declines with economic development.
3. Manufacturer - wholesaler - retailer functions become separated with economic development.
4. Wholesalers function approximately to those in North America with increasing economic development.
5. Financing functions of wholesalers decline and wholesale mark-up increases with increasing development.
6. The number of small stores decline and the size of the average store increases with increasing development.
7. The role of the peddler and itinerant trader, and the importance of the open-garden fair declines with increasing development.
8. Retail margins improve with economic development.[93]

Despite these findings, it should be noted, however, that there existed some shortcomings in the study which could have biased its results and conclusions. The more important problems were:

---

[92]George Wadinambiaratchi, "Channels of Distribution in Developing Economies", pp. 41-49.

[93]Ibid.

1. Since the study did not include any of the highly developed economies in Western European and North America, one cannot draw any statistically verifiable conclusions about the relationship of marketing organizations and the level of development in the environment.
2. As in the two studies previously reviewed, there was no direct measurement of enviromental units and the marketing practices in these countries. The results and conclusions reached in the study would have been significantly strengthened if the researcher had determined the extent of relationship between specific environmental variables and the marketing practices.

However, even considering these shortcomings, Wadinambiaratchi's findings were particularly significant because it provided substantial insights into the nature of relationship between the environment and marketing practices. More importantly, it enhanced the theoretical development and understanding of the environment-organization relationship.

The research by DuBick (1978) was one of the few studies which attempted to actually measure the degree of association between specific organizational structural variables and selected environmental factors.[94] He investigated the effect of metropolitan environment on the organizational structure of seventy-two (72) news organizations in the United States, and hypothesized that an increase in structural differentiation was a function of five sets of variables:

---

[94]Michael A. DuBick "The Organizational Strucuture of Newspapers in Relation to Their Metropolitan Environment", pp. 418-433.

Table 3

**Standard Coefficents (Bets) for the Regression of Newspaper Differentiation Measures of Metropolitian Environment and Organizational Size, and in Noncompetitive Market Conditions**

| | Organizational Size Omitted | | Organizational Size Included | |
|---|---|---|---|---|
| Independent Variables | (1) Staff distribution | (2) Number of departments | (3) Staff distribution | (4) Number of departments |
| Market Concentration | -.135 | -.303 | -.113 | -.289* |
| Social Class | .177 | .427* | .143 | .382* |
| Occupational differentiation | .170* | .120 | .141 | .149 |
| Racial differentiation | .202* | .230* | .200* | .204* |
| Leisure services | .273* | .368* | .240* | .311* |
| National dominance | .526* | .360* | .404* | .278* |
| Metropolitan dominance | .102 | .202* | .094 | .188* |
| Organizational size | | | .222* | .308* |
| $R^2$ | .583 | .595 | .629 | .651 |

*Unstandardized coefficient ( ) twice its standard error, i.e. significant at .05 level.

Source: Michael A. Dubick "The Organizational Structure of Newspapers in Relation to their Metropolitan Environment" Administrative Science Quarterly, Vol. 23 (September, 1978), p. 427.

Table 3 (Con't)

**Standard Coefficents (Bets) for the Regression of Newspaper Differentiation Measures of Metropolitian Environment and Organizational Size, and in Noncompetitive Market Conditions**

| | Noncompetitive | | Competitive | |
|---|---|---|---|---|
| Independent Variables | (5) Staff distribution | (6) Number of departments | (7) Staff distribution | (8) Number of departments |
| Market Concentration | | | | |
| Social Class | .067 | .246* | .362* | .408* |
| Occupational differentiation | .160 | .043 | .215 | .303* |
| Racial differentiation | .034 | .103 | .321 | .272* |
| Leisure services | .241* | .216 | .324* | .411* |
| National dominance | .433* | .303* | .402* | .368* |
| Metropolitan dominance | .091 | .117 | .117 | .190 |
| Organizational size | | | | |
| $R^2$ | .384 | .470 | .658 | .672 |

*Unstandardized coefficient ( ) twice its standard error, i.e. significant at .05 level.

Source: Michael A. Dubick "The Organizational Structure of Newspapers in Relation to their Metropolitan Environment" Administrative Science Quarterly, Vol. 23 (September, 1978), p. 427.

1. Location in nationally dominant cities
2. Publication in metropolitan - dominant cities, i.e., metropolitan communities with stronger retail economies.
3. Abundance of leisure services
4. Population composed largely of middle and upper middle class, and
5. More racially and occupationally heterogeneous population.

In Dubick's study, two measures were used for structural differentiation. The first was an index which reflected the division of labor in terms of how evenly employees were distributed among the occupations in a work organization.

Included in the index were such variables as the number of employees in a department, and the mean size for the departments in the organization. The second measure of differentiation was the number of distinct departments in the organization. Measures of environment included the competition, social class, heterogeneity of population, leisure services, and national and metropolitan dominance.

A regression model was developed using these sets of variables in an attempt to predict the degree of relationship between the organizational structure and the environment. A summary of the author's findings is presented in Table 3. Significant association was found between the organizational structure and national dominance, volume of leisure services, heterogeneity or race, social class and metropolitian dominance. Occupational differentiation did not have a statistical significant coefficient with the number of departments staffed in a newspaper firm.[95]

---

[95] Ibid., p. 427.

This study represented a significant step in the understanding of the organization-environment interaction through its attempt to determine which environmental variables influence organizational structures of newspaper firms, and the magnitude of the influence. However, a major drawback that might limit the generalization of the findings in that study was that the sample used was selected from one country, or one environmental setting. The authenticity and the generalizability of the conclusions reached in the study could have been enhanced if the organizational structure of newspaper firms in another country with different stages of environmental development was also examined.

The study by Litvak and Banting (1968) was designed to determine the relationship between channel structure evolution and a country's development.[96] To the specific factor of economic development, they added the factors of political stability, market opportunity, domestic cultural unity, legal barriers, domestic physiographic barriers and geocultural distance from other (supplying) countries.

In that study, much of the empirical data were obtained through personal interviews conducted by the authors with manufacturers' agents, merchant middlemen, and manufacturers in the United States, Canada, and South Africa, and from a questionnaire sent to manufacturers' agents associations. The author found that certain environmental factors such as the nature of the product, concentration of customers, intensity of competition, resources of the middlemen, market potential, degree of industrialization, and many others, influence the distributive arrangements of these firms.

---

[96]Isaiah A. Litvak, and Peter M. Banting, "A Conceptual Framework for International Business Arrangements", in R. L. King (ed.) Marketing and the New Science of Planning, (Chicago: American Marketing Association, 1968), pp. 460-467.

Specific findings generated by this research included items important to the understanding of the organization-environment relationship:

1. In both domestic and foreign markets, the marketing middleman is more likely to evolve from being a pure agent:
   (a) the greater his resources are,
   (b) the more complex the product is,
   (c) the greater the market potential and regional concentration of the consumer are, and
   (d) the more competitive the market is.

2. The manufacturers' agent will more likely be utilized to both probe the market and participate in international business arrangements:
   (a) the greater the degree of political instability that exist in the country.
   (b) the greater the distance between the country and that of the principal in terms of miles, language, and culture, and
   (c) the greater the proliferation of rules and regulations governing foreign investment in either the agent's or his principal's country.[97]

With reference to these findings, the authors ranked ten countries from those in which foreign pressure is more likely to create changes, to those in which it was least likely to create changes: Canada, Great Britian, West Germany, Japan, Greece, Spain, Brazil, South Africa, India, and Egypt.

In a study entitled "The Influence of Culture on Channels of Distribution", Goldstucker attempted to determine the extent of influences which culture exerted upon the management of channels of distribuion, using a sample of 80 industrialists and trade association directors in the United Kingdom, Belgium, Luxembourg, The Netherlands, and Mexico.[98] As stated by the author, this research was specifically designed for a given product or product line:

1. The channel structure as compared to that existing in the United States.

---

[97] Ibid.

[98] Jac L. Goldstucker, "The Influence of Culture on Channels of Distribution", in R. L. King (ed.) Marketing and the New Science of Planning (Chicago: American Marketing Association, 1968) pp. 468-473.

2. The criteria used in selecting channels of distribution.

3. Cultural characteristics influencing channel management decisions.

4. Some strategies used to adjust to cultural differences.

The author found that culture exerts an indirect influence on the organizations of channels of distribution by its direct influence on attitudes concerning pricing, promotion and the like.

Douglas studied how a firm's performance could be related to the environmental interaction using a sample of forty-six U.S. subsidiary and Danish firms operating in Denmark.[99] These firms were matched on a paired-comparision basis, and the data were generated through interviews with top managers and through questionnaires.

In Douglas' study, firm performance was measured in two ways: the change in sales over a five year period, and, the change in net profit over a five year period. The environmental interaction was described in terms of four system flows across seven environmental interfaces. The four flows consisted of the movement of men, material, money, and information. The environmental interfaces represented government, customers, suppliers, competitors, labor, stockholders, and other institutions.

The author found that while the flows of material and information and the interfaces with government, customers, suppliers and competitors showed significant correlations with a change in sales, the flow of men and the interfaces with government and labor were significantly correlated with the change in net profit. As shown in Table 4, only the interface with

---

[99]Merrill E. Douglas, "Organizational Environment Interaction Patterns and Firm Performance", pp. 79-87.

government reflected a significant association with both performance measures. The negative correlation in the analysis indicated that changes in sales and profit tended to move in the opposite directions as the levels of environmental contact increased or decreased. These findings, according to the author indicated that firms at different performance levels seemed to perceive differently what was essential and what was non-essential.[100]

In a further analysis, the researcher attempted to correlate the environmental variables and firm performance measures as the level of firm performance varied, by classifying the firms into three levels of performance; high, medium, and low. Table 5 provides a summary of the author's findings. Negative correlations were found between many of the environmental contact variables and firm performance. All significant correlations for high performance firms were negative, and the number of significant positive correlations was high for medium performance firms, higher for medium performance firms and highest for low performance firms.

In two previous studies conducted by Douglas[101] using the same number of firms based in the two countries used in the study reported earlier, differences and some similarities in the pattern of firms' organization were found between the Danish and U.S. firms. Despite the significance of these findings, it should be mentioned however, that there existed some drawbacks which could have biased the conclusions reached in these studies. The most notable shortcoming

---

[100] Ibid., p. 81.

[101] See Merrill E. Douglas, "Organizational Environment Interaction Patterns and Firm Performance" Management International Review, Vol. 15, No. 1, (1975), p. 89-97, and Merrill E. Douglas "Identifying Organization and Environmental Interaction Patterns: Danish Firms and U. S. Subsidiaries Operating in Denmark" Management International Review, Vol. 15, No. 6 (1975), pp. 43-52.

**Table 4**

Correlation Coefficients and Significance Levels Derived By Correlating the Independent Variables with Changes in Sales and Net Profit over a Five Year Period.

| | Changes in Sales | | Changes in Net Profit | |
|---|---|---|---|---|
| | Spearman rho | 2-tail Prob. | Spearman rho | 2-tail Prob. |
| | Systems Flow Variables | | | |
| Men | —.13 | .26 | —.31 | .08* |
| Money | —.23 | .13 | —.14 | .26 |
| Material | —.32 | .05* | .07 | .37 |
| Information | —.29 | .07* | —.23 | .15 |
| | Interface Variables | | | |
| Government | —.39 | .02* | —.46 | .01* |
| Customer | —.42 | .02* | —.05 | .42 |
| Supplier | —.39 | .02* | —.20 | .18 |
| Competitor | —.25 | .10* | .03 | .45 |
| Labor | —.08 | .34 | —.33 | .06* |
| Stockholder | —.16 | .21 | —.08 | .38 |
| Other Institutions | —.13 | .26 | —.12 | .29 |

* Marked only to facilitate identification or significant correlations.

Source: Merril E. Douglas, "Organizational Environment Interaction Patterns and Firms Peformance" Mangement International Review, Vol. 16, No. 1 (1976), p. 81.

Table 5

**Significant Relationships between Increases in Sales and Net Profit Correlated with Interface Variables**

| | Increased Sales Accompanied by | Increased Net Profits Accompanied by |
|---|---|---|
| High Sales Firms | decreased flow of information<br>decreased government interaction<br>decreased labor interactions | decreased government interaction<br>decreased labor interaction |
| Medium Sales Firms | increased government interactions | |
| Low Sales Firms | increased flow of men<br>increased labor interaction<br>decreased other institutions interaction | decreased flow of money<br>increased flow of material<br>decreased government interaction<br>increased supplier interaction<br>increased competitor interaction |
| High Sales Firms | decreased flow of information<br>decreased government interaction<br>decreased other institutions interaction | decreased flow of men<br>decreased flow of information<br>decreased labor interaction |
| Medium Profit Firms | decreased flow of material<br>decreased customer interaction<br>decreased supplier interaction | decreased government interaction<br>decreased other institutions interactions |
| Low Profit Firms | decreased flow of material<br>decreased government interaction<br>decreased customer interaction<br>decreased competitor interaction | increased supplier interaction |

Source: Merrill E. Douglas, "Organizational Environment Interaction Patterns and Firm Performance" Management International Review, Vol. 16, No. 1 (1976), p. 86.

was that firms used in these studies existed within one country or cultural setting, and therefore limited the extent of the generalizability of the findings.

Although the study by Harris, Still and Crask did not measure for any direct relationship between marketing organization and the environment, their finding that no difference existed in marketing organizations in two countries (at different level of environmental development), was highly significant to the theoretical development of the nature of interaction between the environmental factors and the structure of marketing organizations. The authors did not include any environmental variables in the analysis due to their basic assumptions that "all marketing are alike", which they referred to as the "ethnocentric approach".[102]

The study included 277 U.S., and 82 Australian manufacturing firms. The Austrialian firms were Australian-owned, not subsidiaries of U.S. multinationals. In an attempt to determine the relative importance of the four major marketing mix elements (Product, Sales, Distribution, and Pricing), the authors compared the marketing organizations of these firms. Included in the measure of the marketing mix elements were product planning, testing, research and development, sales management, personal selling advertising, channel coordination and evaluation, transportation, warehousing, inventory control, pricing policies, and others.

They found that the U.S. and Australian marketing managers demonstrated marked similiarities in the perceived importance they attached to the marketing elements. While the Australian managers assigned less relative weight to product effort and more to pricing effort than did U.S. managers,

---

[102]Clyde E. Harris, Jr., Richard R. Still, and Melvin R. Crask "A Comparison of Australian and U.S. Marketing Strategies", Columbia Journal of World Business, Vol. 13, No. 2, (Summer, 1978), pp. 87-94.

only in the cases of sales and distrubution efforts were statistically significant differences present. The importance of these findings to the theoretical development was underscored by the authors' conclusion that they were in line with the key assumptions of "enthnocentric approach" that markets in different environment were more alike than different.

## Summary

As evidenced in the review of related literature in previous sections, it is apparent that there is still much to be explored concerning the organization-environment relationship; particularly in the areas of organizational structure of marketing institutions. The literature presented has approached the organization-environment interactions in a variety of ways. The more important approaches have been discussed in some detail, and each of these studies has in some part provided the basic structure for this dissertation. However, several research efforts have provided insights into such issues as problem definition, research methodology and design, sampling, and potential areas of research. Insights have been developed from contributions these studies have generated and also from the difficulties and errors which have arisen in the attempt to research the organization-environment interaction. Some of the problems and errors of the earlier studies have been discussed within the literature review. In the following pages, a summary will be presented which provides the rationale for the present study.

The most important discussion areas which resulted the undertaking of this dissertation on the influence of the environment on organizational structure were:

1. Some shortcomings in the previous research designs including data collection, data analysis, and instrumentation.

2. Few attempts have been made using data from organizations in more than one country in different stages of environmental development to determine their relationships to the environment. Conclusions concerning the relationship between the organization and its environment have been drawn from a single country based on an inferred comparison with other countries.
3. Due to the inconsistency in the findings and conclusions of previous studies, many researchers have pointed out the need for more studies to investigate the nature of relationship between organizations and their environmental settings.
4. Little time and effort has been devoted to an in-depth examination of the influence of the environmental setting on such firms' organizational characteristics as size, product assortment, and the extent of operations.

As earlier stated, an important theoretical concept widely held by organizational theorists was that the development of organizational systems in any nation was a function of the development in the various environmental factors existing in that nation. The problem of this study is to examine the organizational structure of firms in two countries with different stages of environmental development, and determine their relationship to selected environmental variables. Child has furnished insight into the problem by revealing that one of the most important factors in the performance of complex organizations are their structure.[103] He also noted that different environ-

---

[103] John Child, "Organizational Structure, Environment and Performance: The Role of Strategic Choice", p. 3

mental conditions require different types of organizational structural accommodation for a high level of performance to be achieved.

One concern of this study is to compare the organizational structure of firms in different level of environmental development. Bartels (1968), Blau (1965), as well as Boddewyn (1981), each has proposed a way of finding the differences and similiarities in the structure of organizations, with regard to their environment. Blau pointed out that only systematic comparisons of many organizations can establish relationships between characteristics of organizations and stipulate the conditions under which these relationships hold.[104] Bartels stated that in marketing such research should be focused on the comparison of relationship between marketing and its environment in two or more countries.[105] Following a similiar logical approach, Boddewyn also noted that comparative marketing was concerned with the systematic detection, identification, classification, measurement, and interpretation of similarities and differences among entire national systems or parts thereof.[106]

Specific to this study is the effect of economic, technological, and sociocultural factors on such firms' organizational structure as size, product assortment, and the extent of operation or coverage. Various authors have cited the necessity for identifying and quantifying these variables, and investigating the extent to which specific environmental conditions are associated with certain organizational structures of firms. Often, researchers have

---

[104] P. M. Blau, "The Comparative Study of Organizations", pp. 323-338.

[105] Robert Bartels, "Are Domestic and International Marketing Dissimilar", pp. 56-61.

[106] Jean J. Boddewyn, "Comparative Marketing: The First Twenty-Five Years". Journal of International Business Studies , Vol. XII, No. 1, (Spring/Summer 1981), p. 61.

identified these variables without realizing that the variables were much too broad and encompassing to be of any practical use to organizational managers. Douglas and Wind (1973), Boddewyn (1981), Bartels (1968), Shapiro (1965) and Douglas (1971) are among the researchers that have called for more explicit conceptual framework, clearer methodology, comparison of major segments of marketing systems, and in-depth investigation of patterns of relationships among variables. In this dissertation, these issues will be examined.

# CHAPTER III

# METHODOLOGY

## Introduction

This chapter describes the methodology of the study. It consists of three major sections: research design, measurement, and data analysis.

The research design section reviews some of the choices made in developing the methodology used to test the hypotheses within the wholesale organizations chosen. The measurement section describes the techniques chosen to measure the concepts involved, and the data analysis section presents the statistical methodology to be utilized in analyzing the data, and testing the hypotheses. The methodology is summarized in a concluding section.

## Research Design

For the research at hand, it was necessary to obtain primary data involving the selected environmental factors and the wholesale structure. This data can be gathered using different methods: observation, surveys, laboratory experiements, field experiments, and simulations.[107] The survey method was used in this study because it enabled the researcher to acquire the necessary information (at an acceptable degree of accuracy) with a minimum of inconvenience to the participants. A survey may be conducted in several

[107] Donald S. Tull and Del I. Hawkins, Marketing Research: Meaning, Measurement and Method, (New York: Macmillian Publishing Co., Inc., 1976), p. 106.

different ways: (1) personal interview, (2) mail questionnaire, (3) panel discussion, (4) telephone, and (5) controlled observation.[108] The first two methods seemed most appropriate to obtain suitable data for this research. The reason underlying the use of mail survey in conjunction with personal interviews was that the researcher, by using these methods, was able to reach these wholesalers more effectively than they could be reached by either technique alone. Secondly, the personal interview technique enabled the researcher to ask a series of probing questions in order to draw out and fully develop the ideas and reactions of the respondents regarding the research questions.[109]

Sampling Procedure

According to Van Dalen, sampling does not consist in collecting data casually from any conveniently located units. To obtain a representative sample, one sytematically selects each unit in a specific way under controlled conditions.[110] Seven steps have been suggested in this process: (1) define the population, (2) specify the sampling frame, (3) specify the sampling unit, (4) specify the sampling method, (5) determine the sample size, (6) specify the sampling plan, and (7) select the sample.[111] How some of these steps were accomplished in this study are described in this section.

---

[108]Fred N. Kerlinger, Foundation of Behavioral Research, 2nd. ed., (New York: Holt, Rinehart and Winston, Inc., 1973), p. 140.

[109]Vernon T. Clover and Howard L. Balsley, Business Research Methods, 2nd ed., (Columbus, OH: Grid Inc., 1979), p. 102.

[110]Deobold B. Van Dalen, Understanding Educational Research: An Introduction, 4th ed., (New York: McGraw-Hill Book Company, 1979), p. 128.

[111]Donald S. Tull and Del I. Hawkins, Marketing Research: Meaning, Measurement and Method, p. 154.

Defining the Population

To obtain a sample for this study, it was necessary to define the population. This involved identifying characteristics which members of the universe had in common and which identified each unit as being a member of a particular group. In any definiton of a population, certain key components such as the elements, sampling units, extent and time must be included.[112] For this research, the elements were wholesalers of household appliances, specifically, those that sell and distribute air conditioners and refrigerators in Nigeria and the United States.

Sampling Unit

The sampling unit for this study were those wholesale organization members responsible for sales management. Sales management may be defined as:

> The planning, direction, and control of personal selling, including recruiting, selecting, training, equipping, assigning, routing, supervising, paying, and motivating as these tasks apply to the personal sales force.[113]

The exact titles varied, depending on the individual organizations, and on which of these countries in which they exist, but the defining characteristic of the element was that the individual be the member of the firm most directly responsible for the sales management, more specifically, the sales managers.

---

[112] Ibid.

[113] A Glossary of Marketing Terms, Committee on Definition of the American Marketing Association, pp. 9-23.

Sampling Frame

Although it would be theoretically possible to develop a list of every air conditioner and refrigerator wholesaler in the United States and Nigeria, such an effort would have proved extremely costly and time consuming. To avoid this, alternative methods were chosen. The elements in the United States were selected from the membership list of the North American Heating and Air Conditioning Associations, which according to the trade directory was the most comprehensive organization for these wholesalers. The list of wholesalers in Nigeria was obtained from The Nigerian Yellow Pages,[114] a trade directory issued in February, 1983. This directory was purchased by the researcher during his visit to Nigeria, having been recommended by the Federal Ministry of Commerce as the most comprehensive source to obtain the names and addresses of the wholesale firms used in this study.

Sampling Units and Methods

The sampling units for this study have already been specified in the population definition, as the wholesalers of air conditioners and refrigerators in both Nigeria and the United States. With regard to the sampling method, Tull and Hawkins have suggested five choices which must be made in the process of selecting a method.[115]

The size of the elements in the population investigated in this study did not warrant the application of any of the sampling methods listed above. Due to

---

[114] Nigerian Yellow Pages is published by ICIC (Directory Publishers) Limited, it has a comprehensive list of businesses, products, and services available in Nigeria, including all wholesale firms involved in the distribution of air conditioners and refrigerators.

[115] Donald S. Tull and Del I. Hawkins, Marketing Research: Meaning, Measurement and Method, p. 157.

small number of elements in both populations, subjecting them to any sampling methods would have rendered them statistically less adequate and less representative for any reliable inferences. Rather, to enhance the degree of precision and adequacy in this research, the total population of Air Conditioner and Refrigerator wholesalers in both countries was utilized.

Determining the Sample Size

According to Churchill, the question of a sample size is a complex issue since it depends on, among other things, the type of sample, the statistic in question, the homogeneity of the population, and the time, money, and personnel available for the study. Based on these, he concluded that no specific rules on how to obtain an adequate sample have been formulated, for each situation presents its own problems.[116] For this study, the total population of 300 wholesale organizations in the United States, and 60 wholesale organizations in Nigeria listed in the two trade directories were used.

The rationale for utilizing all the elements in these populations was the expectation of the researcher that if a maximum response rate of 20 percent was realized from each of the two sets of samples, which according to Van Dalen was not unusual for the data collection technique used in this study,[117] it should be adequate for the statistical tests planned, and was reasonable from a cost standpoint.

---

[116]Gilbert A. Churchill Jr., Marketing Research: Methodological Foundations, (Hinsdale, IL.: The Dryden Press, 1976), p. 268.

[117]Deobold B. Van Dalen, Understanding Educational Research: An Introduction, p. 130.

Sampling Plan

According to Tull and Hawkins, the sampling plan involves the specification of how each of the decisions made thus far are to be implemented.[118]

Once the sample of wholesalers had been obtained, the following procedures were followed:

1. For the wholesalers in the United States, questionnaires were mailed out on November 9, 1983, to the sales managers with the appropriate addresses, and first class postage, affixed in the form of stamps. The return envelopes also carried first class postage, and directed to the researcher.
2. Follow-up letters with questionnaires were sent to these wholesalers approximately two weeks later on December 1, 1983. Telephone follow-ups were also used to insure maximum response.
3. Each of the questionnaires sent to the wholesalers in Nigeria were enclosed in addressed envelopes, and a return envelope addressed to a center in Nigeria included for each respondent. These were mailed out in bulk on November 8, 1983, to the center in Nigeria pre-arranged by the researcher during his visit to that country in April of 1983. When these questionnaires got to the center, each envelope was stamped with Nigerian first class postage stamps, and mailed to the respondents. The return envelopes also carried first class postage, and directed to the center in Nigeria.

---

[118]Donald S. Tull and Del I. Hawkins, Marketing Research: Meaning, Measurement and Method, p. 189.

4. Follow-up letters with questionnaires for the respondents in Nigeria were mailed out in bulk on November 8, 1983, to the center in Nigeria. From there, they were mailed to these respondents approximately three weeks after mailing the initial questionnaires. Instructions were left with the center in Nigeria to make telephone calls, and visit the addresses after three weeks to make sure they mailed back the questionnaires sent to them. The completed questionnaires were mailed to the researcher in bulk from the center.

Measurement

Measurement has been referred to as "the procedures to establish rather than to use a measuring device."[119] It consists of "assignment of numbers to characteristics of objects, persons, states, or events, according to rules."[120]

In order to evaluate the hypotheses stated in this study, it was necessary to provide precise definition of the concepts being measured. This allowed for the delineation of the concept under study from similar concepts. It was also necessary to develop an operational definition for each concept.[121] Since both conceptional and operational definitions had been provided earlier in this study for the environmental variables, the organizational structure variables included in the model were defined in this section.

---

[119]Deobold B. Van Dalen, Understanding Educational Research: An Introduction, p. 102.

[120]Ibid., p. 213.

[121]Ibid., p. 214.

Size

There exists two competing conceptual definitions of size, when referring to an organization. According to Kimberly, one answer, coming largely from, although not limited to, many of the neo-Weberian Structuralists in the United States, is that size is a structural characteristic of an organization. This conception of size has been operationalized in previous research to include the physical capacity of an organization, the personnel available to an organization, organizational inputs or outputs, and discretionary resources available to an organization.[122]. On the other hand, the contextualists conceptualized size as one of the dimensions of an organization's context, thereby viewing it as one of the constraints which determines the structure of configuration an organization is likely to exhibit.[123]

To measure the impact of the selected environmental variables on the size of the wholesale organizations, in this study, both sets of wholesalers were asked to evaluate the extent of influence of these variables on the basis of the number of employees, number of establishments, composition of the personnel (managerial, clerical and sales) for people and the sales volume. (See Table 6)

As an example, to measure the wholesalers' sales volume, item 8 in Part I of the questionnaire asked "What was the amount of net sales in dollars (Gross Sales less returns and allowances) for your firm during your last accounting period? _____ ." To measure the impact of the availability of

---

[122]John R. Kimberly, "Organizational Size and the Structuralists Perspective: A Review, Critique, and Proposal," Administrative Science Quarterly, Vol. 21 (December, 1976), p. 576.

[123]Ibid., p. 575.

inventory on the wholsalers' sales volume, item 11 in Part 2 of the questionnaire stated "Our firm is not able to fill all orders from its customers due to "product stock-outs" (See Appendix A for a copy of questionnaire)

Assortment Structure

The concept of assortments has traditionally been associated in marketing literature with physical goods. It is defined "as a collection of two or more types of goods which either complement each other directly or in total possess some degree of potency for future contingencies."[124] More specifically, assortment refers to the product combination found within any identifiable organization of marketing. The particular manner in which these products and services are combined for a specific purpose has been the basis for the conceptualization of assortment structure.

Walters and Bergiel, Davidson and Doody, and Hill, have noted that an assortment structure can be operationally defined in terms of three structural elements: width, variety, and depth.[125] For the research at hand, these three elements were used as follows: (1) Width—referring to the number of major types or categories of the products carried, (2) Variety—referring to the number of different types of product carried under each major product category, and (3) Depth—referring to the number of each individual item carried, or amount of items on hand for sale or use. (See Table 6)

---

[124]Wroe Alderson, Marketing Behavior and Executive Action, p. 199.

[125]See Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 206, William R. Davidson and Alton F. Doody, Retailing Management, 4th ed., (New York: Ronald Press Co., 1973), and Richard M. Hill, Wholesaling Management: Text and Cases, p. 112.

As an example, to measure the depth of the wholesalers' product assortment, item 24 in Part 1 of the questionnaire asked "How many models do you have in your product line? _____", item 1 in Part 2 of the questionnaire measured the impact of capital on the number of items available for sale, by asking the wholesalers to evaluate the statement. "A major factor limiting the number of products our firm sells is the lack of capital to buy the products from suppliers." (See Appendix A for a copy of questionnaire).

Market Coverage

One method of defining the concept of market coverage is by adopting the definition given by Cateora and Hess.[126] They defined coverage as (1) gaining the optimum volume of sales obtainable in the market in which the company is operating (2) securing a reasonable market share, and (3) attempting satisfactory market penetration.

Operationally, the wholesaler has been classified according to the area they serve into national, regional, and local wholesalers. According to Walters and Bergiel, the wholesaler is said to have a national coverage if it covers, at least, the continental United States; regional coverage, if it covers one to five states; and local coverage, if it services customers within a fifty-mile radius of business.[127] While these measures were adopted for the operational measure of the wholesalers market coverage in the United States, they were modified to reflect proportionally the number of states in, and the size, of Nigeria. In addition, it was necessary for the wholesaler to indicate the extent of market

---

[126] Philips R. Cateora and John M. Hess, International Marketing, p. 818.

[127] Charles G. Walters and Blaise J. Bergiel, Marketing Channels, p. 113.

concentrations in the areas it covered the number of retailer customers, and the rate of product delivery to the customers. (See Table 6).

As an example, to measure the extent of wholesalers', market coverage, item 25 in Part 1 of the questionnaire asked "How do you describe your firm's operations geographically (by number of units sold)?"

____ Local

____ Regional (please state the region served)

____ National

____ International.

To measure the impact of availability of physical transfer facilities on the wholesalers' market coverage, item 7 in Part 3 asked the wholesalers to evaluate the statement "Our firm and it's establishments are located only in areas where transportation facilities and equipment are located" (See Appendix A for a copy of questionnaire).

To collect the data necessary for this analysis, the questionnaire was divided into two sections. In the first section, the wholesalers were asked questions to which the answers gave the researcher some demographic information regarding the size, assortment structure, and their extent of market coverage. In addition, it included questions designed to determine the level of customer expectations of wholesale functions, the extent of availability and the rate of usage of communication and physical transfer facilities, the types of inventory systems and warehouse facilities used, and the extent of existence and level of enforcement of government regulations. In the second section of the questionnaire (consisting of three parts), these wholesalers were requested to rate the extent to which the environment influence their structures on a 5-point Likert summated rating scale (1-strongly agree, 5-strongly disagree).

These questions were designed by combining variables selected from both the environmental and organizational structure measurements (See Table 6, and Appendix A for a copy of questionnaire).

The questionnaire was pretested in two stages. First, it was administered through personal interview with wholesalers in Nigeria and the United States. Second, it was sent out through the mail to a small sample of wholesalers randomly selected from the sample population to see if they could complete it accurately and completely without assistance. Modifications were made where necessary.

Validity and Reliability

Both validity and reliability are concerned with the presence of error in measurement. Validity is a term that reflects the extent to which differences in score on the measurement reflect true differences among individuals, groups, or situations from one occasion to another, rather than constant or random error.[128] More specifically, it deals with whether a particular measure does what it is intended to do.

Reliability, on the other hand, refers to "the similarity of results provided by independent but comparable measures of the same object, trait, or construct."[129] It tries to determine the "extent to which measurements are repeatable, and the degree of accuracy or precision in a measuring instrument."[130] According to Churchill, if a measure is valid, there should be

---

[128]Gilbert A. Churchill Jr., Marketing Research: Methodological Foundations, p. 671.

[129]Ibid., p. 668.

[130]Fred N. Kerlinger, Foundation of Behavioral Research, p. 444.

**Table 6**

**Operationalization of the Variables**

**Environmental Variables**

| Variables | | Measurement Scale | Items |
|---|---|---|---|
| ECONOMICS | Capital | Availability of funds<br>Rate of utilization of source of funds | 16a (1-6) |
| | Inventory | Number of suppliers<br>Closeness of suppliers<br>Type of warehouses<br>Level of inventory computerization | 10, 11<br>12, 15 |
| | Level of Demand | Units of products sold in the last accounting period | 21 |
| | Age of firm | Number of years in business | 5 |
| TECHNOLOGY | Communications | Availability of communication facilties<br>Rate of usage of facilities | 16b (1-8) |
| | Physical Transfer | Availability of transportation facilities<br>Rate of usage of facilities | 16c (1-4) |
| SOCIO-CULTURAL | Government Regulations | Existence of regulations<br>Level of enforcement | 17 (1-13) |
| | Consumer Expectations | Level of consumers' expectation in terms of 4P's | 18 (1-14) |

Table 6 (Con't)

Operationalization of the Variables

Organizational Structure Variables

| Variables | Measurement Scale | Items | Basis in Literature |
|---|---|---|---|
| SIZE | Number of Employment<br>Composition of Employment | 7a, 7b | Beard (Winter, 1977/78)<br>Reimann (1973) |
| | Sale Volume (in $ and ₦) | 23 | Khandwalla (1974)<br>Reimann (1973)<br>Douglas (1976) |
| | Number of departments<br>Education of salespeople | 3, 8 | Gronhaug (1976) |
| ASSORT-MENT | Variety of units for sale<br>Number of units for sale<br>Speed of product delivery from suppliers | 14, 20<br>22, 24<br>26 | Etgar (1977)<br>Taylor (1965) |
| MARKET COVERAGE | Geographic dispersion<br>Scale of operation | 25, 4<br>19 | Reimann (1973)<br>Bartels (1963) |
| | Speed of product delivery to customers<br>Types of customers | 13, 9 | Douglas, (1971) |

Table 6 (Con't)

| | | Size of the Firm | Assortment Structure | Market Coverage |
|---|---|---|---|---|
| **PART II** **ECONOMIC** | Capital | Item 8<br>Item 12 | Item 1<br>Item 2 | Item 5<br>Item 10 |
| | Inventory | Item 11 | Item 4<br>Item 6 | Item 15<br>Item 13 |
| | Level of Demand | Item 7<br>Item 9 | Item 3 | Item 14 |
| PART III **TECHNOLOGY** | Physical Transfer | Item 2<br>Item 6 | Item 1 | Item 7<br>Item 3 |
| | Communication | Item 4<br>Item 8 | Item 9<br>Item 10 | Item 5<br>Item 11 |
| **PART IV** | Government Regulation | Item 4<br>Item 11 | Item 3<br>Item 6 | Item 5<br>Item 8 |
| **SOCIO CULTURAL** | Consumer Expectation | Item 2<br>Item 7 | Item 1<br>Item 9 | Item 10 |

little need to worry about its reliability. A valid measurement reflects the characteristic it is supposed to measure and is not being distorted by other factors, either systematic or transitory.[131]

In evaluating the measurements for the concepts introduced in the previous section, three types of validity; content, construct, and criterion; were considered.

Content Validity: Content validity focuses on the adequacy with which the domain of the characteristic is captured by the measure. In other words, it deals with the "representativeness of sampling adequacy of the content, the substance, the matter....of a measuring instrument."[132] Determination of content validity is partly judgmental, and requires the researcher to conceptually define the domain of the characteristics, by specifying what the variables are and what they are not.[133]

For the study at hand, content validity was established for all the structural and environmental variables by formulating them through an analysis of previous attempts to measure similar concepts as reported in the literature.

Construct Validity: Construct validity is directly concerned with the question of what the instrument is measuring. In otherwords, it examines the extent to which an operationalization measures the concept which it purports to measure, or the degree of internal consistency among the items of the domain.[134]

---

[131] Gilbert A. Churchill, Jr., Marketing Research: Methodological Foundations, p. 252.

[132] Fred N. Kerlinger, Foundation of Behavioral Research, p. 229.

[133] Gilbert A. Churchill, Jr., Marketing Research: Methodological Foundations, p. 248.

[134] Ibid., p. 248.

Construct validity of a measure has often been established by relating it to a number of other constructs. While convergent validity refers to "the confirmation of a relationship by independent measurement procedures," discriminant validity "requires that a measure not correlate too highly with measures with which it is supposed to differ."[135] For this study, construct validity was established through the replication of some portions of the methodology utilized in previous research, and by pretesting the instrument.

Criterion Validity: This type of validity focuses on "the usefulness of the measuring instrument as a predictor of some other characteristic or behavior of the individual."[136] The criterion validity consists of the predictive, and concurrent validity. Predictive validity tries to validate the measure of one concept, by observing the relationship between the measure of that concept and other related concepts. The concurrent validity, on the other hand, is concerned with the relationship between the predictor variable and the criterion variable when both are assessed at the same point in time.

For this study, all the stated hypotheses relied on the predictive ability of the environmental variables. The predictive ability could be established in relation to the concepts being measured, by the acceptance of the corresponding hypotheses.

Reliability

Several methods exist for ascertaining the reliability of a questionnaire. Among these are test-retest, parallel-forms, split-half, and rationale

---

[135] Ibid., p. 251

[136] Ibid., p. 247.

equivalence.[137] A major alternative to these approaches specified above is to explore the internal consistency of the measures. The most popular method of evaluating this is through the use of Cronbach's alpha, a generalization of a coefficient introduced by Kuder and Richardson to estimate the reliability of scales composed of scored items.[138] A special form of this coefficient applicable to dichotomous items, KR-20, was used to evaluate the internal consistency of the multi-item scales, measuring organizational structures and the environmental factors in both Nigeria and the United States. On the organizational structures measures, as shown in Table 7 and 8 respectively, the reliability coefficients for the wholesalers in Nigeria were .85, .78 and .75, and .92, .87 and .79 for the wholesalers in the United States. Table 9 displayed the reliability coefficents of environmental factor measures for wholesalers in Nigeria, and Table 10 presented the coefficents for those in the United States. As can be seen, the reliability coefficients for the measures were .75, .73, and .68 for the Nigeria, and .88, .79, and .86 for wholesalers in the United States. The range found on these measures indicated a fair amount of internal consistency (all coefficiency were above .65, most of the high .70's and .80's).

Data Analysis

Response rates of 20.0 percent and 45.0 percent were realized from the initial mailing of the questionnaires from wholesalers in United States and Nigeria respectively. After mailing the follow-up letters with questionnaires,

---

[137] Deobold B. Van Dalen, Understanding Educational Research: An Introduction, p. 138.

[138] Edward G. Carmines and Richard A. Zeller, Reliability and Validity Assessment (Beverly Hills, CA: Sage Publications, 1979) pp. 43-51.

Table 7

**Internal Consistency of Measure of Organizational Structure for Nigerian Wholesalers**

| 1<br>Size | 2<br>Assortment | 3<br>Market Coverage |
|---|---|---|
| Number of departments | Delivery period from suppliers | Geographic operation |
| Number of employment | Units available for sale | Number of locations |
| Composition of employees | Models in product line | Emphasis of marketing activites |
| Educational level of salespeople | Composition of product line | Delivery to customers |
| Amount of Net Sales in 1982 | | Composition of customers |
| Coefficient of reliability | | |
| .85 | .78 | .75 |

Table 8

**Internal Consistency of Measure of Organizational Structure for United States Wholesalers**

| 1<br>Size | 2<br>Assortment | 3<br>Market Coverage |
|---|---|---|
| Number of departments | Delivery period from suppliers | Geographic operation |
| Number of employees | Units available for sale | Number of locations |
| Composition of employment | Models in product line | Emphasis of marketing activites |
| Educational level of salespeople | Composition of product line | Delivery to customers |
| Amount of Net Sales in 1982 | | Composition of customers |
| Coefficient of reliability | | |
| .92 | .87 | .79 |

Table 9

**Internal Consistency of Measures of Environmental Factors for Nigerian Wholesalers**

| 1<br>Economic | 2<br>Technology | 3<br>Socio-Cultural |
|---|---|---|
| Availability of funds | Availability of communication methods | Existence of government regulations |
| Use of funds | Use of communication methods | Enforcement of government regulations |
| Number of suppliers | Availability of transportation | Importance of consumer expectations |
| Location of suppliers | Use of transportation facilities | |
| Inventory systems | | |
| Warehouse usage | | |
| Units sold in 1982 | | |
| Coefficient of reliability | | |
| .75 | .73 | .68 |

Table 10

**Internal Consistency of Measures of Environmental Factors for United States Wholesalers**

| 1<br>Economic | 2<br>Technology | 3<br>Socio-Cultural |
|---|---|---|
| Availability of funds | Availability of communication methods | Existence of government regulations |
| Use of funds | Use of communication methods | Enforcement of government regulations |
| Number of suppliers | Availability of transportation | Importance of consumer expectations |
| Location of suppliers | Use of transportation facilities | |
| Inventory systems | | |
| Warehouse usage | | |
| Units sold in 1982 | | |
| Coefficient of reliability | | |
| .92 | .87 | .79 |

the response rates increased by 6.3 percent to 26.3 percent in the United States, and by 6.6 percent to 51.6 percent for Nigerian wholesalers. In order to evaluate the hypotheses, it was necessary to perform statistical tests on the data generated by the responses to the questionnaire. Responses to the questionnaire were recorded on IBM 3081 TSO (Time Sharing Option) computer, and analyzed using several available "canned" computer programs. The Statistical Analysis System (SAS) was used to analyze the data and perform the statistical tests employed in the analysis. This program was selected because it contained a variety of options for data analysis, and was widely available at many colleges and universities.

The use of mail survey as a data collection technique has been criticized for nonresponse bias. If persons who respond differ substantially from those who do not, the results do not directly allow one to say how the entire sample would have responded, which certainly is an important step toward the generalization of the sample to the population.[139] The literature on nonresponse bias have described various methods of estimating the extent of representativeness of samples to the population from which they were drawn. These methods include comparisons with known values for the population, subjective estimates, and extrapolation.[140] Due to its validity,[141] the subjec-

---

[139] J. Scott Armstrong and Terry S. Overton "Estimating Nonresponse Bias in Mail Surveys", Journal of Marketing Researrch, Vol. XIV (August 1977), pp. 396-402.

[140] See Leslie Kish, Survey Sampling (New York: John Wiley and Sons, Inc., 1965), and Frederick F. Stephen, and Philip J. McCarthy, Sampling Opinions (New York: John Wiley and Sons, Inc. 1958)

[141] Kent P. Schwirian and Harry R. Blaine "Questionnaire-Return Bias in the Study of Blue-Collar Workers" Public Opinion Quarterly, 30 (Winter 1966), pp. 656-63.

tive estimates approach was used in this study to determine the magnitude of nonresponse bias. To do this, those firms that did not respond to the questionnaires were identified by examining the names and addresses on the returned questionnaires, and matching them with the mailing lists. Some demographic information regarding their size, assortment structure, and market coverage were collected from 20 firms that did not respond to the questionnaires in the United States through the telephone. A total of 40 wholesale firms who did not respond to the questionnaires were contacted, but only 20 firms were willing to give out the information demanded. The researcher was not able to contact more firms due to financial constraints, as most of these firms were located outside the state in which this study was conducted. For the nonrespondents in the sample of Nigerian wholesalers, similiar demographic information was collected for 10 firms included in published materials existing in the United States. This information was compared using the student t-test with corresponding information provided in the returned questionnaires to determine the extent of existence of nonresponse bias, and how it affected the generalization of the findings of this study. The results of the t-test analyses presented in Table 73 and 74 (See Appendix E) indicated that for both sets of wholesale firms, the firms that responded to the questionnaires did not differ significantly from those that did not respond in terms of: the number of departments; the composition of employment; the amount of net sales in 1982; the number of units available for sale; the number of models in the product lines; the extent of geographic operations; and the number of locations.

In the first stage of the analysis, the responses to the first part of the questionnaire were examined separately for each set of wholesalers to determine the extent of relationship between the environmental variables and the organizational structures measures using three constructs; the canonical correlation coefficient; the canonical root; and the Steward and Love's redundancy index.

Canonical correlation has been defined by Kendel as "that branch of statistical analysis which is concerned with relationships of sets of dependent variables."[142] The analysis matches two sets of concepts measured on several relevant dimensions by development of linear composites of criterion and predictor variables, which are maximally correlated. This technique is particularly appropriate in exploratory research, where there is little empirical or theoretical basis for focusing on one criterion variable and where it is preferable to use several different criterion variables to reflect the diverse facets of the explored dimension.[143] Its use in this analysis allowed the researcher to explore or determine the sets of environmental variables which were associated or disassociated with the structural variables, without restricting the analysis to one criterion variable at a time. The assurance of maximum correlation with this technique, benefited predictive ability, while the feature of independence enhanced interpretation of the results.[144]

---

[142] M.G. Kendel, A Course in Multivariate Analysis, (New York: Hafner, 1957).

[143] Michael Etgar, "Channel Domination and Countervailing Power in Distributive Channels," Journal of Marketing Research, Vol. XIII (August, 1976), pp. 254-262.

[144] P. E. Green, M. H. Halbert and P. J. Robinson, "Canonical Analysis: An Exposition and Illustrative Application," Journal of Marketing Research, Vol. III (February, 1966), pp. 32-39.

Traditionally, the existence of relationships between two sets of variables has been determined by testing the statistical significance of the canonical correlation coefficients, which are the linear combinations of each set of variables.[145] In this study, exploration was restricted to those pairs in which the correlation-coefficient was statistically significant beyond the $\pm$.05 level.[146]

As the canonical correlation coefficients do not in themselves reveal the strength of relationship that is shared between two sets of variables, the relative importance of each variable in the sets was indicated by three constructs: the canonical weights extracted for each standardized variable; the loadings of the variables on their respective variates (within set variable-variate correlations); and the percentage of squared loadings explained by each variable.[147] The last construct was computed by squaring the loadings pertaining to each variate, summing them, and then presenting each squared loading in a relative percentage form.[148] The sign of the coefficients of the environmental variables were used to indicate the direction of their influence upon the wholesalers' organizational structures, whereas the size of the coefficients and their loadings yielded directional information about the

---

[145] Mark I. Alpert and Robert A. Peterson, "On the Interpretation of Canonical Analysis," Journal of Marketing Research, Vol. IX (May, 1972), pp. 187-192.

[146] Ibid.

[147] Zarrel V. Lambert and Richard M. Durand, "Some Precautions in Using Canonical Analysis," Journal of Marketing Research, Vol. XII (November, 1975), pp. 468-475.

[148] Michael Etgar, "Channel Environment and Channel Leadership," p. 73.

variables' contributions to the canonical relationship.[149]

Since the weights to be obtained above were chosen so as to maximize the correlations, a relatively strong canonical correlation may obtain between two linear functions, thereby overstating the strength of their relationship. In such a situation, the canonical correlation coefficient values do not in themselves reveal the amount of criterion variance that was shared with the predictor variables.[150] One method of determining the amount of criterion variance shared with the predictors in this study, and avoid the inherent overstatements, was the application of a measure of redundancy. The proportion of the total variations in the structural variables that was shared with the other set of environmental variables was determined in this analysis, using the Stewart and Love's redundancy index, an asymetric index, measuring how much variance in one set of variables was accounted for by variability in the other set.[151]

The values of the weights used in computing the canonical scores were subject to considerable instability, or variability from sample to sample. To explore the stability of the weights, a split sample analysis was employed. The total sample of the wholesalers for each of the countries was divided in half on a random basis and separate canonical analysis computed for each subsample. The weights for each of the two samples compared with the total sample's canonical weights for variations in weights.

As indicated above, two separate canonical correlation analyses were computed for the responses; one for the wholesalers in the United States, and

---

[149] Ibid.

[150] Zarrel V. Lambert and Richard M. Durand, "Some Precautions in Using Canonical Analysis", p. 469.

[151] Ibid.

another for the Nigerians. In the second stage of the analyses, the responses to the perceptual measures in Parts II, III, and IV were loaded (Strongly Agree = 5 points, Strongly Disagree = 1 point), and factor analyzed. Factor analysis is a multivariate statistical technique that is concerned with the identification of structure within a set of observed variables.[152] Its use in this analysis was as a confirmatory procedure, allowing the researcher to identify the factors underlying the set of data collected in this section, and examine the extent to which they correspond with the findings in the canonical analysis.

Each set of data was analyzed using the method of principal factor analysis with iterations which according to Harman, improves the estimates of communalities.[153] The varimax rotation procedure was performed to obtain more clearly defined groups of variables. This rotational method obtains a rotation of the factor axes so as to minimize the number of measurements in which for any one factor occurs. It searches for a set of factor loadings such that each factor has some loadings close to zero and some loadings close to -1 or + 1. The magnitude of association between the variable and the factor is indicated by the size of the loadings. This procedure has been shown to be among the best orthogonal rotation procedures.[154]

---

[152]David W. Stewart, "The Application and Misapplication of Factor Analysis in Marketing Research". Journal of Marketing Research, Vol. 18, (February, 1981), pp. 51-62.

[153]Harry H. Harman, Modern Factor Analysis (Chicago: The University of Chicago Press, 1967).

[154]See T.E. Dielman, R. B. Cattel, and A. Wagner, "Evidence on the Simple Structure and Factor Invariance Achieved by Five Rotational Methods on Four Types of Data" Multivariate Behavioral Research, Vol. 7 (April, 1972), pp. 223-31, and R. L. Gorsuch, "A Comparison of Biquartimm, Maxplane, Promax, and Varimax", Educational and Psychological Measurement, Vol. 30 (Winter, 1970), pp. 861-72.

In this analysis, the factor loadings were used to interprete the factors. The factor loadings show the correlation between a variable and a factor. Hunter pointed out that the ± 0.30 level of significance was an arbitrary rule of thumb, and a higher or lower criterion could be selected.[155] For the purpose of this investigation, only those variables with factor loading greater than ±.50 level were considered significant in defining a factor. This conservative level was chosen to provide a greater assurance that the factors described were genuine.

According to Aaker, a major limitation to the use of factor analysis is that there are really no statistical tests regularly employed in this analysis, making it often difficult to know if the results are merely an accident or do reflect something meaningful.[156] To examine the extent of stability of the factors, thereby determining the level of confidence attached to the findings in this analysis, the total sample of the wholesalers for each of the countries was divided in half on a random basis, and separate factor analyses computed for each subsample.

To explore the difference and the similarities in the organizational structure of these wholesalers (in order to provide an answer to the second research question), the mean scores obtained for the various organizational structure measures were compared using the Student t-test. A t-test is a statistical inference technique used, for example, to evalute the significance of

---

[155] A. A. Hunter, "Factoral Ecology: A critique and some suggestions". Demography, Vol 9 (January, 1972), pp. 107-118

[156] David A. Aaker, Multivariate Analysis in Marketing, 2nd ed. (New York: The Scientific Press, 1980) p. 171.

the difference between the means of two groups.[157] The populations from which the samples were taken were considered to be approaching normality, and homogeneity of variance was assumed. Meeting the assumption of normality in this analysis was not much of a problem in that the sampling distributions of means are almost always normal by virtue of the nature of means, and secondly, sampling distributions of mean differences behave in a nice predictable fashion when they deviate from normal.[158] As long as the sample size was moderately large for each group, significant departures from normality made little difference in the conclusions reached. The assumption of equal variance was considered satisfied inasmuch as for samples of equal or unequal sizes, the differences in the population variance have relatively small consequences and need not be a concern regarding the conclusion derived from a t-test, unless one group's variance was three of four times the size of the other's.[159] An examination of the two samples used in this analysis confirmed that the assumptions of normality and equal variances were satisfied. However, should the "f" statistics indicate an absence of homogeneous population variance for any of the measures, an approximate 't' test, a test used for determining the extent of differences and similarities in measures whenever the population variances are unequal would be computed.[160]

---

[157] Gilbert A. Churchill, Jr., Marketing Research: Methodological Foundations, p. 388.

[158] R. J. Senter, Analysis of Data: Introductory Statistics for the Behavioral Sciences (Glenview, IL: Scott, Foresman and Company, 1969), p. 203.

[159] Ibid.

[160] Bryant C. Edward, Statistical Analysis (New York: McGraw-Hill Book Co., Inc., 1960), p. 91.

## CHAPTER IV

## PRESENTATION OF THE RESEARCH FINDINGS

### Introduction

The research findings are discussed in this Chapter in four sections. The order of presentation will follow a format such that the results of the canonical correlation analyses of the demographic data, and the factor analyses of the perceptual measures for the wholesalers in the United States will be discussed first. The second section will focus on the results of the canonical correlation, and factor analyses for the wholesalers in Nigeria. The third section will report findings bearing on the second research question by comparing the results obtained in these analyses for wholesalers in both countries, while the final section will be for the examination of the stated hypotheses.

Results:

### Results of Canonical Correlational Analyses Between Economic Variables and Size Measures for United States Wholesalers

The components of the redundancy measure for the economic factors (predictor set), and the size measures (criterion set) are presented in Table 11. The canonical correlation coefficients show that of all the eight linear combinations that were formed from the economic variables and the size measures, three produced significant correlation beyond the .05 level. The squared canonical correlation ($R^2$) for the three significant linear combinations were .8995, .6443, and .3630 respectively. These indicate that 89.95 percent of the variation in the first linear combination reflecting size can be accounted for by variation in the linear combination reflecting the economic variables,

64.43 percent for the second linear combination, and 36.30 percent for the third. The redundancy in both set of variables was computed to measure the amount of shared variation between the set of variables. The total redundancy in the criterion set (given the predictor set) was .7249, indicating that 72.49 percent of the variation in the size measures of these wholesalers can be accounted for by covariation in the economic factors (taken as a set). However, it should be noted that a high proportion of the shared variance in this set was accounted for by the first canonical root (81.7%).

Table 12 presents three measures which explain the relative importance of each of the variables in determining the relationships. The first measure is the standardized form of the canonical weights of the variables used in determining each subject's canonical scores. The nature of canonical relationship is inferred by noting the sign and magnitude of this measure. The second measure, the canonical loadings, is the correlation between individual variables and the respective canonical variates. The signs of the loadings yield directional information about variables' contributions to the canonical relationships. The final measure is the variable-variate correlation squared and expressed as a percentage of the sum of squared correlations for each variate. In the first analysis, the rank order of the economic factors contributing to the relationship, according to the weightings, was the number of units sold in 1982, and the number of firm's suppliers (with weights above .30). The rank order of size measures contributing to the relationship was the total number of employment, the number of clerical employees, the number of employees classified as 'others', the number of salespeople in the firm, the number of managerial employees, and the amount of net sales in 1982.

Table 11

COMPONENTS OF REDUNDANCY MEASURE FOR THE ECONOMIC VARIABLES AND SIZE MEASURES OF US WHOLESALE FIRMS

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9484 | .8995 | .1408 | .1266 | 47.1 |
| 2 | .8027 | .6443 | .1019 | .0657 | 24.5 |
| 3 | .6025 | .3630 | .1293 | .0469 | 17.5 |
| 4 | .3537 | .1251 | .0850 | .0106 | 3.9 |
| 5 | .2994 | .0897 | .0929 | .0083 | 3.1 |
| 6 | .2224 | .0494 | .1593 | .0079 | 2.9 |
| 7 | .1423 | .0203 | .0973 | .0020 | .74 |
| 8 | .0825 | .0068 | .0958 | .0007 | .26 |
| | | | | .2687 | |
| Criterion Set | | | | | |
| 1 | .9484 | .8995 | .6583 | .5922 | 81.7 |
| 2 | .8027 | .6443 | .1839 | .1185 | 16.3 |
| 3 | .6025 | .3630 | .0203 | .0074 | 1.0 |
| 4 | .3537 | .1251 | .0291 | .0036 | .50 |
| 5 | .2994 | .0897 | .0158 | .0014 | .19 |
| 6 | .2224 | .0494 | .0078 | .0004 | .06 |
| 7 | .1423 | .0203 | .0597 | .0012 | .17 |
| 8 | .0825 | .0068 | .0250 | .0002 | .03 |
| | | | | .7249 | |

Table 12

**RELATIONSHIPS BETWEEN ECONOMIC VARIABLES, SIZE MEASURES AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS**

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | | | | |
| EAF | .027 | .283 | 5.7 | -.079 | -.172 | 2.9 | .383 | .494 | 18.9 |
| RUSF | .034 | .124 | 1.1 | -.266 | -.053 | .29 | .107 | .296 | 6.8 |
| NOFSU | .562 | .535 | 20.3 | .826 | .771 | 58.4 | -.427 | -.117 | 1.1 |
| LOSUP | .156 | .413 | 12.1 | -.158 | -.124 | 1.5 | .384 | .523 | 21.2 |
| ISU | -.018 | .112 | .92 | .080 | .029 | .000 | .534 | .744 | 42.8 |
| COWU1 | -.021 | .156 | 1.7 | .097 | .080 | .59 | -.322 | .018 | .000 |
| COWU2 | -.031 | -.094 | .64 | -.056 | -.101 | .98 | -.264 | -.079 | .46 |
| COWU3 | .011 | -.125 | 1.1 | .045 | .005 | .000 | -.253 | .074 | .39 |
| NUS82 | .800 | .820 | 47.7 | .601 | .546 | 29.3 | -.256 | .001 | .000 |
| NDYIB | -.086 | .351 | 8.7 | .114 | -.246 | 6.0 | .351 | .330 | 8.4 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Size) | | | | | | | | | |
| NODSZ1 | .092 | .604 | 6.9 | .047 | -.299 | 6.1 | -.175 | -.082 | 1.6 |
| NOESZ2 | 10.93 | .825 | 12.9 | 3.38 | .533 | 19.3 | 2.24 | .383 | 34.3 |
| COESZ1 | 1.43 | .927 | 16.3 | -.059 | -.270 | 5.0 | -.819 | .165 | 6.3 |
| COESZ2 | 4.63 | .810 | 12.5 | 2.34 | .506 | 17.4 | 3.26 | .414 | 40.0 |
| COESZ3 | 2.62 | .809 | 12.4 | -1.20 | -.459 | 14.3 | -.274 | .064 | .93 |
| COESZ4 | 2.94 | .711 | 9.6 | -.672 | -.075 | .34 | -.391 | -.052 | .70 |
| NOSFYCO | .149 | .831 | 13.1 | .474 | .333 | 7.5 | -.363 | -.054 | .70 |
| ANS82 | .591 | .925 | 16.2 | 1.29 | .665 | 30.0 | -.455 | -.256 | 15.4 |
| | | | 100.0 | | | 100.0 | | | 100.0 |

Using the loadings, the first canonical root for the size of the firm was associated with all the size measures used in this analysis, all with loadings above .30. The related economic variables were the number of units sold in 1982, the number of firms' suppliers, location of major suppliers exclusively within the country of operation, and the number of years in business. The second root was associated with the amount of net sales in 1982, the number of total employees, the number of clerical employees, the low number of salespeople, and the number of salespeople with four-year college degree. These measures were linked with the number of firms' suppliers and the number of units sold in 1982 from the preditor set. In the third root, the number of clerical employees and the total number of employees in the firm, were associated with the extent of usage of computerized inventory system, the location of firms' suppliers within the country of operation, the extent of availability of funds, and the number of years in business.

Although other variables and relationship could have been involved, it seems reasonable to state that in an economic environment with high demand for the products, high number of suppliers, location of major suppliers exclusively within the country of operation, high availability of funds, and firms with more years in business, the organizational structure of the firms with regard to their size tend to be characterized by high number of employees in all categories, high sales, and more departments or working units, and more locations.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Size of the Firm

The result of the factor analysis of the wholesalers perceptions presented in Table 13, shows only one measures having a loading beyond the .50 level. The wholesalers did not perceive capital as a constraint to the number of

**Table 13**

FACTOR I: U.S. Wholesalers' Perceptions of the Influence of Economic Variables of the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Inadequate salespeople due to lack of capital to pay salaries | .34 |
| 2. | Does not own warehouses due to lack of capital to build and maintain one. | .53 |
| 3. | Loss of sales due to constant product stock-outs. | .29 |
| 4. | Employs additional salespeople only during periods of increasing demand. | -.05 |
| 5. | Limits operations to areas with high population densities. | .02 |

salespeople they can employ. However, due to the lack of capital to build and maintain warehouses, most of these wholesalers use leased or rented warehouses. This may explain why the rate of usage of any of the warehouse compositions did not show significant relationship to the size of the wholesalers in the canonical correlation analysis. The negative loading for the statement that the firms employ additional salespeople only during periods of increased demand is not indicative of a negative relationship between the level of demand and the number of salespeople employed. Rather, it indicates that although the rate of salespeople employment is influenced by the extent of demand for the products, as shown by the result of the canonical analysis, the wholesalers do not limit the employment of additional salespeople to periods of increased demand. Finally, the fact that the wholesalers did not perceive their firms losing sales due to constant product stocks-outs can be attributed to the high availability of suppliers to these firms, and may explain the resulting high sales volume found among the firms in the earlier analysis.

Results of Canonical Correlational Analyses Between Economic Variables and Assortment Structure Measures for U.S. Wholesalers.

As can be seen in Table 14, of the six linear combinations formed from the economic variables and the assortment structure measures, three were significant beyond the .05 level. In the first linear combination, 83.9 percent of the variations reflecting the assortment structure can be accounted for by variation in the linear combination reflecting the economic variables. The second and third linear combinations had 41.3 percent and 33.2 percent variations respectively. The total redundancy in the criterion set (given the predictor set), indicates that 29.7 percent of the variation in the assortment

structure can be accounted for by covariation in the economic factors, with three significant relationships accounting for all but 9 percent of this amount.

The rank order of the contributions to the relationship for the predictor set in the first linear combination as shown in Table 15, was the number of units sold in 1982, and the rate of usage of sources of funds. In the second combination, the rank order was the rate of usage of computerized inventory system, the number of years in business, the number of units sold in 1982, and the percentage of the leased warehouse usage. For the third linear combination, two economic variables; the number of firms' suppliers, and the number of units sold in 1982 made the only significant contributions.

In the criterion set, only one measure; the number of products available for sale contributed most of the relationship in the first linear combination. In its second combination, the rank order of contribution was the number of models in the product lines, the percentage of electric-operated air conditioners in the product lines, the percentage of gas-operated refrigerators in the product lines, and the number of units available for sale. Only the percentage of gas-operated refrigerator in the product lines had a weight above .30 in the third linear combination.

Using the loadings, the first root for product assortment was associated with the number of product available for sale, the number of models in the product line, the percentage of electric-operated air conditioners in the product lines, and the percentage of electric-operated refrigerators in the product lines. These were related to the economic variables of; the number of units sold in 1982, the rate of usage of various sources of funds, the number of firms' suppliers, and the extent of availability of fund. The second root was associated with the number of models in the product line, the number of

Table 14

**COMPONENTS OF REDUNDANCY MEASURE FOR ECONOMIC VARIABLES AND ASSORTMENT STRUCTURE MEASURES OF WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9161 | .8392 | .1157 | .0971 | 48.2 |
| 2 | .6425 | .4128 | .1236 | .0510 | 25.3 |
| 3 | .5763 | .3321 | .1030 | .0342 | 17.0 |
| 4 | .2679 | .0718 | .1680 | .0121 | 6.0 |
| 5 | .2032 | .0413 | .0823 | .0034 | 1.7 |
| 6 | .1778 | .0316 | .0011 | .0038 | 1.9 |
| | | | | .2016 | |
| Criterion Set | | | | | |
| 1 | .9161 | .8392 | .2033 | .1706 | 57.4 |
| 2 | .6425 | .4128 | .1433 | .0591 | 19.9 |
| 3 | .5763 | .3321 | .1224 | .0406 | 13.7 |
| 4 | .2679 | .0718 | .1969 | .0141 | 4.7 |
| 5 | .2032 | .0413 | .1938 | .0080 | 2.7 |
| 6 | .1778 | .0316 | .1404 | .0044 | 1.5 |
| | | | | .2970 | |

Table 15

## RELATIONSHIPS BETWEEN ECONOMIC VARIABLES, ASSORTMENT STRUCTURE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | | | | |
| EAF | .128 | .338 | 13.6 | .180 | .335 | 9.1 | .196 | .336 | 10.1 |
| RUSF | .310 | .443 | 23.3 | .647 | .650 | 34.2 | .050 | .112 | 1.2 |
| NOFSU | .108 | .346 | 14.3 | -.078 | -.059 | .24 | .671 | .854 | 65.1 |
| LOSUP | .009 | .194 | 4.5 | .286 | .346 | 9.7 | -.164 | -.045 | .18 |
| ISU | .033 | .118 | 1.7 | .436 | .610 | 30.1 | -.186 | -.183 | 2.9 |
| COWU1 | -.127 | -.038 | .11 | -.013 | -.103 | .89 | .253 | -.094 | .80 |
| COWU2 | -.005 | -.048 | .24 | .314 | .204 | 3.4 | .047 | -.090 | .71 |
| COWU3 | .000 | -.002 | .000 | .000 | -.100 | .81 | .000 | -.219 | 4.3 |
| NUS82 | .390 | .587 | 41.0 | .315 | .049 | .16 | .516 | .314 | 8.9 |
| NOYIB | -.059 | .105 | 1.3 | -.326 | -.375 | 11.4 | -.178 | .252 | 5.7 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Product Assortment) | | | | | | | | | |
| NUPAS | .891 | .971 | 63.7 | .332 | .402 | 18.2 | -.146 | -.295 | 26.7 |
| NOMPL | .259 | .514 | 17.8 | .765 | .682 | 52.4 | .227 | .300 | 27.6 |
| COUSE1 | .119 | .310 | 6.5 | .561 | .393 | 17.3 | .198 | .242 | 18.1 |
| COUSE2 | .113 | .421 | 12.0 | .217 | .193 | 4.2 | -.018 | -.152 | 7.1 |
| COUSE3 | -.012 | .022 | .000 | -.470 | -.245 | 6.8 | -.659 | -.041 | .61 |
| COUSE4 | .063 | .036 | .06 | -.134 | -.100 | 1.1 | -.191 | -.255 | 19.9 |
| | | | 100.0 | | | 100.0 | | | 100.0 |

products available for sale, and the percentage of electric-operated refrigerators in the product line. The corresponding economic factors were the rate of usage of the sources of funds, the use of computerized inventory systems, the number of years in business, location of major suppliers within the country of operations, and the extent of availability of funds. For the third root, the assortment structure was associated with the number of models in the product line. This measure was linked with the number of firms' suppliers, the extent of availability of funds, and the number of units sold in 1982 in the predictor set.

The above findings indicate that in an economic environment marked by high level of demand, high availability of funds, high number of suppliers as in the United States, the assortment structure seems to be characterized by large number of product available for sale, more product models, and a high percent of these products are electric-operated. Two other economic situations that may be avaiable for such an assortment structure to occur are the location of major suppliers exclusively within the country of operation, and the use of computerized inventory system.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Asortment Structure of the Firm

The results of the factor analysis presented in Table 16 indicates low loadings for all but one of the five statements measuring the wholesalers' perceptions of the influence of economic factors on their assortment structure. The loadings seem to be analogous to the conclusions reached in the canonical analysis earlier. The wholesalers did not perceive either the lack of capital to buy products from the suppliers or insufficient credit line extended to the firms by their supplies as limiting factors in the number of products available for sale. This tends to support the positive relationship found between the extent

**Table 16**

FACTOR II: U.S. Wholesalers' Perceptions of the Influence of Economic Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Lack of capital to buy products from suppliers limit the number of items for sale. | -.09 |
| 2. | Number of products available for sale limited by insufficient credit line. | -.01 |
| 3. | Inadequate source of supply limits the variety of products for sale. | .20 |
| 4. | Delay in product arrival from suppliers cause shortage of products for sale. | .21 |
| 5. | Some models are not profitable, but are included in the product line due to the demand for them. | .51 |

of availability of sources of funds, and the number of products available for sale in the canonical analyses. The loadings also indicate that the wholesalers did not perceive inadequate source of supply and delay in product arrival from the suppliers as factors limiting the numbers and the varieties of the products available for sale. However, these wholesalers felt that they include some not very profitable models in their product lines due to the demand for them. This may explain why large numbers of products available for sale, and high number of models in the product lines existed in the assortment structures of these firms due to the high demand for products, as found in the canonical analysis.

Results of Canonical Correlational Analyses Between Economic Variables and Market Coverage Measures for U.S. Wholesalers

Of the eight linear combinations that could be formed from the economic variables and the market coverage measures, two produced significant correlation beyond the .05 level. The squared canonical correlation in Table 17 indicates that the amount of variation in the market coverage that can be accounted for by the linear combinations reflecting economic variables were 81.96 percent and 62.95 percent in the first and second linear combinations respectively. The total redundancy in the criterion set (given the predictor set) shows that 21.06 percent of the variation in the market coverage can be accounted for by variation in the economic factors.

The canonical weights in Table 18 suggests that in the first linear combination, the number of firm' suppliers and the rate of usage of sources of funds contributed most to the relationship from the predictor set (with weights above .30). In the second linear combination, the rank order of the contribution to the relationship was the number of units sold in 1982, the use of

Table 17

**COMPONENTS OF REDUNDANCY MEASURE FOR THE ECONOMIC VARIABLES AND MARKET COVERAGE MEASURES OF U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9053 | .8196 | .1264 | .1036 | 42.0 |
| 2 | .7934 | .6295 | .1533 | .0965 | 39.2 |
| 3 | .4420 | .1953 | .0991 | .0194 | 7.9 |
| 4 | .3676 | .1351 | .0512 | .0069 | 2.8 |
| 5 | .2862 | .0819 | .1789 | .0147 | 6.0 |
| 6 | .1947 | .0379 | .1058 | .0040 | 1.6 |
| 7 | .1172 | .0137 | .0926 | .0013 | .53 |
| 8 | .0238 | .0006 | .0508 | .0001 | .04 |
| | | | | .2464 | |
| Criterion Set | | | | | |
| 1 | .9053 | .8196 | .0912 | .0747 | 35.5 |
| 2 | .7934 | .6295 | .1150 | .0724 | 34.4 |
| 3 | .4420 | .1953 | .0966 | .0189 | 9.0 |
| 4 | .3676 | .1351 | .1892 | .0256 | 12.2 |
| 5 | .2862 | .0819 | .1542 | .0126 | 6.0 |
| 6 | .1947 | .0379 | .1300 | .0049 | 2.3 |
| 7 | .1172 | .0137 | .1048 | .0014 | .66 |
| 8 | .0238 | .0006 | .1191 | .0001 | .05 |
| | | | | .2106 | |

Table 18

## RELATIONSHIPS BETWEEN ECONOMIC VARIABLES, MARKET COVERAGE MEASURES AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | |
|---|---|---|---|---|---|---|
| | 1 | | | 2 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | |
| EAF | -.011 | .226 | 4.0 | .126 | .431 | 12.1 |
| RUSF | .314 | .517 | 34.2 | .279 | .517 | 17.4 |
| NOFSU | .671 | .464 | 33.9 | -.346 | -.190 | 2.3 |
| LOSUP | .210 | .359 | 10.2 | .075 | .332 | 6.8 |
| ISU | -.115 | -.006 | .000 | .377 | .529 | 18.3 |
| COWU1 | -.060 | .067 | .32 | .050 | .076 | .39 |
| COWU2 | .019 | -.006 | .000 | -.085 | .008 | .000 |
| COWU3 | .000 | -.098 | .80 | .000 | -.131 | 1.1 |
| NUS82 | .219 | .236 | 4.4 | .565 | .739 | 35.6 |
| NUS82 | .183 | .391 | 12.1 | .298 | .303 | 6.0 |
| | | | 100.0 | | | 100.0 |
| Criterion Set (Market Coverage) | | | | | | |
| EGO | .075 | .327 | 11.8 | .365 | .565 | 30.9 |
| NOLOC | .462 | .788 | 68.5 | .585 | .461 | 20.6 |
| EEMA1 | -1.85 | -.184 | 3.7 | -1.65 | -.134 | 1.7 |
| EEMA2 | -1.57 | -.025 | .000 | -1.05 | -.226 | 4.9 |
| EEMA3 | 1.27 | .126 | 1.8 | 1.55 | .557 | 30.0 |
| EEMA4 | 1.19 | .318 | 11.1 | 1.26 | .303 | 8.9 |
| COIMC1 | -.046 | .072 | .55 | .191 | .142 | 1.9 |
| COIMC2 | -.112 | -.121 | 1.7 | .028 | -.031 | .000 |
| COIMC3 | .000 | .090 | .88 | .000 | -.100 | .97 |
| | | | 100.0 | | | 100.0 |

computerized inventory system, and the number of firms' suppliers. The weights for the first linear combination in the criterion set indicate that the rank order of the contribution to the relationship by the market coverage measures was the extent of emphasis placed on products, the extent of emphasis placed on price, the extent of emphasis placed on promotional activities, the extent of emphasis placed on distrubtion activities, and the number of firms' location. In the second linear combination, the same measures as in the first combination, with the addition of the extent of regional operations, contributed most to the relationship.

According to the loadings, the first root for the market coverage measures was associated with the number of firms' locations, the extent of regional operations, and the extent of emphasis placed on distribution activities. These were related to the economic factors of the rate of use of various sources of funds, the number of firms' suppliers, the number of years in business, and the location of the firms' major suppliers exclusively within the country of operation. The second root was associated with the extent of regional operations, the extent of emphasis placed on promotional activities, the number of firms' locations, and the extent of emphasis placed on distribution activities. These were linked with the economic factors of the number of units sold in 1982, the use of computerized inventory system, the rate of use of various sources of funds, the extent of availability of funds, the location of the firms' major suppliers exclusively within the country of operation, and the number of years in business.

Although other variables and relationships could have been involved, it seems reasonable to make some inferences from the findings above. It can be stated that in an economic environment characterized by high demand for the

products, higher usage of computerized inventory system, high existence and usage of various sources of funds, more location of major suppliers exclusively within the country of operation, and firms with more years in business, the wholesale firms tend to have more number of locations, higher extent of regional operations, and place more emphasis on both promotion and distrubtion activities.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Extent of Market Coverage by the Firm

None of the loadings presented in Table 18 for the measures of the wholesalers' perceptions of the influence of economic variables on the extent of market coverage by the firm was significant beyond .50 level. The wholesalers did not perceive the lack of capital as a limiting factor to the number of new facilities the firm can set up, neither did the firms restrict their operations to urban areas in order to avoid the high cost of servicing rural markets. These perceptions seem to be in line with the high association found in the canonical analysis between the extent of availability of sources of funds, the extent of usage of funds, and the market coverage measures of the number of locations and the extent of regional operations.

However, the wholesalers felt that in most cases, their suppliers stipulate where the products are sold, although, this did not seem to have a significant effect on the extent of their market coverage. Finally, the relatively high loading obtained for the last perceptual measure can be interpreted here as an association between the level of demand and the extent of geographic operations, which is in line with the findings in the earlier analyses.

**Table 19**

FACTOR III: U.S. Wholesalers' Perceptions of the Influence of Economic Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Inability to set up new facilities due to lack of capital. | .14 |
| 2. | Restrict operations to urban areas to avoid the high cost of servicing rural markets. | .24 |
| 3. | Suppliers stipulate where the products may be sold. | .47 |
| 4. | Distribution centers are restricted to areas with highest demand. | .36 |

Results of Canonical Correlational Analyses Between Technological Variables and Size Measure for U.S. Wholesalers

In Table 20 are presented the components of the redundancy measure for the technological variables and the size measures. Of all the four linear combinations that could be formed from these two sets, two produced significant correlation beyond the .05 level. The squared canonical correlation ($R^2$) indicates that 36.17 percent of the variation in the first linear combination reflecting the size of the firm can be accounted for by variation in the linear combination reflecting the technological variables. For the second significant linear combination, 26.12 percent of the variation reflecting size was accounted for by variation in the linear combination reflecting the technological variables. The total redundancy in the criterion set (given the predictor set) indicates that 13.53 percent of the variation in the size measure can be accounted for by covariation in the technological variables. The second canonical root contributed most of the shared variation between these sets of variables, accounting for 71.9 percent of the total redundancy.

The rank order of technological factors contributing to the relationship in the first linear combination as shown in Table 21 was the rate of usage of carriers for transporting the largest amounts of the products, the extent of usage of communication facilities in contacting manufacturers or retailers, and the extent of availability of carriers. In the second combination, the rank order of contribution was the extent of usage of communication facilities, the extent of availability of carriers, and the extent of availability of communication facilities. For the criterion set, the rank order of contribution to the relationship in the first combination was the total number of employment, the number of employees referred to 'others', the number of salespeople with four-

year college degree, the number of salespeople in the firm, the amount of net sales in 1982, the number of departments or working units, and the number of managerial employees (with weights above .30). In the second combination, all these measures, with the exceptions of the amount of net sales in 1982, and the number of departments or working units had weightings above .30.

Using the loadings, the first canonical root for the size of the firm was associated with the amount of net sales in 1982, the number of departments or working units, and the number of salespeople with four-year college degree. These were linked to all the four technological variables used in this study. These loadings indicated a negative association between the extent of availability of communication facilities, the extent of availability of carriers, and the size of the firm. However, while a relatively negative availability of carriers in the combination contributed to a high value in the first size variate, one cannot conclude that the existence of less carriers to transport the products sold results to high number of departments of working units in the wholesale firm. Rather, in this instance, the extent of availability of carriers is considerably a less determinant than are other technological variables. The second root was associated with the total number of employment, less clerical employees, the number of departments or working units, the number of salespeople with four-year college degree, less number of salespeople, and the amount of net sales in 1982. These were related to the technological variables of low availability of communication facilities, the extent of usage of communication facilities, a low availability of carriers, and the extent of usage of carriers.

In both canonical roots, the extent of availability of carriers and communication facilities were considerably less determinants of the firms size.

Table 20

## COMPONENTS OF REDUNDANCY MEASURE FOR THE TECHNOLOGICAL VARIABLES AND SIZE MEASURES OF U.S. WHOLESALE FIRMS

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6014 | .3617 | .3355 | .1214 | 48.7 |
| 2 | .5111 | .2612 | .2962 | .0774 | 31.0 |
| 3 | .4086 | .1670 | .1646 | .0275 | 11.0 |
| 4 | .3371 | .1136 | .2037 | .0231 | 9.3 |
| | | | | .2494 | |
| Criterion Set | | | | | |
| 1 | .6014 | .3617 | .0360 | .0130 | 9.6 |
| 2 | .5111 | .2612 | .3726 | .0973 | 71.9 |
| 3 | .4086 | .1670 | .0501 | .0084 | 6.2 |
| 4 | .3371 | .1136 | .1460 | .0166 | 12.3 |
| | | | | .1353 | |

Table 21

**RELATIONSHIPS BETWEEN THE TECHNOLOGICAL VARIABLES, SIZE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS**

| Variable | Canonical Relationships | | | | | |
|---|---|---|---|---|---|---|
| | 1 | | | 2 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Technology) | | | | | | |
| AMCMR | -.206 | -.375 | 9.6 | .550 | .318 | 7.9 |
| EUCMR | .574 | .875 | 52.1 | -.810 | .610 | 28.7 |
| CAVAL | -.551 | -.546 | 20.2 | -.552 | -.774 | 46.3 |
| CASAL | .629 | .517 | 18.1 | .200 | .472 | 17.2 |
| | | | 100.0 | | | 100.0 |
| Criterion Set (Size) | | | | | | |
| NODSZ1 | .424 | .367 | 22.6 | .111 | .508 | 13.8 |
| NOESZ2 | 3.3 | .135 | 3.0 | 2.3 | .740 | 29.2 |
| COPESZ1 | -.387 | -.232 | 9.0 | 2.0 | .213 | 2.4 |
| COESZ2 | -.223 | .016 | .000 | -4.4 | -.695 | 25.8 |
| COESZ3 | 1.1 | .174 | 5.0 | -2.8 | -.419 | 9.4 |
| COESZ4 | -2.6 | -.263 | 11.6 | 1.9 | .218 | 2.6 |
| NOSFYCO | 1.2 | .324 | 17.6 | .944 | .462 | 11.4 |
| ANS82 | .942 | .431 | 31.2 | .204 | .321 | 5.5 |
| | | | 100.1 | | | 100.0 |

**Table 22**

FACTOR IV: U.S. Wholesalers' Perceptions of the Influence of Technological Variables on the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Loss of sales due to poor delivery by motor carriers. | .09 |
| 2. | Lack of fast delivery services for emergency shipments. | .17 |
| 3. | Salespeople are required to have college degree at the time of employment. | .57 |
| 4. | Inability to inform customers about the products through media advertisement limits the amount of sales. | .38 |

Rather, in such technological environment as in the United States with the high rate of usage of communication facilities and carriers, the wholesale firms tend to have more departments or working units, more number of total employment, more salespeople with four-year college degrees, and higher sales.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables and the Size of the Firm

The results of the factor analysis in Table 22 show that only one of the four loadings presented was significant beyond the .50 level. The wholesalers do not perceive the firms losing sales due to poor delivery by motor carriers or by not being able to provide emergency shipments. This seems to be in line with the findings in the earlier analyses where the extent of usage of carriers in transporting the products sold showed positive relationship with the size of the firms. The wholesalers felt that relatively they are unable to inform all their customers about the products in their product line through media advertisment. This may be accounted for by the fact that most of the firms immediate customers are sub-wholesalers and retailers which can be reached more effectively through contacts by salespeople. Finally, the wholesalers perceived their firms requiring salespeople to have college degrees at the time of employment. This may explain the significant association found between technological variables, and the number of salespeople with four-year college degree.

Results of Canoncial Correlational Analyses Between Technological Variables and Assortment Structure Measures for U.S. Wholesalers

The components of the redundancy measure of the technological variables and the size of the firm are presented in Table 23. None of the four canonical correlation coefficients formed from the linear combinations of these sets of

variables produced significant relationship beyond the .05 level. It was stated earlier in this study that no further analysis will be made whenever there is no significant correlation. However, it will be necessary in this instance to make a brief comment on the contributions of each variable to the relationships in the highest linear combination.

As Table 24 indicates, the rank order of the technological factors contributing to the relationship in this first linear combination was the rate of usage of carriers, the extent of availability of carriers, the rate of usage of communication facilities, and the extent of availability of communication facilities. In the criterion set, the rank order was the percentage of electric-operated air conditioners in the product lines, the percentage of gas-operated air conditioners in the product lines, and the number of models in the product line. The loadings indicate that this first root was associated with low percentage of electric-operated air conditioners in the product lines, the number of models in the product line, low percentage of electric-operated refrigerators in the product lines, and the number of units presently available for sale. The related technological variables were low use of carriers, low availability of carriers, the extent of availability of communication facilities, and the extent of usage of communication facilities.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm

Table 24 shows that none of the three loadings obtained is significant beyond the .05 level, indicating that the wholesalers did not perceive technological factors having any influence on their assortment structure. According to these wholesalers, product delivery from suppliers is not delayed by the lack of adequate motor carriers and/or railroad systems, nor is the

Table 23

**COMPONENTS OF REDUNDANCY MEASURE FOR TECHNOLOGICAL VARIABLES AND ASSORTMENT STRUCTURE MEASURES FOR U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .4079 | .1664 | .3192 | .0531 | 62.5 |
| 2 | .2970 | .0882 | .1564 | .0138 | 16.3 |
| 3 | .2629 | .0691 | .2549 | .0176 | 20.7 |
| 4 | .0382 | .0015 | .2695 | .0004 | .47 |
| Criterion Set | | | | | |
| 1 | .4079 | .1664 | .2075 | .0345 | 60.1 |
| 2 | .2970 | .0882 | .1537 | .0136 | 23.7 |
| 3 | .2629 | .0691 | .1306 | .0090 | 15.7 |
| 4 | .0382 | .0015 | .2212 | .0003 | .52 |
| | | | | .0574 | |

Table 24

**RELATIONSHIPS BETWEEN TECHNOLOGICAL VARIABLES, ASSORTMENT STRUCTURE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS**

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Technology) | | | |
| AMCMR | -.319 | -.410 | 13.1 |
| EUCMR | -.427 | -.395 | 12.2 |
| CAVAL | .428 | .716 | 40.1 |
| CASAL | .594 | .664 | 34.5 |
| | | | 100.0 |
| Criterion Set (Product Assortment) | | | |
| NUPAS | .210 | .386 | 12.0 |
| NOMPL | .328 | .560 | 25.2 |
| COUSE1 | -.267 | -.537 | 23.2 |
| COUSE2 | -.742 | -.676 | 36.7 |
| COUSE3 | .019 | -.041 | .16 |
| COUSE4 | .491 | .185 | 2.7 |
| | | | 100.0 |

**Table 25**

FACTOR V: U.S. Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Product delivery from suppliers delayed by the lack of adequate motor carriers and/or railroad systems. | .17 |
| 2. | Inadequate telephone and telegraph facilities to inform suppliers about sudden changes in consumer demand. | .10 |
| 3. | Variety of items for sale limited by the inability of suppliers to inform the firm about new products. | .00 |

number and variety of items they sell limited by inadequate telephone and telegraph facilities to contact the suppliers.

Although, the findings in the factor analysis are in line with the loadings found for the various predictor and criterion measures, no statements of the extent of the significance of these findings can be made in this analysis because no significant association was found in the canonical analyses.

Results of Canonical Correlational Analyses Between Technological Variables and Market Coverage Measures for U.S. Wholesalers

Table 26 presents the components of the redundancy measure for the technological variables and the market coverage measures. Of all the four linear combinations, two produced significant correlation beyond the .05 level. In the first linear combination, 46.4 percent of the variation reflecting the market coverage measures can be accounted for by variation in the linear combination reflecting the technological variables, and 25.1 percent in the second linear combinations. The total redundancy in the criterion set (given the predictor set) shows that 28.3 percent of the variation in the market coverage measures can be accounted for by covariation in the technological factors.

The rank order of the technological variables contributing to the relationship in the first combination in Table 27 was the extent of availability of communication facilities, the extent of usage of communication facilities, and the rate of usage of carriers to transport the largest amounts of the products. In the second combination, the extent of availability of carriers, and the extent of usage of communication facilities contributed most to the relationship. In the criterion set, the rank order of the contribution was the extent of emphasis placed on price, the extent of emphasis placed on product, the number of firms' locations, and extent of emphasis placed on distributions. In the second

combination, the rank order was the extent of emphasis placed on product, the extent of emphasis placed on price, the extent of emphasis placed on promotional activities, and the extent of emphasis placed on distribution activities.

The loadings indicate that the first root for the criterion set was associated with the extent of emphasis placed on distribution activities, the number of firm's locations, low emphasis on price, the extent of local and regional operations, and the low emphasis on products. These measures were related to the extent of availability of communication facilities, the extent of usage of communication facilities, and the rate of usage of carriers. The second root was associated with the extent of emphasis placed on promotional activities, and the extent of emphasis placed on distribution activities. These were linked with the extent of availability of carriers, and the extent of usage of communication facilities.

The implication here is that in an environment with higher availability of communication facilities, higher availability of carriers, high rate of usage of communication facilities, and high rate of usage of carriers, the firms tend to have more regional operations, more number of locations, put more emphasis on promotional and distribution activities.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables and the Extent of Market Coverage by the Firm

Of the four loadings presented in Table 28 for the perceptual measures, none was significant at the .50 level. However, three had relatively high loadings. The wholesalers did not perceive their firms locating only in areas with transportation facilities and equipment. This may be because of the high availability of carriers and other transportation facilities found in the earlier

Table 26

**COMPONENTS OF REDUNDANCY MEASURE FOR TECHNOLOGICAL VARIABLES AND MARKET COVERAGE MEASURES OF U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6815 | .4644 | .2521 | .1170 | 53.4 |
| 2 | .5014 | .2514 | .2096 | .0527 | 24.1 |
| 3 | .3431 | .1177 | .3301 | .0389 | 17.8 |
| 4 | .2229 | .0497 | .2082 | .0103 | 4.7 |
| | | | | .2189 | |
| Criterion Set | | | | | |
| 1 | .6815 | .4644 | .3731 | .1733 | 61.2 |
| 2 | .5014 | .2514 | .3187 | .0801 | 28.3 |
| 3 | .3431 | .1177 | .2123 | .0250 | 8.8 |
| 4 | .2229 | .0497 | .0918 | .0046 | 1.6 |
| | | | | .2830 | |

Table 27

## RELATIONSHIPS BETWEEN THE TECHNOLOGICAL VARIABLES, SIZE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | |
|---|---|---|---|---|---|---|
| | 1 | | | 2 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Technology) | | | | | | |
| AMCMR | 1.18 | .892 | 73.8 | -.156 | .088 | .95 |
| EUCMR | .542 | .392 | 14.3 | .576 | .577 | 39.7 |
| CAVAL | -.294 | .168 | 2.6 | .963 | .705 | 59.3 |
| CASAL | .496 | .316 | 9.3 | .221 | .005 | .000 |
| | | | 100.0 | | | 100.0 |
| Criterion Set (Market Coverage) | | | | | | |
| EGO | .113 | .403 | 11.5 | .091 | .123 | 3.5 |
| NOLOC | .436 | .545 | 21.0 | .271 | -.123 | 3.5 |
| EEMA1 | -.446 | -.349 | 8.6 | -2.59 | -.120 | 3.2 |
| EEMA2 | -.561 | -.442 | 13.8 | -2.31 | -.073 | 1.2 |
| EEMA3 | -.214 | .265 | 5.0 | 2.09 | .461 | 49.4 |
| EEMA4 | .410 | .693 | 34.0 | 1.76 | .305 | 20.7 |
| COIMC1 | .292 | .251 | 4.5 | -.102 | -.176 | 7.4 |
| COIMC2 | -.101 | -.126 | 1.1 | .036 | .203 | 9.5 |
| COIMC3 | .000 | -.082 | .50 | .000 | -.083 | 1.6 |
| | | | 100.0 | | | 100.0 |

**Table 28**

FACTOR VI: U.S. Wholesalers' Perceptions of the Influence of Technological Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Locates only in areas with transportation facilities and equipment. | .46 |
| 2. | Restricts operations to urban areas due to inadequate highway and railroad systems. | -.31 |
| 3. | Setting up establishments only in areas with fast and dependable communication facilities. | -.10 |
| 4. | Concentrates operations in areas with mass communication media. | .33 |

analysis. The fact that shortages did not exist in these facilities is evidenced by the relatively high negative loading obtained for the second perceptual measure as the wholesalers did not perceive the extent of availability of transportation facilities to be inadequate. The firms do not set up new establishments only in areas with fast and dependable communication facilities, which explains why there existed more regional market coverage among these firms. However, there are higher concentration of these operations in areas with mass communication media.

Results of Canonical Correlational Analyses Between Socio-Cultural Variables and Size Measures for U.S. Wholesalers

Of the three linear combinations that could be formed from the socio-cultural variables and the size measures in Table 29, one produced significant correlation beyond the .05 level. The squared canonical correlation for the significant linear combination reflecting size can be accounted for by variation in the linear combination reflecting the socio-cultural variables. The total redundancy in the criterion set (given the predictor set) indicates that 9.41 percent of the variation in the size measures can be accounted for by covariation in the socio-cultural factors. It should be noted that 62.5 percent of the shared variance in this set can be accounted for by the first and the only statistically significant correlation.

The weights for the predictor set in Table 30 indicate that the rank order of the socio-cultural factors contributing to the relationship was the level of enforcement of government regulations, and the extent of existence of these regulations. In the criterion set, the rank order was the number of clerical employees, the number of salespeople with four-year college degree, the total number of employees, the number of salespeople, number of managerial employees, and the number of employees referred to as 'others'.

Table 29

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND SIZE MEASURES OF U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .5074 | .2575 | .3473 | .0894 | 59.5 |
| 2 | .3418 | .1168 | .2500 | .0292 | 19.4 |
| 3 | .2805 | .0787 | .4027 | .0317 | 21.1 |
| | | | | .1503 | |
| Criterion Set | | | | | |
| 1 | .5074 | .2575 | .2283 | .0588 | 62.5 |
| 2 | .3418 | .1168 | .1245 | .0145 | 15.4 |
| 3 | .2805 | .0787 | .2649 | .0208 | 22.1 |
| | | | | .0941 | |

Table 30

**RELATIONSHIPS BETWEEN THE SOCIO-CULTURAL VARIABLES, SIZE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS**

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Socio-Cultural) | | | |
| EXGRE | -.282 | -.148 | 2.1 |
| LEGOR | 1.58 | .862 | 71.2 |
| LICE | .769 | .527 | 26.7 |
| | | | 100.0 |
| Criterion Set (Size) | | | |
| NODSZ1 | .278 | .337 | 11.0 |
| NODSZ2 | 3.47 | .447 | 19.4 |
| COESZ1 | -.954 | -.082 | .60 |
| COESZ2 | -6.17 | -.405 | 15.9 |
| COESZ3 | 1.6 | .387 | 14.6 |
| COESZ4 | -.416 | -.096 | 1.9 |
| NOSFYCO | 3.56 | .582 | 32.2 |
| ANS82 | -.074 | .212 | 4.4 |
| | | | 100.0 |

Using the loadings, the size of the firm was associated with the number of salespeople with four-year college degree, the total number of employees, less number of clerical employees, the number of salespeople, and the number of departments or working units. These were related to the level of government regulations and the level of importance of customer expectations. Although other variables and relationships could have been involved, it can be deduced from the findings above that in an environment with high expectations of services by the customers, and high level of government regulations, the wholesale firms tend to have more departments or working units, higher number of employees, more number of salespeople, and more salespeople with four-year college degree.

Results of Factor Analysis of Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm

The loading for the first perceptual measure presented in Table 31 indicates that the wholesalers did not perceive government economic restrictions as limiting factors to the location of their facilities. Rather, government regulations have positive relationships with the size of the firm, as seen in the canonical anaysis. One explanation for this may be that in an effort to assume a better posture to handle the pressure caused by increased regulations, the firms establish more departments or working units. The loading for the second perceptual measure indicates that the wholesalers do feel that the composition of the firms' employees is determined to some extent by government regulations. The wholesalers felt that the firms establish more departments to handle customers' service requirements, and require their salespeople to undergo special trainings to be able to provide product information. This explains the high number of departments or working units,

**Table 31**

FACTOR VII: U.S. Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Location of facilities are limited by government economic restrictions. | .01 |
| 2. | Government regulations determine the composition of firms' employees. | .34 |
| 3. | Establish departments to handle customers' service requirements. | .58 |
| 4. | Salespeople undergo special training to be able to provide product information. | .53 |

and the high number of salespeople with four-year college degree found in the earlier analysis.

Results of Canonical Correlational Analyses Between Socio-Cultural Variables and Assortment Structure Measures for U.S. Wholesalers

The components of the redundancy measure presented in Table 32 indicates that two of the three linear combinations formed from the socio-cultural variables and the assortment structure measures were statistically significant beyond the .05 level. The squared canonical correlation shows that 38.61 percent, and 27.26 percent of the variation in the first and second linear combinations reflecting assortment respectively, can be accounted for by variation in the alternate linear combinations reflecting the socio-cultural variables. The total redundancy in the criterion set (given the predictor set) was .1516, with the first canonical root contributing 52.9 percent of this shared variance.

The rank order of the weights for the socio-cultural variables contributing to the relationship in the first linear combination shown in Table 33 was the extent of existence of government regulations, and the level of enforcement of these regulations. The rank order in the second combination was the level of enforcement of government regulations, the level of importance of customer expectations, and the extent of existence of government regulations. In the criterion set, only one measure; the number of models in the product line had a weight above .30, in the first linear combination. In the second combination, the rank order was the percentage of electric-operated air conditioners, the percentage of electric-operated refrigerators, and the percentage of gas-operated air conditioners in the product lines.

The loadings indicate that for the assortment structure measures, the first root was associated with the number of models in the product line, and the number of units presently available for sale. The related socio-cultural variables were the extent of existence of government regulations, and the level of importance of customer expectations. The second root was associated with the percentage of electric-operated air conditioners in the product lines, the percentage of electric-operated refrigerators in the product line, and the number of models in the product line. These were linked to all the socio-cultural variables in the order of the level of enforcement of government regulations, the extent of existence of these regulations, and the level of importance of customer expectations.

The above findings indicate that in an environment marked with high availability of government regulations, high level of government regulations, and high level of customer expectations, the assortment structure of the wholesale firms tend to include large product assortments, high number of products available for sale, large number of electric-operated air conditioners, and large number of electric-operated refrigerators.

Results of Factor Analysis of Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm

Of the four loadings presented in Table 34 for these perceptual measures, three are relatively high, with one being significant at the .50 level. The wholesalers felt that the safety of the products carried in their product lines is mandated by government regulations, which may explain why there existed high perceptions among these wholesalers that the firms restrict their product lines to products that are warranteed by the manufacturers. The wholesalers did perceive their suppliers restricting sales to the firms on the condition that the

Table 32

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND ASSORTMENT STRUCTURE MEASURES OF U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6214 | .3861 | .1373 | .0530 | 23.3 |
| 2 | .5221 | .2726 | .5227 | .1425 | 62.7 |
| 3 | .3047 | .0928 | .3400 | .0316 | 13.9 |
| | | | | .2271 | |
| Criterion Set | | | | | |
| 1 | .6214 | .3861 | .2076 | .0802 | 52.9 |
| 2 | .5221 | .2726 | .1927 | .0525 | 34.6 |
| 3 | .3047 | .0928 | .2036 | .0189 | 12.5 |
| | | | | .1516 | |

Table 33

**RELATIONSHIPS BETWEEN SOCIO-CULTURAL VARIABLES, ASSORTMENT STRUCTURE, MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS**

| Variable | Canonical Relationships | | | | | |
|---|---|---|---|---|---|---|
| | 1 | | | 2 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Socio-Cultural) | | | | | | |
| EXGRE | 1.86 | .534 | 69.2 | .435 | .660 | 27.8 |
| LEGOR | -1.60 | .047 | .50 | 1.13 | .856 | 46.8 |
| LICE | .229 | .353 | 30.3 | .508 | .631 | 25.4 |
| | | | 100.0 | | | 100.0 |
| Criterion Set (Product Assortment) | | | | | | |
| NUPAS | .289 | .567 | 25.8 | -.150 | -.047 | .17 |
| NOMPL | .888 | .928 | 69.1 | .125 | .467 | 18.9 |
| COUSE1 | .212 | -.078 | .48 | .605 | .525 | 23.9 |
| COUSE2 | .097 | .197 | 3.1 | .916 | .802 | 55.6 |
| COUSE3 | -.043 | -.112 | 1.0 | -.003 | -.017 | .000 |
| COUSE4 | -.062 | -.076 | .50 | -.433 | -.129 | 1.5 |
| | | | 100.0 | | | 100.0 |

Table 34

FACTOR VIII: U.S. Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Government regulates product safety. | .42 |
| 2. | Suppliers are legally restricted to sell only on the condition that the firm purchases other products. | .29 |
| 3. | Restricts product lines to products that are warranteed by the manufacturers. | .45 |
| 4. | Adds low profit items to the product lines to maintain a complete line of merchandise. | .68 |

firms purchase other products. However, this does not seem to limit the number of varieties of products available for sale. The high availability of product models found in the earlier analyses seem to be in line which the wholesalers' perception that tne firms add low profit items to their product lines to maintain a complete line of merchandise.

Results of Canonical Correlational Analysis Between Socio-Cultural Variables and Market Coverage Measures for U.S. Wholesalers

Of the three linear combinations formed from the socio-cultural variables and the market coverage measures in Table 35, none produced significant correlation beyond the .50 level. However, it will be necessary to make a brief comment on the contributions of the predictor and criterion sets to the relationships that existed.

The total redundancy in the criterion set (given the predictor set) showed that only a small amount of the variation in the market coverage (2 percent) can be accounted for by covariation in the socio-cultural factors. In Table 36, the rank order of the socio-cultural variables contributing to the relationship was the level of enforcement of government regulations, and the extent of existence of government regulations (with weights above .30). In the criterion set, all the four measures showing the extent of emphasis placed on marketing activities, the number of firms' locations, and the percent of sales to sub-wholesalers, contributed most to the relationship. The loadings show that low emphasis on promotion activities was related (though not significantly) to the level of enforcement of government regulations.

Table 35

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND MARKET COVERAGE MEASURES OF U.S. WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .4015 | .1612 | .0568 | .0092 | 14.0 |
| 2 | .2832 | .0802 | .5971 | .0479 | 72.9 |
| 3 | .1578 | .0249 | .3461 | .0086 | 13.1 |
| | | | | .0657 | |
| Criterion Set | | | | | |
| 1 | .4015 | .1612 | .0494 | .0080 | 38.3 |
| 2 | .2832 | .0802 | .1234 | .0099 | 47.4 |
| 3 | .1578 | .0249 | .1186 | .0030 | 14.3 |
| | | | | .0200 | |

Table 36

## RELATIONSHIPS BETWEEN SOCIO-CULTURAL VARIABLES, MARKET COVERAGE MEASURES, AND CANONICAL FUNCTIONS FOR U.S. WHOLESALE FIRMS

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | | | Percentage |
| | Weight | Loadings | $EL^2$ |
| Predictor Set (Socio-Cultural) | | | |
| EXGRE | -1.86 | -.173 | 17.5 |
| LEGOR | 1.90 | .338 | 66.7 |
| LICE | .229 | .163 | 15.8 |
| | | | 100.0 |
| Criterion Set (Market Coverage) | | | |
| EGO | .018 | .153 | 5.2 |
| NOLOC | -.576 | -.140 | 4.5 |
| EEMA1 | -2.54 | .083 | 1.6 |
| EEMA2 | -2.16 | .163 | 6.1 |
| EEMA3 | -2.11 | -.505 | 57.3 |
| EEMA4 | -1.65 | -.224 | 11.2 |
| COIMC1 | .327 | .213 | 10.1 |
| COIMC2 | .259 | -.077 | 1.3 |
| COIMC3 | .000 | -.108 | 2.7 |
| | | | 100.0 |

Results of Factor Analysis of Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm

Although the canonical analysis did not produce any significant correlation between the socio-cultural variables and the extent of market coverage, the loadings for the perceptual measures presented in Table 37 indicate that the wholesalers perceive some socio-cultural factors influencing the extent of their market coverage. The wholesalers feel that to some extent, laws against resale restrictions prevent their suppliers from stipulating where and to whom the products are sold. However, these firms sell more through selected retailers or sub-wholesalers in an effort to maximize their product quality image. Finally, there was little or no perception of rules and regulations set by some states preventing the firm from operating in those states. These findings parallel the indications by the loadings in the canonical analysis, however, no statement will be made here regarding their significance with regard to the extent of relationships between the measures, due to the lack of relationship found in the canonical analysis.

**Table 37**

FACTOR IX: U.S. Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Laws against resale restrictions prevent suppliers from stipulating where and to whom the products are sold. | .38 |
| 2. | Rules and regulations set by some states prevent the firm from operating in those states. | .02 |
| 3. | Sells through selected retailers or sub-wholesalers to maximize quality image. | .45 |

Results of the Split Sample Analysis of the Canonical Weights and the Factor Loadings for U.S. Wholesalers

The results of the split samples of U.S. wholesalers indicate that the canonical weights (Table 38) and their signs are relatively stable, with five variables in the subsamples having signs different from the ones computed in the total sample. The factor loadings from total and split samples of U.S. wholesalers presented in Table 39 showed a high stability for the sample. Only three variables had signs in the subsamples different from the ones computed in the total sample.

Results of Canonical Correlations Analyses Between Economic Variables and Size Measures for Nigerian Wholesalers

The components of the redundancy measure for the economic factors (predictor set), and the size measures (criterion set) are presented in Table 40. Of the eight linear combinations that could be formed from the economic variables and the size measures, five produced significant correlation beyond the .05 level. The squared canonical correlation ($R^2$) indicate that 86.28 percent of the variation in the first linear combination reflecting size can be accounted for by variation in the linear combination reflecting the economic variables, 69.26 percent for the second linear combination, 50.14 percent for the third combination, 45.10 percent for the forth combination, and 27.14 percent for the fifth. The total redundancy in the criterion set (given the predictor set) was .5388, indicating the 53.88 percent of the variation in the size measures of the wholesalers can be accounted for by covariation in the economic factors. A high proportion of the shared variance in this set was accounted for by the second canonical root (51.1%).

Table 38

RESULTS OF THE SPLIT-SAMPLE ANALYSIS OF THE CANONICAL WEIGHTS FOR UNITED STATES WHOLESALERS

| Predictor Set | Total Sample | 1st Split Sample | 2nd Split Sample |
|---|---|---|---|
| EAF | -.026 | -.277 | -.124 |
| RUSF | .494 | .128 | .301 |
| NOFSU | .470 | .334 | .511 |
| LOSUP | -.333 | .015 | -.219 |
| ISU | .401 | .249 | .118 |
| COWU1 | .189 | .233 | .346 |
| COWU2 | -.045 | -.081 | .034 |
| COWU3 | -.189 | -.330 | -.481 |
| NUS82 | .938 | .885 | .545 |
| NOYIB | .163 | .125 | .208 |
| AMCMR | -.360 | -.154 | -.075 |
| EUCMR | .384 | .219 | .102 |
| CAVAL | -.132 | -.141 | -.103 |
| CASAL | .265 | .293 | .322 |
| EXGRE | -.290 | .048 | -.378 |
| LEGOR | -.379 | -.403 | -.633 |
| LICE | .073 | .088 | .076 |
| Criterion Set | | | |
| NODZ1 | .591 | .342 | .477 |
| NOESZ2 | .395 | -.158 | .422 |
| COESZ1 | .549 | .620 | .940 |
| COESZ2 | 3.93 | .824 | .543 |
| COESZ3 | 2.61 | .721 | .497 |
| COESZ4 | .000 | .000 | .000 |
| NOSFYCO | .189 | .064 | .035 |
| ANS82 | .651 | .654 | .309 |
| NUPAS | .228 | .313 | -.263 |
| NOMPL | .346 | .296 | .184 |
| COUSE1 | -.044 | -.192 | -.128 |
| COUSE2 | -.024 | -.078 | -.093 |
| COUSE3 | .193 | .346 | .160 |
| COUSE4 | -.027 | -.270 | -.087 |
| EGO | -.349 | -.235 | -.131 |
| NOLOC | .415 | .176 | .389 |
| EEMA1 | -.160 | -.976 | -1.23 |
| EEMA2 | -2.62 | -.742 | -1.23 |
| EEMA3 | 1.36 | 1.48 | 1.24 |
| EEMA4 | .325 | .194 | .208 |
| COIMC1 | .335 | .327 | .224 |
| COIMC2 | .388 | .209 | .120 |
| COIMC3 | .000 | .000 | .000 |

**Table 39**

Factor Loadings from Total and Split Samples of U.S. Wholesalers

| Perceptual Measures | Total Sample | 1st Split Sample | 2nd Split Sample |
|---|---|---|---|
| ECOSZ1 | .34 | .29 | .16 |
| ECOSZ2 | .53 | .41 | .35 |
| ECOSZ3 | .29 | .13 | .23 |
| ECOSZ4 | -.05 | -.05 | -.10 |
| ECOSZ5 | .02 | .01 | .02 |
| ECOAS1 | -.09 | -.19 | -.08 |
| ECOAS2 | -.01 | -.02 | -.14 |
| ECOAS3 | .20 | .16 | .38 |
| ECOAS4 | .21 | .15 | .23 |
| ECOAS5 | .51 | .61 | .52 |
| ECOMC1 | .14 | -.15 | .08 |
| ECOMC2 | .24 | .21 | .18 |
| ECOM3 | .47 | .41 | .31 |
| ECOM4 | .36 | .23 | .10 |
| TECSZ1 | .09 | .08 | -.06 |
| TECSZ2 | .17 | .19 | .10 |
| TECSZ3 | .57 | .45 | .39 |
| TECSZ4 | .38 | .42 | .24 |
| TECAS1 | .17 | .21 | .13 |
| TECAS2 | .10 | .11 | .08 |
| TECAS3 | .00 | .01 | .04 |
| TECCO1 | .46 | .51 | .39 |
| TECCO2 | -.31 | -.48 | -.22 |
| TECCO3 | -.10 | -.18 | -.29 |
| TECCO4 | .33 | .26 | .23 |
| SCOSZ1 | .01 | .19 | .22 |
| SCOSZ2 | .34 | .48 | .32 |
| SCOSZ3 | .58 | .46 | .54 |
| SCOSZ4 | .53 | .35 | .41 |
| SCOAS1 | .42 | .31 | .58 |
| SCOAS2 | .29 | .24 | .18 |
| SCOAS3 | .45 | .28 | .34 |
| SCOAS4 | .68 | .71 | .60 |
| SCOCO1 | .38 | .33 | .12 |
| SCOCO2 | .02 | .13 | -.07 |
| SCOCO3 | .45 | .42 | .37 |

The rank order of the weights for the economic factors contributing to the relationship in the first linear combination as shown in Table 41 was the number of units sold in 1982, the number of firms' suppliers, the percentage of owned warehouses, the extent of availability of funds, the use of manual inventory systems, the percentage of leased warehouses, and the rate of usage of various sources of fund. The rank order of size measures contributing to the relationship was the total number of employment, the number of salespeople, the number of employees classified as 'others', the number of clerical employees, and the number of managerial employees. All the measures specified above contributed to the relationship in the second and third combinations, although in different rank orders.

Using the loadings, the first canonical root for the size of the firm was associated with low number of employees referred to as 'others', low number of total employees, and low number of managerial employees. These were related to low usage of rented warehouses, low number of units sold in 1982, low availability of sources of fund, high usage of owned warehouses, and lower rate of using the various sources of funds. The second root was associate with low total employment, lower number of employees in all categories, low number of employees with four-year college degree, higher number of working units, and low sales in 1982. These were related to the number of years in business, the use of manual inventory system, the amount of units sold in 1982, the number of firms' suppliers, and the rate of usage of the sources of fund. In the third root, higher number of working units or departments, low number of salespeople with college degree, and low sales in 1982, were associated with the location of major suppliers exclusively outside the country of operation, low number of firms' suppliers, and low number of units sold in 1982.

Although other variables and relationship could have been involved, it seems reasonable to state that in an economic environment as in Nigeria with low availability of sources of fund, low usage of sources of funds, less demand for the products, fewer number of suppliers, relatively younger firms, increased location of major suppliers exclusively outside the country of operation, and high use of manual inventory system, the organizational structure of the firms with regard to their size tend to have lower number of employees in all categories, low number of salespeople with four-year college degree, low sales in 1982, and higher number of working units or departments.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Size of the Firm

The results of the factor analyses of wholesalers' perceptions presented in Table 42 indicate that these wholesalers perceive the lack of capital as a constraint to the number of salespeople the firm can employ. However, they do not highly perceive the lack of capital to build and maintain warehouses as reason for not owning warehouses. This may explain the higher usage of owned warehouses found in the earlier analyses. The wholesalers perceive their firms losing sales due to constant product stockouts, which can be attributed to the low number of suppliers, and location of most of these suppliers outside the country of operation, and confirms the low sales volume among these firms in the canonical analyses. Finally, the wholesalers do not feel that the firms employ additional salespeople only during periods of increased demand, nor limit their operations to areas with high population densities.

Table 40

**COMPONENTS OF REDUNDANCY MEASURE FOR THE ECONOMIC VARIABLES AND SIZE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9289 | .8628 | .1522 | .1313 | 35.4 |
| 2 | .8322 | .6926 | .1551 | .1074 | 29 |
| 3 | .7081 | .5014 | .0802 | .0402 | 10.9 |
| 4 | .6715 | .4510 | .0913 | .0412 | 10.9 |
| 5 | .5236 | .2741 | .0930 | .0255 | 6.9 |
| 6 | .4859 | .2361 | .0793 | .0187 | 5.0 |
| 7 | .2704 | .0731 | .0590 | .0043 | 1.2 |
| 8 | .1035 | .0107 | .1621 | .0017 | .46 |
| | | | | .3704 | |
| Criterion Set | | | | | |
| 1 | .9289 | .8628 | .1779 | .1535 | 28.5 |
| 2 | .8322 | .6926 | .3974 | .2752 | 51.1 |
| 3 | .7081 | .5014 | .0881 | .0422 | 8.2 |
| 4 | .6715 | .4510 | .0481 | .0217 | 4.0 |
| 5 | .5236 | .2741 | .0901 | .0247 | 4.6 |
| 6 | .4859 | .2361 | .0628 | .0148 | 2.7 |
| 7 | .2704 | .0731 | .0513 | .0038 | .71 |
| 8 | .1035 | .0107 | .0842 | .0009 | .17 |
| | | | | .5388 | |

Table 41

## RELATIONSHIPS BETWEEN ECONOMIC VARIABLES, SIZE MEASURES AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS

Canonical Relationships

| Variable | 1 | | | 2 | | | 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | | | | |
| EAF | -.455 | -.493 | 16.9 | -.313 | -.197 | 2.5 | .788 | .075 | .75 |
| RUSF | .310 | -.417 | 11.4 | .522 | -.389 | 9.7 | -.767 | -.147 | 2.7 |
| NOFSU | .535 | .190 | 2.4 | -.294 | -459 | 13.6 | -.023 | -.451 | 25.3 |
| LOSUP | .043 | .166 | 1.8 | -.003 | -.193 | 2.4 | .883 | .641 | 51.2 |
| ISU | .349 | .270 | 4.8 | .306 | .558 | 20.1 | -.240 | -.049 | .25 |
| COWU1 | .467 | .453 | 13.5 | -.122 | .065 | .26 | .556 | .141 | 2.5 |
| COWU2 | .342 | .166 | 1.8 | -.331 | -.161 | 1.7 | .290 | .053 | .37 |
| COWU3 | .000 | -.682 | 30.6 | .000 | .102 | .65 | .000 | -.214 | 5.7 |
| NUS82 | -.847 | -.517 | 17.5 | .007 | -.473 | 14.5 | .575 | .300 | 11.2 |
| NOYIB | -.074 | .058 | .20 | -.631 | -.733 | 34.6 | -.195 | .025 | .000 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Size) | | | | | | | | | |
| NODSZ1 | .136 | -.017 | .000 | .293 | .562 | 9.9 | .522 | .530 | 39.9 |
| NODZ2 | -9.46 | -.566 | 22.5 | -9.96 | -.692 | 15.1 | -21.49 | .153 | 3.3 |
| COESZ1 | -1.77 | -.397 | 11.1 | -1.88 | -.684 | 14.7 | 4.42 | .239 | 8.1 |
| COESZ2 | 2.66 | -.028 | .000 | -2.26 | -.813 | 20.8 | 6.10 | .193 | 5.2 |
| COESZ3 | 3.45 | -.215 | 3.2 | -3.99 | -.674 | 14.3 | 8.08 | .105 | 1.6 |
| COESZ4 | 3.08 | -.921 | 59.7 | -4.4 | .203 | 1.3 | 9.18 | .057 | .43 |
| NOSFYCO | .215 | .005 | .000 | -.632 | -.769 | 18.6 | -.942 | -.402 | 23.0 |
| ANS82 | -.049 | -.221 | 3.5 | .368 | -.409 | 5.3 | -.049 | -.362 | 18.6 |
| | | | 100.0 | | | 100.0 | | | 100.1 |

**Table 42**

FACTOR I: Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Inadequate salespeople due to lack of capital to pay salaries. | .54 |
| 2. | Does not own warehouse due to lack of capital to build and maintain one. | .32 |
| 3. | Loss of sales due to constraint product stock-outs. | .66 |
| 4. | Employs additional salespeople only during periods of increased demand. | .26 |
| 5. | Limits operations to areas with high population densities. | -.05 |

Results of Canonical Correlational Analyses Between Economic Variables and Assortment Structure Measures of Nigerian Wholesalers

Of the six linear combinations formed from the economic variables and the assortment structure measures presented in Table 43, three were significant beyond the .05 level. In the first linear combination, 85.38 percent of the variations reflecting the assortment structure can be accounted for by variation in the linear combination reflecting the economic variables. The second and third linear combinations had 74.11 percent and 48.14 percent variation respectively. The total redundancy in the criterion set (given the predictor set), indicates that 43.2 percent of the variation in the assortment structure can be accounted for by covariation in the economic factors, with the three significant relationships accounting for more than 88 percent of this amount.

The rank order of the contributions to the relationship for the predictor set in the first linear combination as shown in Table 44 was the number of years in business, the rate of usage of various sources of fund, the number of firms' suppliers, and the number of units sold in 1982. In the second combination, the number of years in business, the number of firms' suppliers, and the number of units sold in 1982. The second root was associated with all the assortment structure measures with the exception of the percentage of gas-operated air conditioners in the product lines. The related economic variables were the number of units sold in 1982, the number of years in business, the extent of usage of all the warehouses compositions, and the number of firms suppliers. For the third root, the assortment structure was associated with the number of models in the product lines, and the number of units available for sale. These measures were linked with the number of years in business, and the extent of usage of various warehouse compositions.

From the above findings, it can be stated that in a developing economic environment as in Nigeria, most wholesaler firms are relatively young, have less number of suppliers, low usage of various warehouse compositions, and lower demand for their products, the assortment structure tend to be characterized by lower number of products available for sale, fewer product models, and low percentage of electric-operated refrigerators and air conditioners, and relatively high number of gas-operated refrigerators.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Assortment Structure of the Firm

The results of the factor analysis presented in Table 45 show that the wholesalers in Nigeria do not perceive the lack of capital to buy products from suppliers as the major factor limiting the number of items available for sale. This may explain the absence significant relationship between the assortment structure measure and the extent of availability or the rate of usage of the sources of fund in the canonical analyses. Although some of these wholesalers feel that the number of products available for sale is limited by insufficient credit line from the suppliers, but it seems logical to say that the major factor limiting the products available for sale is the inadequate source of supply. The results of the earlier canonical analyses indicated that most of the firms' suppliers are located outside the country of operation, and that those firms with relatively higher suppliers tend to have more products for sale. The high loading (.69) in the factor analyses of this factor and .43 for the perception of the wholesalers that the delay in product arrival from suppliers cause shortage of products for sale, tend of confirm the findings in the earlier analyses. However, these wholesalers felt that they include some not very profitable models in their product lines due to the demand for them.

Table 43

## COMPONENTS OF REDUNDANCY MEASURE FOR THE ECONOMIC VARIABLES AND ASSORTMENT STRUCTURE MEASURES OF NIGERIAN WHOLESALE FIRMS

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9240 | .8538 | .1042 | .0890 | 30.7 |
| 2 | .8609 | .7411 | .1600 | .1186 | 40.9 |
| 3 | .6938 | .1766 | .0791 | .0381 | 13.1 |
| 4 | .4202 | .1766 | .0951 | .0168 | 5.8 |
| 5 | .3669 | .1346 | .1487 | .0200 | 6.9 |
| 6 | .2753 | .0758 | .0991 | .0075 | 2.6 |
| | | | | .2900 | |
| Criterion Set | | | | | |
| 1 | .9240 | .8538 | .1678 | .1433 | 33.2 |
| 2 | .8609 | .7411 | .1735 | .1286 | 29.8 |
| 3 | .6938 | .4814 | .2260 | .1088 | 25.2 |
| 4 | .4202 | .1766 | .1310 | .0231 | 5.3 |
| 5 | .3669 | .1346 | .0909 | .0122 | 2.8 |
| 6 | .2753 | .0758 | .2108 | .0160 | 3.7 |
| | | | | .4320 | |

Table 44

## RELATIONSHIPS BETWEEN ECONOMIC VARIABLES ASSORTMENT STRUCTURE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | | | | |
| EAF | -.072 | .149 | 2.1 | -.239 | .081 | .44 | .638 | .105 | 1.4 |
| RUSF | .566 | .216 | 4.5 | .123 | .283 | 5.0 | -.823 | -.289 | 10.6 |
| NOFSU | .444 | .587 | 33.1 | .033 | .366 | 8.4 | .134 | .109 | 1.5 |
| LOSUP | -.126 | -.034 | .10 | -.026 | -.290 | 5.3 | -.341 | -.147 | 2.8 |
| ISU | -.059 | -.004 | .000 | -.138 | -.213 | 2.8 | -.554 | -.194 | 4.8 |
| COWU1 | .125 | .132 | 1.6 | .033 | .307 | 5.9 | .606 | .453 | 25.9 |
| COWU2 | .006 | .171 | 2.8 | .549 | .496 | 15.4 | .690 | .358 | 16.2 |
| COWU3 | .000 | .039 | .19 | .000 | .482 | 14.5 | .000 | .374 | 17.7 |
| NUS82 | .428 | .432 | 17.9 | .688 | .634 | 25.1 | -.254 | -.102 | 1.3 |
| NOYIB | .724 | .627 | 37.7 | .378 | .525 | 17.3 | .167 | .377 | 17.9 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Assortment Structure) | | | | | | | | | |
| NUPAS | .066 | .072 | .48 | -.010 | .336 | 10.8 | .345 | .484 | 33.7 |
| NOMPL | .457 | .319 | 9.7 | .691 | .647 | 40.2 | .377 | .589 | 49.9 |
| COUSE1 | .127 | .304 | 8.7 | .342 | .318 | 9.7 | .135 | .211 | 6.5 |
| COUSE2 | .903 | .833 | 65.6 | .414 | .515 | 25.4 | .104 | -.069 | .72 |
| COUSE3 | .158 | .383 | 13.9 | .303 | .355 | 12.1 | -.290 | .017 | .000 |
| COUSE4 | -.286 | -.133 | 1.7 | -.597 | -.138 | 1.8 | -.698 | -.252 | 9.2 |
| | | | 100.0 | | | 100.0 | | | 100.0 |

**Table 45**

FACTOR II: Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Lack of capital to buy products from suppliers limit the number of items for sale. | .01 |
| 2. | Number of products available for sale limited by insufficient credit line. | .28 |
| 3. | Inadequate source of supply limits the variety of products for sale. | .69 |
| 4. | Delay in product arrival from suppliers cause shortage of products for sale. | .43 |
| 5. | Some models are not profitable, but are included in the product line due to the demand for them. | .45 |

Results of Canonical Correlational Analyses Between Economic Variables and Market Coverage Measures for Nigerian Wholesalers

Of the seven linear combinations that could be formed from the economic variables and the market coverage measures, four produced significant correlation beyond the .05 level. The squared canonical correlation in Table 46 indicates that the amount of variation in the market coverage measures that can be accounted for by the linear combinations reflecting economic variables in the first linear combination was 82.19 percent. The second, third, and fourth combinations had 67.16 percent, 49.67 percent, and 35.51 percent respectively. The total redundancy in the criterion set (given the predictor set) shows that 42.49 percent of the variation in the market coverage can be accounted for by variation in the economic factors, with the five significant roots accounting for all but 1.61 percent of this amount.

The canonical weights presented in Table 47 show that the number of firms' suppliers and the use of manual inventory system contributed most to the relationship from the predictor set in the first linear combinations (with weights above .30). In the second linear combination, the rank order of the contribution to the relationship was the percentage of owned warehouses, the number of years in business, the percentage of owned warehouses, and the rate of usage of the various sources of funds. In the third linear combination, the rank order of contribution was the percentage of leased warehouses, the number of firms' suppliers, the extent of availability of funds, the location of major suppliers exclusively outside the country of operation, and the percentage of owned warehouses. The weights for the first linear combination in the criterion set indicate that the only measure that contributed to the relationship from the market coverage measures was the extent of emphasis place on price. In the

second linear combination, the rank order of contribution was the percentage of sales to final consumers or users, the percentage of sales to retail customers, the number of firms' locations, the extent of emphasis placed on product, and the extent of emphasis placed on price. For the third combination, the percentage of sales to retailer customers, the extent of emphasis placed on price, the extent of emphasis placed on promotion activities, the number of firms' locations, and the extent of geographic operations contributed the most to the relationship.

The loadings indicate that the first root for the market coverage measures was associated with high percentage of sales to final consumers or users, the extent of local operations, and low emphasis placed on distribution. These were related to the economic factors of low number of firms' suppliers, high usage of manual inventory systems, and more location of major suppliers exclusively outside the country of operation. The second root was asscciated with high percentage of sales to final customers or users, low number of firms' suppliers, low emphasis placed on promotion, higher emphasis placed on price, low emphasis placed on product, the extent of local operations, low emphasis placed on distribution, less sales to sub-wholesalers, and more sales to retail customers. The related economic factors were the use of owned warehouses, the number of years in business, the location of firms' major suppliers outside the country of operation, the number of firms' suppliers, and the rate of usage of the sources of funds. The third root was associated with high percentage of sales to final customers or users, low number of firms' locations, and high percentage of sales to retail customers. These were linked with the economic factors of the extent of availability of funds, the extent of usage of sources of funds, and the use of owned warehouses.

Table 46

**COMPONENTS OF REDUNDANCY MEASURE FOR THE ECONOMIC VARIABLES AND MARKET COVERAGE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .9066 | .8219 | .1813 | .1490 | 44.2 |
| 2 | .8195 | .6716 | .1384 | .0930 | 27.6 |
| 3 | .7047 | .4967 | .1001 | .0497 | 14.8 |
| 4 | .5959 | .3551 | .0991 | .0352 | 10.5 |
| 5 | .2963 | .0878 | .0339 | .0030 | .89 |
| 6 | .2262 | .0512 | .1035 | .0053 | 1.6 |
| 7 | .1302 | .0169 | .0972 | .0016 | .48 |
| | | | | .3368 | |
| Criterion Set | | | | | |
| 1 | .9066 | .8219 | .2189 | .1799 | 42.3 |
| 2 | .8195 | .6716 | .2089 | .1403 | 33.0 |
| 3 | .7047 | .4967 | .1196 | .0594 | 14.0 |
| 4 | .5959 | .3551 | .0734 | .0261 | 6.1 |
| 5 | .2963 | .0878 | .1414 | .0124 | 2.9 |
| 6 | .2262 | .0512 | .0824 | .0042 | 1.0 |
| 7 | .1302 | .0169 | .1554 | .0026 | .61 |
| | | | | .4249 | |

Table 47

## RELATIONSHIPS BETWEEN ECONOMIC VARIABLES, MARKET COVERAGE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | | | | | | | |
| EAF | -.129 | .175 | 2.2 | .161 | .256 | 5.5 | -.477 | -.414 | 29.4 |
| RUSF | .149 | .291 | 6.0 | -.368 | -.326 | 8.8 | .151 | .-353 | 21.5 |
| NOFSU | -.666 | -.848 | 50.6 | .122 | -.326 | 8.8 | -.620 | -.165 | 4.7 |
| LOSUP | .224 | .364 | 9.3 | .020 | .350 | 10.3 | .443 | .028 | .000 |
| ISU | .334 | .538 | 20.3 | -.185 | -.109 | 1.0 | .062 | .072 | .86 |
| COWU1 | -.235 | -.004 | .000 | .931 | .595 | 29.6 | .355 | .313 | 17.2 |
| COWU2 | -.182 | -.080 | .42 | .508 | -.185 | 2.8 | -.687 | -.118 | 2.4 |
| COWU3 | .000 | .091 | .56 | .000 | -.162 | 2.2 | .000 | .219 | 8.3 |
| NUS82 | .167 | .287 | 5.8 | .071 | .220 | 4.0 | .105 | .105 | 1.9 |
| NOYIB | .084 | .262 | 4.9 | -.522 | -.568 | 27.0 | .297 | .281 | 13.8 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Market Coverage) | | | | | | | | | |
| EGO | -.035 | .565 | 25.3 | .234 | .406 | 8.0 | .302 | .153 | 3.0 |
| NOLOC | .228 | .153 | 1.8 | -.447 | -.586 | 16.6 | -.452 | -.422 | 22.2 |
| EEMA1 | -.228 | -.172 | 2.4 | -.429 | -.412 | 8.2 | -.240 | .059 | .39 |
| EEMA2 | .363 | .517 | 21.2 | .308 | .466 | 10.5 | -.729 | -.178 | 4.2 |
| EEMA3 | -.020 | -.208 | 3.4 | .027 | -.557 | 15.0 | -.466 | -.074 | .65 |
| EEMA4 | .000 | -.339 | 9.1 | .000 | -.373 | 6.7 | .000 | .207 | 5.6 |
| COIMC1 | .161 | .291 | 6.7 | -.211 | -.368 | 6.5 | .000 | -.161 | 3.4 |
| COIMC2 | .016 | .210 | 3.5 | .560 | .327 | 5.2 | .963 | .351 | 16.0 |
| COIMC3 | .289 | .580 | 26.6 | .627 | .695 | 23.3 | .088 | .585 | 44.6 |
| | | | 100.0 | | | 100.0 | | | 100.0 |

**Table 48**

FACTOR III: Nigerian Wholesalers' Perceptions of the Influence of Economic Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Inability to set up new facilities due to lack of capital. | .54 |
| 2. | Restrict operations to urban areas to avoid the high cost of servicing rural markets. | .17 |
| 3. | Suppliers stipulate where the products may be sold. | -.21 |
| 4. | Distribution centers are restricted to areas with highest demand. | .48 |

From the above findings, one can infer that in an economic environment characterized by low number of suppliers, more location of major suppliers outside the country of operation, high use of manual inventory systems, low availability of funds, low usage of funds, and relatively younger wholesale firms, the wholesale firms tend to have less number of locations, more local operations, lower emphasis placed on product promotion and distribution, more emphasis placed on price, high composition of immediate customers made up of retailers and final customers or users, and less sale to sub-wholesalers.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Economic Variables on the Extent of Market Coverage by the Firm

The results of the factor analyses presented in Table 48 show that the wholesalers perceived the lack of capital as a factor limiting their ability to set up new facilities. In spite of this limitation, they do not restrict their operations to urban areas to avoid the higher cost of servicing rural markets. Rather, as shown by the loading of the fourth perceptual measure, distribution centers are set up in any area were the demand for the products is high. This may explain the low demand for the products in this economic environment, and the resulting low number of locations among these firms found in the canonical analysis, because the suppliers do not stipulate where the products may be sold, as shown by the loading for the third perceptual measure.

Results of Canonical Correlational Analyses Between Technological Variables and Size Measure for Nigerian Wholesalers

The components of the redundancy measure for the technological variable and the size measures presented in Table 49 show that of the four linear combinations that could be formed from these two sets, one produced significant correlation beyond the .05 level. According to the squared canonical

correlation, 37.03 percent of the variation in this significant combination reflecting size was accounted for by variation in the linear combination reflecting the technological variables. The total redundancy in the criterion set (given the predictor set) indicates that only 8.61 percent of the variation in the size measure can be accounted for by covariation in the technological variables, with the first root accounting for more than half of this amount.

The rank order of technological factors contributing to the relationship in the first linear combination shown in Table 50 was the rate of usage of carriers for transporting the largest amount of the products, the extent of availability of communication facilities, and the extent of availability of carriers. For the criterion set, the rank order of contribution to the relationship was the number of departments or working units, and the number of salespeople with four-year college degree.

According to the loadings, the size of the firm was associated with the number of departments or working units. This was related to the technological variables of the extent of usage of communication factilities, and the rate of usage of carriers in transporting largest amounts of the product.

Resulting of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables and the Size of the Firm

The results of the factor analyses presented in Table 51 show that none of the loadings for the four perceptual measures was significant beyond the .50 level. The wholesalers do not perceive the firms losing sales due to poor delivery by motor carriers, although they feel that they lack fast delivery services for emergency shipments. The negative relationship between the number of salespeople with college degree and technical variables found in the canonical analyses is in line with these wholesalers' perception. They felt

Table 49

## COMPONENTS OF REDUNDANCY MEASURE FOR THE TECHNOLOGICAL VARIABLES AND SIZE MEASURES OF NIGERIAN WHOLESALE FIRMS

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6085 | .3703 | .1604 | .0594 | 36.3 |
| 2 | .4469 | .1997 | .2894 | .0578 | 35.3 |
| 3 | .3870 | .1498 | .2882 | .0432 | 26.4 |
| 4 | .1141 | .0131 | .2620 | .0034 | 2.1 |
| | | | | .1638 | |
| Criterion Set | | | | | |
| 1 | .6085 | .3703 | .1323 | .0490 | 56.9 |
| 2 | .4469 | .1997 | .0976 | .0195 | 56.9 |
| 3 | .3870 | .1498 | .0931 | .0139 | 16.1 |
| 4 | .1141 | .0130 | .0920 | .0012 | 1.4 |
| | | | | .0861 | |

Table 50

**RELATIONSHIPS BETWEEN THE TECHNOLOGICAL VARIABLES, SIZE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS**

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Economic) | | | |
| AMCMR | -.114 | -.081 | 1.1 |
| EUCMR | .626 | .391 | 23.9 |
| CAVAL | -.471 | -.067 | .63 |
| CASAL | 1.13 | .690 | 74.4 |
| | | | 100.0 |
| Criterion Set (Size) | | | |
| NODSZ1 | .828 | .467 | 61.2 |
| NOESZ2 | .281 | -.014 | .000 |
| COESZ1 | -4.56 | -.225 | 14.3 |
| COESZ2 | -.145 | -.033 | .28 |
| COESZ3 | -.178 | -.056 | .84 |
| COESZ4 | -.029 | -.088 | 2.2 |
| NOSFYCO | .629 | .147 | 6.2 |
| ANS8 | .189 | .231 | 14.9 |
| | | | 100.0 |

**Table 51**

FACTOR IV: Nigerian Wholesalers' Perceptions of the Influence of Technological Variables on the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Loss of sales due to poor delivery by motor carriers. | -.17 |
| 2. | Lack of fast delivery services for emergency shipments. | .24 |
| 3. | Salespeople are required to have college degree at the time of employment. | .09 |
| 4. | Inability to inform customers about the products through media advertisement limits the amount of sales. | -.09 |

that the firms do not require the salespeople to have a college degree at the time of employment. Finally, the amount of sales by these firms is perceived to be limited by the wholesalers inability to inform customers about the product through media advertisement. The findings in both analyses indicate that despite the handicap caused by low availability of communication and transportation facilities, the wholesale firms are making maximum usage of whatever exists. However, one can conclude that in such a development, the size of wholesale firms are characterized by lower sales volume, relatively less working units or departments, and less number of salespeople with four year degrees.

Results of Canonical Correlational Analyses Between Technological Variables and Assortment Structure Measures for Nigerian Wholesalers

The components of the redundancy measure of the technolcgical variables and the size of the firm presented in Table 52 show that one of the four canonical correlation coefficients formed from the linear combinations of the two sets of variables produced significant relationship beyond the .05 level. In this combination, 40.04 percent of the variations reflecting the assortment structure can be accounted for by variation in the linear combination reflecting the technological variables. The total redundancy in the criterion set (given the predictor set), indicates that 17.66 percent of the variation in the assortment structure can be accounted for by covariation in the technological variables, with the one significant relationships accounting for 62.3 percent of this amount.

As Table 53 indicates, the rank order of the technological factors contributing to the relationship was the extent of availability of carriers, the rate of usage of carriers, the extent of availability of communication facilities, and the rate of usage of communication facilities. In the criterion set, the rank

Table 52

**COMPONENTS OF REDUNDANCY MEASURE FOR TECHNOLOGICAL VARIABLES AND ASSORTMENT STRUCTURE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6328 | .4004 | .1719 | .0688 | 34.5 |
| 2 | .4746 | .2253 | .3235 | .0729 | 36.5 |
| 3 | .3742 | .1400 | .2726 | .0382 | 19.1 |
| 4 | .2917 | .0851 | .2321 | .0197 | 9.9 |
| | | | | .1996 | |
| Criterion Set | | | | | |
| 1 | .6328 | .4004 | .2747 | .1100 | 62.3 |
| 2 | .4746 | .2253 | .1745 | .0393 | 22.3 |
| 3 | .3742 | .1400 | .1098 | .0154 | 8.7 |
| 4 | .2917 | .0851 | .1404 | .0119 | 6.7 |
| | | | | .1766 | |

Table 53

## RELATIONSHIPS BETWEEN TECHNOLOGICAL VARIABLES, ASSORTMENT STRUCTURE MEASURES OF NIGERIAN WHOLESALE FIRMS

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Technology) | | | |
| AMCMR | -.353 | -.208 | 5.9 |
| EUCMR | .321 | -.471 | 30.4 |
| CAVAL | -.939 | -.578 | 45.8 |
| CASAL | -.838 | -.362 | 17.9 |
| | | | 100.0 |
| Criterion Set (Assortment Structure) | | | |
| NUPAS | -.699 | -.827 | 51.1 |
| NOMPL | .009 | .269 | 5.4 |
| COUSE1 | -.485 | -.506 | 19.1 |
| COUSE2 | -.181 | -.4781 | 16.6 |
| COUSE3 | .028 | .299 | 6.7 |
| COUSE4 | .313 | .121 | 1.1 |
| | | | 100.0 |

**Table 54**

FACTOR V: Nigerian Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Product delivery from suppliers delayed by the lack of adequate motor carriers and/or railroad systems. | .55 |
| 2. | Inadequate telephone and telegraph facilities to inform suppliers about sudden changes in consumer demand. | .43 |
| 3. | Variety of items for sale limited by the inability of suppliers to inform the firm about new products. | -.10 |

order was the number of products available for sale, the percentage of electric-operated refrigerators in the product line. The loadings indicate that for the assortment structure, this first root was associated with low number of products available for sale, low percentage of electric-operated refrigerators and air conditioners in the product lines. These were related to the technological variables of the extent of availability of carriers, the rate of usage of communication facilities, and the rate of usage of carriers.

Although other variables and relationship could have been involved, from the above findings, it seems reasonable to state that in a technological environment characterized by low availability of carriers, low rate of usage of communication facilities, and low rate of usage of carriers, the wholesale firms tend to have less number of products for sales, which in this case refers to the percentage of air conditioners and refrigerators available for sale.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables on the Assortment Structure of the Firm

Of the three loadings obtained for the perceptual measures in Table 54, one was significant beyond .50 level. The wholesalers perceived the delivery of products from their suppliers being delayed by the lack of adequate motor carriers and/or railroad systems. Most of them also felt that due to inadequate telephone and telegraph facilities, they are not able to inform the suppliers about sudden changes in demand for the products. This may explain the negative relationship found the number of products available for sale, and the extent of availability of carriers and communication factilities in the canonical analysis. However, the variety of items for sale are not limited by the inability of the suppliers to inform the firm about new products.

Results of Canonical Correlational Analyses Between Technological Variables and Market Coverage Measures for Nigerian Wholesalers

Of all the four linear combinations presented in Table 55, three produced significant correlation beyond the .05 level. In the first linear combination, 65.92 percent of the variation reflecting the market coverage measures can be accounted for by variation in the linear combination reflecting the technological variables. The second and third combinations had 30.76 percent and 29.69 percent respectively. The total redundacny in the criterion set (given the predictor set) indicates that 22.97 percent of the vartiation in the market coverage measures can be accounted for by covariation in the technological variables.

The rank order of the technological variables contributing to the relationship in the first combination in Table 56 was the extent of availability of carriers, the rate of usage of carriers and the extent of availability of communication facilities. In the second combination, the rate of usage of communication facilities, the extent of availability of communication facilities, and the extent of availability of carriers contributed most to the relationship. Only the extent of availability of communication facilities had a weight above .30 in the third combination. In the criterion set, the rank order of the contribution was the percent of sales to final consumers or users, the extent of emphasis placed on products, and the extent of emphasis place on price, the extent of emphasis placed on products, the percentage of sales to final consumers or users, and the number of firms' locations. The rank order of the contribution to the relationship in the third combination was the extent of emphasis placed on products, the extent of emphasis placed on distributions, the extent of local operations, and the percentage of sales to final consumers or users.

The loadings indicate that the first root for the criterion set was associated with more percentage of sales to final consumers or users, low percentage of sales to sub-wholesalers, more emphasis placed on price, more local operations, and less number of firms' locations. These were related to the technological variables of low availability of carriers, and low availability of communication facilities. The second root was associated with the extent of emphasis placed on price, and the percentage of sales to final consumers or users. The related technological variables were the extent of availability of carriers, and the extent of availability of communication facilities. The third root was associated with less number of firms' locations, more percentage of sales to final consumers or users, the extent of emphasis placed on price, and the extent of local operations.

From the above findings, it can be implied that in an environment with low availability of communication facilities, and low availability of carriers, the firms tend to localize their operations, have fewer number of locations, sell more to final consumers or users, and put more emphasis on price.

Results of Factor Analyses of Wholesalers' Perceptions of the Influence of Technological Variables on the Extent of Market Coverage by the Firm

None of the loadings obtained for the four perceptual measures in Table 57 were significant beyond the .50 level. However, two had relatively high loadings. A high proportion of the wholesalers felt that the firms are located only in areas with dependable communication facilities and transportation facilities and equipment, and do not restrict their operations to urban areas due to inadequate highway and railroad systems. These perceptions may explain the high extent of local operations found among these firms, and the fewer number of locations existing in this environment with low availability of carriers and communication facilities in the canonical analyses.

Table 55

## COMPONENTS OF REDUNDANCY MEASURE FOR TECHNOLOGICAL VARIABLES AND MARKET COVERAGE MEASURES OF NIGERIAN WHOLESALE FIRMS

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .8119 | .6592 | .1815 | .1197 | 37.4 |
| 2 | .5546 | .3076 | .2533 | .0779 | 24.3 |
| 3 | .5449 | .2969 | .3783 | .1123 | 35.1 |
| 4 | .2362 | .0558 | .1869 | .0104 | 3.2 |
| | | | | .3203 | |
| Criterion Set | | | | | |
| 1 | .8119 | .6592 | .2267 | .1494 | 65.0 |
| 2 | .5546 | .3076 | .1370 | .0422 | 18.4 |
| 3 | .5449 | .2969 | .1015 | .0301 | 13.1 |
| 4 | .2362 | .0558 | .1425 | .0079 | 3.4 |
| | | | | .2297 | |

Table 56

**RELATIONSHIPS BETWEEN TECHNOLOGICAL VARIABLES, MARKET COVERAGE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS**

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Technology) | | | | | | | | | |
| AMCMR | -.359 | -.322 | 14.2 | -.438 | -.323 | 19.7 | -.501 | -.811 | 81.0 |
| EUCMR | -.206 | -.125 | 2.2 | .475 | .222 | 9.3 | .204 | .286 | 10.1 |
| CAVAL | -1.06 | -.772 | 82.1 | -.396 | -.600 | 68.3 | .196 | .062 | .50 |
| CASAL | .672 | .103 | 1.5 | .192 | .117 | 2.7 | -.158 | -.260 | 8.4 |
| | | | 100.0 | | | 100.0 | | | 100.0 |
| Criterion Set (Market Coverage) | | | | | | | | | |
| EGO | .182 | .435 | 10.2 | .085 | .245 | 8.5 | .546 | .350 | 15.2 |
| NOLOC | -.208 | -.310 | 5.2 | .310 | .145 | 3.0 | -.235 | -.462 | 26.3 |
| EEMA1 | .350 | .262 | 3.7 | -.729 | -.218 | 6.8 | .751 | .213 | 5.6 |
| EEMA2 | .323 | .656 | 23.2 | 1.13 | .489 | 34.0 | .219 | .372 | 17.0 |
| EEMA3 | -.173 | -.198 | 2.1 | .136 | 7.5 | -.664 | -.200 | 4.9 | |
| EEMA4 | .000 | .174 | 1.6 | .000 | .216 | 6.7 | .000 | -.078 | .74 |
| COIMC1 | -.282 | -.689 | 25.6 | .204 | .190 | 5.1 | .178 | .208 | 5.3 |
| COIMC2 | .148 | .049 | .11 | -189 | -.079 | .85 | .242 | .196 | 4.7 |
| COIMC3 | .391 | .726 | 28.4 | .220 | .439 | 27.5 | .311 | .405 | 20.3 |
| | | | 100.1 | | | 100.0 | | | 100.0 |

**Table 57**

FACTOR VI: Nigerian Wholesalers' Perceptions of the Influence of Technological Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Locates only in areas with transportation facilities and equipment. | .45 |
| 2. | Restricts operations to urban areas due to inadequate highway and railroad systems. | .08 |
| 3. | Setting up establishments only in areas with fast and dependable communication facilities. | .42 |
| 4. | Concentrates operations in areas with mass communication media. | .23 |

Results of Canonical Correlational Analyses Between Socio-Cultural Variables and Size Measuers for Nigerian Wholesalers

Of the three linear combinations that could be formed from the socio-cultural variables and the size measures in Table 58, two produced significant correlation beyond the .05 level. In the first linear combinations, 49.24 percent of the variation reflecting size can be accounted for by variation in the linear combination reflecting the socio-cultural variables, and 30.52 percent for the second combination. The total redundancy in the criterion set (given the predictor set) shows that 14.54 percent of the variation in the size measures can be accounted for by covariation in the socio-cultural factors.

The rank order of the socio-cultural factors contributing to the relationship in the first linear combination was the level of enforcement of government regulations and the level of importance of customer expecations. These two measures made the most contribution in the second linear combination, (all with weights above 3.0). In the criterion set, the rank order of the contribution to the relationship in the first linear combination was the total number of managerial employees, the number of clerical employees, and the number of departments or working units. The rank order of the contribution in the second combination was the number of total employees, the number of salespeople employed, the number of managerial employees, and the number of clerical employees.

Using the loadings, the first root was associated with the number of departments or working units, the number of managerial employees, and the number of salespeople employed. These were related to the socio-cultural variables of the level of enforcement of government regulations, the extent of existence of government regulations, and the level of importance of consumer

Table 58

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND SIZE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .7017 | .4924 | .2978 | .1467 | 43.2 |
| 2 | .5525 | .3052 | .5212 | .1591 | 46.9 |
| 3 | .4314 | .1861 | .1810 | .0337 | 9.9 |
| | | | | .3394 | |
| Criterion Set | | | | | |
| 1 | .7017 | .4924 | .1074 | .0529 | 36.4 |
| 2 | .5525 | .3052 | .1074 | .0529 | 55.8 |
| 3 | .4314 | .1861 | .0607 | .0113 | 7.8 |
| | | | | .1454 | |

Table 59

## RELATIONSHIPS BETWEEN THE SOCIO-CULTURAL VARIABLES, SIZE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS

| Variable | Canonical Relationships | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Socio-Cultural) | | | | | | | | | |
| EXGRE | -.241 | -.478 | 25.5 | -.062 | -.497 | 15.8 | | | |
| LEGOR | -1.16 | -.723 | 58.4 | -.452 | -.679 | 29.5 | | | |
| LICE | .725 | .379 | 16.1 | .783 | .925 | 54.7 | | | |
| | | | 100.0 | | | 100.0 | | | |
| Criterion Set (Size) | | | | | | | | | |
| NODSZ1 | .469 | .492 | 31.3 | .025 | .405 | 7.7 | | | |
| NOESZ2 | -2.86 | -.020 | .000 | 3.25 | .640 | 19.3 | | | |
| COESZ1 | 1.19 | .451 | 26.2 | -2.59 | -.274 | 3.5 | | | |
| COESZ2 | .497 | .278 | 9.9 | 1.02 | .810 | 30.8 | | | |
| COESZ3 | 1.43 | .342 | 15.1 | 2.96 | .661 | 2.05 | | | |
| COESZ4 | -.257 | -.290 | 10.8 | .118 | .281 | 3.7 | | | |
| NOSFYCO | -.081 | -.145 | 2.7 | .090 | .534 | 13.4 | | | |
| ANS82 | -.297 | -.177 | 4.0 | .284 | .148 | 1.0 | | | |
| | | | 100.0 | | | 100.0 | | | |

**Table 60**

FACTOR VII: Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Location of facilities are limited by government economic restrictions. | .04 |
| 2. | Government regulations determine the composition of firms' employees. | -.18 |
| 3. | Establish departments to handle customers' service requirements. | .62 |
| 4. | Salespeople undergo special training to be able to provide product information. | .56 |

expectations. The second root was associated with the number of clerical employees, the number of salespeople employed, the number of total employees, the number of salespeople with four-year college degree, and the number of departments or working units.

It is evidenced from the findings above that the extent of existence, and the level of enforcement of government regulations were considerably less determinant than the last socio-cultural variable. Rather due to high expectations of services by the customers, the wholesale firms tend to have relatively higher number of departments or working units, higher number of employees in all categories, and more salespeople with four-year college degrees.

Results of Factor Analysis of Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Size of the Firm

Two of the four loading presented for the perceptual measures in Table 60 were significant beyond the .50 level. As in the earlier canonical analyses, government regulations, either due to their low level of existence and/or their low level of enforcement, were neither percieved as limiting factors to the number of location of facilities by the firm, nor do they determine the composition of firms' employees. The wholesalers perceived their firms establishing departments to handle customers' service requirements, and having the salespeople undergo special training to be able to provide customers with adequate product information. This may help to explain the positive relationship found between the level of importance of consumer expectations, and these size measures in the canonical analyses.

Results of Canonical Correlational Analyses Between Socio-Cultural Variables and Assortment Structure Measures for Nigerian Wholesalers

The components of the redundancy measure is presented in Table 61 indicates that only one of the three linear combinations formed from the socio-cultural variables and the assortment structure measures were statistically

significant beyond the .05 level. According to the squared canonical correlation, 46.97 percent of the variation reflecting assortment structure in this significant linear combination can be accounted for by variation in the linear combination reflecting the socio-cultural variables. The total redundancy in the criterion set (given the predictor set) was .1236, with the first canonical root contributing 60.8 percent of this shared variance.

The rank order of the weights for the socio-cultural variables contributing to the relationship as in Table 62 was the level of enforcement of government regulations, and the extent of existence of government regulations. In the criterion set, two measures; the number of products available for sale, and the percentage of electric-operated air conditioners in the product lines contributed most to the relationship. However, the loading indicate that for the assortment structure measures, this first root was associated with the number of products available for sale, and the percentage of gas-operated refrigerators in the product lines. These were related to the level of importance of customer expectations.

Results of Factor Analysis of Wholesaler's Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm

Of the four loadings presented in Table 63 for the perceputal measures, one was significant at the .50 level. The wholesalers did not perceive the government regulating the safety of the products they sell. Also, there are no legal restrictions on the suppliers from selling to the firms only on the condition that the firms purchase other products from them, which may explain why the extent of existence and the level of enforcement of government regulations did not contribute high loadings in the canonical analyses. The wholesalers did not perceive the firms restricting their product lines to products that are warranted

Table 61

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND ASSORTMENT STRUCTURE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .6853 | .4697 | .4657 | .2187 | 74.4 |
| 2 | .4925 | .2426 | .2251 | .0546 | 18.6 |
| 3 | .2582 | .0667 | .3091 | .0206 | 7.0 |
| | | | | .2940 | |
| Criterion Set | | | | | |
| 1 | .6853 | .4697 | .1601 | .0752 | 60.8 |
| 2 | .4925 | .2426 | .1585 | .0385 | 31.2 |
| 3 | .2582 | .0667 | .1485 | .0099 | 8.0 |
| | | | | .1236 | |

Table 62

## RELATIONSHIPS BETWEEN SOCIO-CULTURAL VARIABLES, ASSORTMENT STRUCTURE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Socio-Cultural) | | | |
| EXGRE | -.392 | -.206 | 25.8 |
| LEGOR | .429 | .169 | 17.8 |
| LICE | .148 | .303 | 56.4 |
| | | | 100.0 |
| Criterion Set (Assortment Structure) | | | |
| NUPAS | .729 | .548 | 58.1 |
| NOMPL | -.040 | -.174 | 5.8 |
| COUSE1 | .095 | .215 | 8.9 |
| COUSE2 | -.444 | -.194 | 7.4 |
| COUSE3 | .236 | .319 | 19.8 |
| COUSE4 | -.094 | -.018 | .000 |
| | | | 100.0 |

**Table 63**

FACTOR VIII: Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Assortment Structure of the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Government regulates product safety. | .15 |
| 2. | Suppliers are legally restricted to sell only on the condition that the firm purchases other products. | .-.07 |
| 3. | Restricts product lines to products that are warranteed by the manufacturers. | .26 |
| 4. | Adds low profit items to the product lines to maintain a complete line of merchandise. | .65 |

by the manufacturers, but rather add low profit items to the product lines to maintain a complete line of merchandise. This is in line with the positive relationship found in the canonical analyses between the level of importance of consumer expectations, and the number of products available for sale.

Results of Canonical Correlational Analysis Between Socio-Cultural Variables and Market Coverage Measures for Nigerian Wholesalers

The components of the redundancy measure for the socio-cultural variables, and the market coverage measures presented in Table 64 show one statistical significant combination. For this linear combination, 53.57 percent of the variation reflecting the market coverage can be accounted for by variation in linear combination reflecting the socio-cultural variables. The co-variation in the socio-cultural variables accounted for 11.39 percent of the variation in the market coverage measures.

The rank order of the socio-cultural factors contributing to the relationship in Table 65 was the extent of existence of government regulations, and the level of importance of consumers' expectations. In the criterion set, the rank order of contribution was the number of firms locations, the extent of emphasis placed on promotion, the extent of emphasis placed on price, and the percentage of sales to sub-wholesalers. The loading indicate that this first root was associated with more number of firms' location, more emphasis placed on promotion, and less emphasis place on price. These measures were related to the high level of consumer expectation of services.

Results of Factor Analysis of Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm

Of the three loadings obtained for the perceptual measures in Table 66, none was significant beyond the .50 level. The wholesalers did not perceive

Table 64

**COMPONENTS OF REDUNDANCY MEASURE FOR THE SOCIO-CULTURAL VARIABLES AND MARKET COVERAGE MEASURES OF NIGERIAN WHOLESALE FIRMS**

| Relationship | Canonical R | $R^2$ | Variance extracted VP or VC | Redundancy ($R^2$) | Proportion of total redundancy |
|---|---|---|---|---|---|
| Predictor Set | | | | | |
| 1 | .7319 | .5357 | .2530 | .1356 | 45.2 |
| 2 | .4781 | .2286 | .5815 | .1329 | 44.4 |
| 3 | .4352 | .1894 | .1655 | .0313 | 10.4 |
| | | | | .2998 | |
| Criterion Set | | | | | |
| 1 | .7319 | .5357 | .0875 | .0469 | 41.2 |
| 2 | .4781 | .2286 | .1721 | .0394 | 34.6 |
| 3 | .4352 | .1894 | .1459 | .0276 | 24.2 |
| | | | | .1139 | |

Table 65

**RELATIONSHIPS BETWEEN SOCIO-CULTURAL VARIABLES, MARKET COVERAGE MEASURES, AND CANONICAL FUNCTIONS FOR NIGERIAN WHOLESALE FIRMS**

| Variable | Canonical Relationships | | |
|---|---|---|---|
| | 1 | | |
| | Weight | Loadings | Percentage $EL^2$ |
| Predictor Set (Socio-Cultural) | | | |
| EXGRE | -.854 | -.450 | 26.7 |
| LEGOR | .221 | -.138 | 2.5 |
| LICE | .881 | .734 | 70.8 |
| | | | 100.0 |
| Criterions Set (Market Coverage) | | | |
| EGO | -.180 | -.113 | 1.5 |
| NOLOC | .876 | .670 | 53.4 |
| EEMA1 | -.291 | -.008 | .000 |
| EEMA2 | -.380 | -.318 | 12.0 |
| EEMA3 | .804 | .487 | 28.2 |
| EEMA4 | .000 | .005 | .000 |
| COIMC1 | -.305 | -.172 | 3.6 |
| COIMC2 | -.150 | -.097 | 1.1 |
| COIMC3 | -.010 | -.045 | .24 |
| | | | 100.0 |

Table 66

FACTOR IX: Nigerian Wholesalers' Perceptions of the Influence of Socio-Cultural Variables on the Extent of Market Coverage by the Firm

| Perceptual Measures | | Loadings |
|---|---|---|
| 1. | Laws against resale restrictions prevent suppliers from stipulating where and to whom the products are sold. | -.25 |
| 2. | Rules and regulations set by some states prevent the firm from operating in those states. | -.32 |
| 3. | Sells through selected retailers or sub-wholesalers to maximize quality image. | .14 |

laws against resale restrictions preventing the suppliers from stipulating where and to whom the products are sold. The rules and reguations set by some states do not prevent the firm from operating in those states. For the above measures however, the negative loadings may indicate the absence of the existence of these reguations within the socio-cultural environment. Finally, in accordance with the finding in the canonical analyses, the wholesalers did not perceive the firm selling through selected sub-wholesalers to maximize quality image.

Results of the Split Sample Analysis of the Canonical Weights and the Factor Loadings for Nigerian Wholesalers

The results of the split sample analysis of the canonical weights in Table 67 indicates a high stability in the weights for Nigerian wholesalers. Only seven variables in the subsamples had signs different from the ones obtained for the total sample. The factor loadings presented in Table 68 also showed a relatively high stability, with four measures having different signs from the ones computed for the total sample.

Table 67

RESULTS OF THE SPLIT-SAMPLE ANALYSIS OF THE CANONICAL WEIGHTS FOR NIGERIAN WHOLESALERS

| Predictor Set | Total Sample | 1st Split Sample | 2nd Split Sample |
|---|---|---|---|
| EAF | -.544 | -.334 | -.212 |
| RUSF | -.417 | -.509 | -.398 |
| NOFSU | .214 | -.142 | .269 |
| LOSUP | .641 | .560 | .375 |
| ISU | -.004 | -.010 | -.009 |
| COWU1 | .453 | .360 | .514 |
| COWU2 | .270 | .178 | .210 |
| COWU3 | .166 | .125 | .178 |
| NUS82 | .299 | .331 | .249 |
| NOYIB | .025 | -.031. | .089 |
| AMCMR | .281 | .311 | .401 |
| EUCMR | .527 | .710 | .481 |
| CAVAL | .137 | .089 | .121 |
| CASAL | .481 | .321 | .288 |
| EXGRE | -.377 | -.212 | .089 |
| LEGOR | .136 | .190 | .111 |
| LICE | .725 | .401 | .551 |
| Criterion Set | | | |
| NODSZ1 | -.017 | -.009 | -.110 |
| NOESZ2 | .397 | .212 | .378 |
| COESZ3 | .202 | -.019 | .241 |
| COESZ4 | -.239 | -.425 | .029 |
| NOSFYCO | .168 | .109 | .213 |
| ANS82 | .362 | .578 | .309 |
| NUPAS | -.018 | -.009 | -.110 |
| NOMPL | .179 | .288 | .134 |
| COUSE1 | .479 | .186 | .266 |
| COUSE2 | .460 | .490 | .299 |
| COUSE3 | -.674 | -.334 | -.211 |
| COUSE4 | .365 | .141 | .280 |
| EGO | .198 | .240 | .101 |
| NOLOC | .447 | -.190 | -.321 |
| EEMA1 | -.229 | -.340 | .012 |
| EEMA2 | -.594 | -.610 | -.451 |
| EEMA3 | .020 | .008 | .010 |
| EEMA4 | -.038 | -.011 | -.009 |
| COIMC1 | -.610 | -.348 | -.552 |
| COIMC2 | -.067 | -.004 | .030 |
| COIMC3 | .344 | .211 | .401 |

**Table 68**

**RESULTS OF THE SPLIT-SAMPLE ANALYSIS OF THE FACTOR LOADINGS FOR NIGERIAN WHOLESALERS**

| Perceptual Measures | Total Sample | 1st Split Sample | 2nd Split Sample |
|---|---|---|---|
| ECOSZ1 | .54 | .38 | .41 |
| ECOSZ2 | .32 | .36 | .24 |
| ECOSZ3 | .66 | .55 | .60 |
| ECOSZ4 | .26 | .31 | .19 |
| ECOSZ5 | -.05 | -.01 | -.06 |
| ECOAS1 | .01 | .09 | -.03 |
| ECOAS2 | .28 | .14 | .18 |
| ECOAS3 | .69 | .45 | .59 |
| ECOAS4 | .43 | .51 | .44 |
| ECOAS5 | .45 | .38 | .40 |
| ECOMC1 | .54 | .49 | .37 |
| ECOMC2 | .17 | .20 | .15 |
| ECOMC3 | -.21 | -.16 | -.18 |
| ECOMC4 | .48 | .33 | .45 |
| TECSZ1 | -.17 | -.09 | -.11 |
| TECSZ2 | .24 | .14 | .21 |
| TECSZ3 | .09 | .04 | -.08 |
| TECSZ4 | -.09 | -.03 | -.04 |
| TECAS1 | .55 | .41 | .58 |
| TECAS2 | .43 | .39 | .31 |
| TECAS3 | -.10 | -.17 | .04 |
| TECCO1 | .45 | .34 | .29 |
| TECCO2 | .08 | .13 | .07 |
| TECCO3 | .42 | .48 | .37 |
| TECCO4 | .23 | .30 | .21 |
| SCOSZ1 | .04 | .02 | .05 |
| SCOSZ2 | -.18 | -.23 | -.15 |
| SCOSZ3 | .62 | .73 | .61 |
| SCOSZ4 | .56 | .47 | .41 |
| SCOAS1 | .15 | .12 | .18 |
| SCOAS2 | -.07 | .03 | -.11 |
| SCOAS3 | .26 | .16 | .20 |
| SCOAS4 | .65 | .58 | .51 |
| SCOCO1 | -.25 | -.27 | -.21 |
| SCOCO2 | -.32 | -.28 | -.37 |
| SCOCO3 | .14 | .11 | .16 |

Difference Between the Size of Wholesalers in Nigeria and the United States

The results of the t-test analysis for the differences between the size of wholesalers in Nigeria and the United States are presented in Table 69. On five of the eight size measures used for the analysis, there were sizeable number of differences in the mean scores at the .05 significant level. The 't' value obtained for the first measure shows that significant differences exist in the number of departments or working units in the two sets of wholesale firms. The firms in Nigeria seem to have relatively higher number of departments or working units than their counterparts in the United States. While the average number of working units or departments among the firms in Nigeria is 4.8, that of U.S. firms in 3.4. However the highest number of departments for an individual firm (18 working units) was found in the United States. There was no significant difference in the total number of employment between firms in Nigeria and those in the United States. When the various compositions of employment are compared, it is evidenced that the wholesale firms in the United States are significantly different from those in Nigeria in two categories. The 't' value of 2.12 obtained for the first employment category indicates that the number of managerial employees in these two sets of wholesale firms are significantly different. While the wholesale firms in the United States averaged 6 managerial employees per firm with a maximum of 30 managers in a firm, those in Nigeria averaged 3.5 managerial employees, and had a maximum number of 14 managers in a firm. The number of clerical employees in these firms did not differ significantly, nor did the number of employees referred to as 'others' in this study, which included drivers, security guards, custodians, etc. However, it should be noted here that while the total

number of clerical employees for the firms in the United States ranged from a low of one employee to a maximum of 200 employees, the Nigerian wholesale firms had a minimum of 2 clerical employees, and a high of only 17 in a firm. The firms in both countries had a minimum of one employee in the category of employment referred to as others, but while the maximum employees for an individual firm in Nigeria was 21, that of the United States was 100. The number of salespeople employed by the two sets of wholesalers differ significantly. The firms in the United States employ relatively more salespeople than their counterparts in Nigeria. While the firms in the United States had an average number of 10.5 salespeople, and a maximum of 100, firms in Nigeria averaged 6.8 salespeople per firm, with a maximum of 31. There is also a significant difference in the number of salespeople with four-year college degree among the two sets of firms. With an average of 3.8, and a maximum of 25 salespeople with four-year college degree, the firms in the United States have more salespeople with four-year college degree than the firms in Nigeria where the highest number employed is 3, and the average is one salesperson with four-year college degree. As indicated in the table, the amount of net sales in 1982 for firms in Nigeria was converted from the Nigerian Naira to US dollars using the currency conversion rate obtained from the Central Bank of Nigeria at the time of data collection. Although the 't' value shows a significant difference between the amount of net sales of the firms in the two countries, no significant differences exist when these amounts are compared in terms of total employment and total number of salespeople in the two sets of firms. The average sales per employee in Nigerian firms is $147,350.8 and that of the United States firms is $223,920.9. While the average sales per salesperson in Nigerian firms is $578,568.6, that of firms in the United States is $765,596.1.

Table 69

"t" TEST FOR SIGNIFICANT DIFFERENCE BETWEEN THE SIZE OF THE WHOLESALERS IN NIGERIA AND THE UNITED STATES

| | Measures | Mean Nigerian | Mean United States | "t" |
|---|---|---|---|---|
| 1. | Number of departments or working units | 4.8 | 3.4 | 2.78* |
| 2. | Total number of employment | 26.7 | 35.9 | -1.36 |
| 3. | Compositions of employment | | | |
| | a. Managerial | 3.5 | 6.0 | 2.12* |
| | b. Clerical | 9.7 | 12.1 | -1.53 |
| | c. Salespeople | 6.8 | 10.5 | -2.06* |
| | d. Others | 6.7 | 7.3 | -1.49 |
| 4. | Number of salespeople with four-year college degree | 1.0 | 3.8 | -3.75* |
| 5. | Amount of net sales in 1982[b] | 3,934,266.1[a] | 8,038,759.5 | -3.53* |

* Significant at the .05 level

[a] The currency conversion was computed with the rate obtained from the Central Bank of Nigeria at the time of date collection.

[b] Average sales per employee for Nigerian firms is $147,350.8, and that of the United States firms is $223,920.9. The average sales per salesperson for United States firms is $765,596.1, while that of Nigerian firms is $578,568.6.

≠ Approximate t-test applies

Differences Between the Assortment Structure of Wholesalers in Nigeria and the United States

The results of the t-test analysis presented in Table 70 show some significant differences between the assortment structure of wholesaler firms in Nigeria and the United States. At the .05 level of significance, the 't' value indicates that for these two sets of wholesalers, the number of days it takes from when the firm places order with suppiers to when they are received differed. On the average, it takes U.S. firms 25.8 days to receive orders from their suppilers, while their counterparts in Nigeria have to wait 57.3 days. The minimum number of days for the United States firms was 3 days, and the maximum was 100 days. On the other hand, the minimum number of days it took the Nigerian firms to receive orders from their suppliers was 14 days, while the maximum was 180 days. There also exists a significant difference in the number of units available for sale by the firms in the two countries. The mean scores show a relatively higher number of units for sale among the United States firms. While these firms have an average of 806.1 units for sale, with a minimum of 5, and a maximum of 3350 units, the Nigerian firms averaged 365.2 units for sale, with a minimum of 35 units, and a maximum of 1861 units. With the wholesale firms in the United States having almost twice as much number of units for sale than their Nigerian counterparts, it may be expected that the former may have significantly more varieties of products in their product lines. On the contrary, the 't' value indicates that the number of models in the product lines of firms in the two countries are not significantly different. However, when composition of product lines in terms of types of power used are compared, two categories showed significant differences. The wholesale firms in the United States with an average of 84.8%, have a higher percentage of electric-operated refrigerators in their product lines than the firms in Nigeria,

Table 70

**"t" TEST FOR SIGNIFICANT DIFFERENCE BETWEEN THE SIZE OF THE WHOLESALERS IN NIGERIA AND THE UNITED STATES**

| | Measures | Mean Nigerian | Mean United States | "t" |
|---|---|---|---|---|
| 1. | Number of days it takes from when the firm places orders with suppliers to when they are received. | 57.3 | 25.8 | 3.35* |
| 2. | Number of units presently available for sale. | 365.2 | 806.1 | 3.93* |
| 3. | Number of models in the product line. | 12.6 | 19.2 | -1.94≠ |
| 4. | Composition of product lines in terms of types of power used. | | | |
| | a. Electric-operated Refrigerators | 39.5 | 84.8 | 7.19*≠ |
| | b. Gas-operated Refrigerators | 60.5 | 15.2 | -4.18* |
| | c. Electric-operated Air Conditioners | 83.9 | 87.7 | .83 |
| | d. Gas-operated Air Conditioners | 16.1 | 12.3 | -.76≠ |

* Significant at the .05 level

≠ Approximate t-test applies

whose average was 39.5%. On the other hand, the firms in Nigeria have more gas-operated refrigerators in their product lines that those in the United States. Although the percentage of electric-operated, and gas-operated air conditioners in the product lines of these two sets of wholesalers differ, the 't' value indicates that these differences are not significant at the .05 level.

Differences Between the Extent of Market Coverage by the Wholesalers in Nigeria and the United States

Table 71 presents the results of the t-test analysis for the differences between the extent of market coverage by the wholesalers in Nigeria and the United States. The 't' value indicates a significant difference in the extent of geographic operations by wholesale firms in the two countries. According to the mean scores, most of the firms in Nigeria operate locally, limiting their operations mostly to the areas where the firms are located. Contrarily, most operations in the United States are regional in extent, and as in the case of Nigerian firms, there are some national operations, but none of the firms indicated operating internationally. The number of locations for both sets of firms differs significantly. With an average of 6.3 number of locations ranging from one to 19 locations, the firms in the United States have relatively higher number of locations than the firms in Nigeria where the average number of locations is 3.6, with a minimum number of one, and a maximum of 9 locations. When the extent of emphasis placed on four kinds of marketing activities are compared, two showed significant differences. While the percentage of the extent of emphasis placed on product and promotions did not show significant differences, the extent of emphasis placed on price and distribution did. The wholesalers in Nigeria seem to place a higher emphasis on price than those in the United States, while the later place more emphasis on distribution that their counterparts in Nigeria. The 't' value also indicates that the number of

Table 71

"t" TEST FOR SIGNIFICANT DIFFERENCES BETWEEN THE EXTENT OF MARKET COVERAGE BY THE WHOLESALERS IN NIGERIA AND THE UNITED STATES

| | Measures | Mean Nigerian | Mean United States | "t" |
|---|---|---|---|---|
| 1. | Extent of geograhic operations | 1.1 | 2.5 | 2.42* |
| 2. | Number of locations | 3.6 | 6.3 | 2.31* |
| 3. | Extent of emphasis placed on marketing activities | | | |
| | a. Product | 33.3 | 35.8 | 1.89 |
| | b. Price | 33.5 | 24.4 | -3.4*≠ |
| | c. Promotion | 14.5 | 15.7 | -1.5 |
| | d. Distribution | 18.9 | 24.1 | -2.05* |
| 4. | Number of days it takes from when customers place an order, to when they receive the items. | 8.3 | 3.3 | 5.45*≠ |
| 5. | Composition of immediate customers | | | |
| | a. Sub-wholesalers | 54.0 | 72.1 | -3.0* |
| | b. Retailers | 10.3 | 12.6 | -.79 |
| | c. Final consumers or users | 35.7 | 15.3 | 4.2* |

* Significant at the .05 level

≠ Approximate t-test applies

days it takes from when customers place an order, to when they received the items differ significantly between the two countries. Order delivery takes relatively more days for Nigerian wholesalers than those in the United States. With an average of 8.3 days, the number of days ranged from one to 20 days for Nigerian firms, while the average for the United States firms is 3.3 days, and ranged from one to 10 days. Finally, the composition of immediate customers for the two sets of firms varied significantly. Although both wholesalers have high percentage of sales to sub-wholesalers, the difference between them, according to the 't' value was high enough to be significant. The percentage composition of retail customers for these firms did not differ, but their percentage of sales to the final consumers or users showed significant difference. The firms in Nigeria sell more (35.7%) to final consumers or users than the firms in the United States (15.3%).

Examination of the Stated Hypotheses

Due to the comparative approach taken in this study, it was not possible to discuss the stated hypotheses until the data from the two countries were analyzed. In the following pages, each of the hypotheses will be restated and examined, using the findings from the canonical correlation analyses, factor analyses, and the t-test analyses. The first nine hypotheses were formulated from a portion of the Bartels' model described earlier in this study for comparing marketing systems through relating them first to their environment. Based on this model, the null hypotheses of no relationship were accepted except where statistically significant relationship was found in both countries for the same hypothesis.

Hypothesis I: There exists no relationship between the development in technology, and such wholesalers' organizational structures as size.

This hypothesis was evaluated through the use of canonical correlation and factor analysis. The output generated by these analyses included: the correlation coefficients; the redundancy index; the canonical loadings; the canonical weightings; and the factor loadings. The results of these analyses for the firms in Nigeria and the United States were presented in Tables 20, 21, 22, 49, 50 and 51. Significant relationship were found between the technological variables and the size of the firms in both countries. Based on this, hypothesis 1 can be rejected.

Hypothesis 2: There exists no relationship between the development in technology, and such wholesalers' organizational structures as assortment structure.

The results of the various analyses used in testing this hypothesis were presented in Tables 23, 24, 51, 52, 53 and 54. Some relationships were found between the technological variables and the assortment structure measures among the firms in Nigeria, but none of the relationships found within the wholesale firms in the United States was significant at the .05 level. Due to the absence of significant relationship in one of the countries, used in this study, hypothesis 2 can be accepted.

Hypothesis 3: There exists no relationship between the development in technology, and such wholesalers' organizational structures the extent of market coverage.

Hypothesis 3 can be rejected at the .05 level of significance. As shown in Tables 26, 27, 28, 55, 56 and 57, various measures of the extent of market coverage by the wholesaler firms in both countries were significantly related to the economic variables existing in these countries.

Hypothesis 4: There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as size.

The results of the analyses used in evaluating this hypothesis were presented in Tables 29, 30, 31, 58, 59, and 60. Significant relationships were found between the socio-cultural variables in both Nigeria and the United States, and the size of the wholesale firms in these countries. Therefore, hypothesis 4 can be rejected.

Hypothesis 5: There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as assortment structure.

This hypothesis can be rejected based on the findings presented in Tables 32, 33, 34, 61, 62, and 63. At the .05 level of significance, the assortment structure measures of both Nigerian and the United State wholesale firms were found to be related to the socio-cultural variables in the two countries.

Hypothesis 6: There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as the extent of market coverage.

The results of the analyses pertaining to this hypothesis presented in Tables 35, 36, and 37 indicated a lack of significant relationship between the socio-cultural variables and the extent of market coverage by wholesale firms in the United States. On the other hand, the results of the findings presented in Table 64, 65, and 66 for the firms in Nigeria showed a significant relationship between those measures at the .05 level of significance. However, due to the absence of significant relationship in one country, the null hypothesis can be accepted.

Hypothesis 7: There exists no relationship between the economic environment, and such wholesalers' organizational structure as size.

This hypothesis can be rejected based on the findings in Tables 11, 12, 13, 40, 41, and 42. These results showed that at the .05 level of significance, the size of the wholesale firms in both Nigerian and the United States were related to the economic environment in these countries.

Hypothesis 8: There exists no relationship between the economic environment, and such wholesalers' organizational structure as assortment structure.

The findings of the analysis used in evaluating this hypothesis are presented in Tables 14, 15, 16, 43, 44 and 45. At the .05 level of significance, the measures for the assortment structure of the firms in the two countries were found to be related to the economic variables existing in these environments. On this basis, therefore, the hypothesis can be rejected.

Hypothesis 9: There exists no relationship between the economic environment, and such wholesalers' organizational structure as the extent of market coverage.

This hypothesis was evaluted with the findings presented in Tables 17, 18, 19, 46, 47, and 48. These results indicated that among firms in both Nigeria and the United States, the extent of market coverage were related to the economic environment in the countries of location. As a result, hypothesis 9 can be rejected.

Hypothesis 10: There exist no differences in the organizational structure of wholesalers in Nigeria and the United States.

This hypothesis was tested by comparing the mean scores of the various organizational structure measures used in this study between the wholesale firms in Nigeria and the United States. The 25 measures were compared using the t-test analysis under the sub-division of size, assortment structure, and market coverage. In order to accept this hypothesis, there would have to be an absence of significant differences in these measures for firms in United States and Nigeria on more than half of the measures. A perusal of Tables 69, 70, and 71 indicate that at the .05 level of signicance, there were significant differences on sixteen of the measures, thus indicating a strong rejection of the hypothesis.

# CHAPTER V

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## Introduction

This chapter consists of five sections. First, a summary of the research is given. Second, the hypotheses are again presented in summary form. Third, conclusions developed from the research are presented. The fourth section discusses the implications of the research for academicians and practioners. Finally, suggestions for future research are provided for the purpose of stimulating continued research into the area of comparative marketing.

## Summary of the Study

The purpose of the dissertation was to examine the organizational structures of household appliance wholesalers of two countries in different stages of environmental development, and determine their relationship to selected environmental variables. More specifically, the nature of association between economic, socio-cultural, and technological environment and the size, assortment structure, and the extent of market coverage of wholesale firms in Nigeria and the United States were investigated. Further, the differences and similarities in the organizational structure of these firms were examined.

The existing literature in channel organization suggested that one of the most important factors in the performance of complex organization is their structure. It also suggested that different environmental conditions required different types of organizational structural accommodation for a high level of performance to be achieved, and systematic comparisons to determine

conditions under which these relationships hold could be carried out using existing techniques, theories, and models from the organizational system area. In as much as cross-country studies focusing on the relationships between the organizational structure of wholesale firms and their environment had not been investigated in any appreciable detail by marketing academicians and practitioners, and given their importance to business firms and marketing educators involved in the transferring of marketing techniques between countries at different stages of environmental development, this research was undertaken. Several hypotheses were developed as a result of the literature review and tested using accepted statistical procedures. The data for the study was generated from a research design which employed the use of personal interviews and mail questionnaires directed towards sales managers in wholesale firms involved in the distribution of air conditioners and refrigerators in Nigeria and the United States. These two products were chosen because of their durability and value, and because of their importance in Nigeria due to climatic conditions. It was also noted that these products were handled by single wholesalers both in Nigeria and the United States. Firms were selected for inclusion in the study from two published lists: the membership list of the North American Heating and Air Conditioning Associations; and the Nigerian Yellow Pages, and were interviewed or sent questionnaires through the mail. Questionnaires were subjected to a two-stage pretest, and follow-up procedures were used to insure maximum response.

Hypotheses

Ten hypotheses were subjected to testing in this dissertation. Hypotheses $H_2$, and $H_6$ were accepted. Hypotheses $H_1$, $H_3$, $H_4$, $H_5$, $H_7$, $H_8$, $H_9$, and $H_{10}$ were rejected. In Table 72, each hypothesis is stated, the data source employed

in each case is given, the statistical test applied, if applicable, is provided, and whether or not the hypothesis was accepted or rejected.

Conclusions

Conclusions relevant to each hypothesis, as well as general conclusions not directly related to the hypotheses are presented in this section. In some cases, the conclusions were generated as a result of the dissertation research, although in some instances, the conclusions may not have resulted from statistical significance. For those cases where conclusions are drawn from statistically non-significant results, they are included because of their managerial significance.

A. Conclusions Relevant to Hypothesis 1: In so far as direct relationships were found between the number of departments or working units, the total number of employment, the amount of net sales in 1982, and the rate of usage of various types of carriers and communication facilities by wholesale firms in the two countries surveyed, one can conclude that the organizational structure of a wholesale firm, in terms of the size, is a reflection of the level of development in the technological environment of the country it exists. The available literature in organizational structure had suggested that in an environment where technological advancement is often relatively backward, there will be little opportunity or incentive to develop large-scale operation, and this research has verified that concept in isolation from the effects of other environmental factors. It can be concluded that unless modifications are made in the number and composition of employment, number of departments or working units, and the education of salespeople, a structure in terms of size, which proves efficient for a wholesale organization in one of these countries cannot be effectively implemented in firms located in the other country.

The significantly high number of large wholesale firms found in the United States can be explained by the level of technological development in this environment. The high availability of public motor carriers, railroads, and airlines existing in this environment provides the wholesale firms in the United States with high degree of dependability, capability, and speed in product delivery. However, the rate of usage of airlines in transporting the largest amount of the air conditioners and/or refrigerators sold was rated significantly low. Possibly this is due to their higher cost of usage relative to motor carriers and railroads, or perhaps the later provide the firms with the desired efficiency in product deliveries, thereby limiting the use of airlines to emergency deliveries. Nevertheless, it was found that the high usage of the carriers enables these wholesale firms to maintain high performance in the rate of their order deliveries to the customers, thus, accounting for the resulting high net sales. It also may have created the need for more working units, more managerial and clerical employees, and more talented and knowledgeable salespeople able to handle more effectively the pressure arising from the increased market growth caused by expanding sales volume.

The relatively high rate of usage of telephones and central computers by these firms as methods utilized in contacting manufacturers or retailers may account for the shorter time it takes for them to accomplish the tasks of order transmittal, order processing, and order delivery. Trade journals and magazines also show a significant high rate of usage among firms in the United States. As the information provided by these sources can be more easily applied in these large firms where start-up costs for new ideas can be absorbed more easily, their importance as methods of communication is evidenced by the high relationship found between them and the net sales among these firms.

On the other hand, the significantly lower rate of usage of such carriers as airlines and railroads found among wholesale firms in Nigeria deny these firms the speed and capability that accrue from such carriers when used in transporting their products. One may conclude that the lower net sales found among these firms is due in part to their inability to provide adequate order deliveries to the customers. This situation is further aggrevated by the high use of private carriers (as opposed to public carriers), which due to their smallness, do not provide the capabilities of transporting large quantities of air conditioners and/or refrigerators as seen among firms in the United States. Furthermore, due to the low availability of such efficient methods of contacting manufacturers or retailers as telephone and computers, the firms in Nigeria resort to the use of slower, and maybe, less effective methods like direct mail, personal contact, and telegrams. The resulting low sales volume from this inefficiency may account for the fewer working units or departments found among these firms, and their inability to employ more salespeople with four-year college degree.

B. Conclusions Relevant to Hypothesis 2: It was found that while the number of units available for sale by wholesale firms in Nigeria were significantly related to the level of availability, and the rate of usage of carriers and various methods utilized in contacting manufacturers retailers, no significant association exists in the United States. The fact that the hypothesis was rejected in this instance may lead to the conclusion that the level of availability and usage of transportation and communication facilities may not be very helpful in explaining the nature of assortment structure of firms in such developed technological environment as the United States. Contrary to suggestions in available literature, the high number of electric-operated air-

conditioners and refrigerators, and the high number of models in the product lines of these wholesale firms did not significantly relate to the high availability and the high level of usage of the transportation and communication facilities existing in this country.

An examination of these wholesalers' perceptions regarding the influence of technological factors on the firms' assortment structure indicates otherwise. Most wholesalers felt that neither product delivery, nor the number and variety of items they sell are limited by inadequate telephone and telegraph facilities to contact the suppliers. Also, product deliveries from suppliers are not delayed by the lack of adequate motor carriers and/or railroad systems. An explanation for the absence of significant relationship cannot be offered except possibly that it is atypical. This could be due to three factors: (1) due to the close proximities of the wholesale firms to their suppliers, the high availability of these facilities may not be significantly regarded by these firms as among the major factors determining the level and composition of their product assortment, (2) the ability of these firms to acquire these facilities, rather than the level of availability, may play a more important role in the composition of their assortment structure, and (3) due to the level of technological development in this environment, the existence of these facilities may be regarded by these firms as an obligatory part of the social structure, and therefore are not highly regarded as major factors determining their assortment structure.

However, the findings in Nigeria indicate that the assortment structures of the wholesale firms in this country are characterized by low number of products for sale, and fewer number of product models in their product lines. This can be explained to some extent by the level of technological development in this country. The low availability of public motor carriers, railroads, and

airlines, coupled with the high usage of such slower methods as direct mail, personal contact, and telegram, in contacting the suppliers delay order transmittal to the suppliers, and increase the time they take to deliver the orders. For this reason, these wholesaler firms are constantly under-stocked, which may account for the fewer number of air-conditioners and refrigerators available for sale in these firms. The importance of the level of availability and usage of these facilities in determining the assortment structure of wholesale firms in Nigeria, combined with their relative unimportance in the United States would suggest the conclusion that inadequacy in transportation and communication facilities, rather than their over abundance has a more significant effect on the composition of the assortment structure of a wholesale firm.

C. Conclusions Relevant to Hypothesis 3: For the two groups of firms surveyed, it was found that the level of technological development remains an important factor influencing the extent of their market coverage. Many of the measures of the extent of market coverage were significantly related to the technological development in these countries, and therefore may lead one to conclude that irrespective of the country, the geographic patterns of distribution and the nature of variation between local markets are to a high extent dependent on the types of transportation and communication facilities available. Although there exist a significant high level of local operations among firms in the United States, a majority of them service both regional and national markets. Their ability to establish and maintain such a wide range of market area is highly related to the availability of such efficient methods as telephone and computers, and their high usage in contacting both the suppliers and the retailers. In light of this, these firms are able to maximize their

coordination of such physical distribution activities as equipment monitoring, scheduling, tracing, and expediting.

Additionally, the high level of availability and usage of motor carriers, railroads, and airlines enable these firms to extend their operations to any regions in the country, due to their ability to facilitate order deliveries from the suppliers, and to the customers. Conversely, one can conclude that the high variation in the nature of market coverage by Nigerian wholesalers is due mostly to the inefficiency in the transportation and communication facilities which limit their abilities to locate and/or operate outside the urban areas. The findings show that the products available for sale are heavily concentrated, and most often restricted to some major cities in Nigeria where these firms are located. This inherent inability to expand to other areas of the country are traced to the low availability of public motor carriers, railroads, and airlines. Also, the high level of usage of direct mail, telegram, and personal contact due to the low availability of such more effective methods as telephones and computers act as handicaps to the efforts of these firms to expand their market. Due to this, these firms attempt to increase their sales by selling to both sub-wholesalers, retailers, and final customers or users. This may explain the high emphasis placed on product pricing by these wholesalers, as it gives them a competitive leverage against the sub-wholesalers and retailers serving the same final customers or users as these firms.

D. Conclusions Relevant to Hypothesis 4: The variability in the size of the wholesale firms in the two countries can be explained in part by the level of importance of customers' expectations and the extent of existence and enforcement of various government regulations. However, the findings indicate that the nature of their influence do vary by country, possibly because of the

difference in the level of their existence in these countries. It can also lead one to conclude that the level of existence and enforcement of these regulations are higher among firms in developed environment than they are for those in developing environment, and therefore are significantly less determinants of the size of in the later.

In order to provide adequately the product information and such services as returns, repairs and complaints highly demanded by their customers, as well as enhance their reputations with these customers, the wholesale firms in both countries establish service departments in most locations, and employ more talented and knowledgeable salespeople. However, the significantly higher sales volume found among firms in the United States can be attributed to the higher importance they attach to availability of credit to their customers, depth of their product lines, as well as the seasonal and quantity discounts offered by these firms. On the other hand, while all the thirteen regulatory measures employed in this study were found to have a high level of existence and enforcement in the United States, only sales and federal taxation were rated highly as being enforced in Nigeria. One possible explanation for the low level of existence and enforcements of these regulations in Nigeria may be because they are not considered important functions due to the low status accorded to distribution systems by governments in developing environment, or that they are incapable of enforcing these regulations where they exist. From these findings therefore, one can conclude that no universal inferences can be made with regard to the exact patterns of relationship between socio-cultural factors and the size of a wholesale firm.

E. Conclusions Relevant to Hypothesis 5: The high importance attached to consumer expectations of product and services by wholesale firms in both

countries figured as major determinant of the structure of the product assortment found in these firms. Unlike the United States however, the level of existence and enforcement of various government regulatory actions did not contribute significantly to the relationship found in Nigeria. This significant influence of consumer expectation in the two countries, combined with the relative inactivity of government regulations in Nigeria would suggest the conclusion that government regulations, maybe, due to their high existence and enforcement, are much more important in determining the types and the amount of units in the product lines of firms in a developed country than they do in a developing country.

Generally, the wholesale firms in the United States include larger number of units and varieties of air conditioners and refrigerators in their product lines. This is highly associated to the high importance attached to product availability, and the depth of their product lines. It would also appear that due to the high level of enforcement of regulations on product quality and safety by the United States government, the firms attach high importance to product quality, refund and return policies, and product warranties. On the other hand, the high ratings for customer expectations of product availability and the depth of the product line in the responses of firms in Nigeria can explain the higher percentage of gas-operated air-conditioners and refrigerators existing in their product assortment.

F. Conclusions Relevant to Hypothesis 6: The level of existence and enforcement of government regulatory actions appear to be less determinant of the extent of market coverage by wholesale firms. Despite the high level of existence of these regulations in the United States, none of them showed significant relationship to the extent of market coverage by firms in both

countries. The data provided by the respondents surveyed showed that the scale of operations in terms of number of locations, the regions of the country they operated, and the types of customers they served is not regulated.

The fact that the hypothesis was accepted suggests that the assumptions of a typical pattern of market coverage may be highly questionable. Although it was found that the influence of socio-cultural environment on the extent of market coverage of the firms varied between the two countries, one can conclude that the relationship cannot be studied at the aggregate or country level possibly because of the high degree of variation within a country.

G. Conclusions Relevant to Hypothesis 7: The available literature in channel organization has suggested that the environment in which the channel operates is always influenced by the peculiar and pressing economic problems of the day. The findings of direct relationship between the size of wholesale firms in the two countries surveyed, and the economic environment is therefore to a high extent universally applicable within the marketing organization involved in the distribution of household products. From this, one can conclude that for a successful transfer of wholesale organizations between these two countries, major modifications will have to be made in the design of their sizes due to differences in the basic economic environment.

Due to high availability of credits from manufacturers and banks, the high use of computerized inventory systems, the high number of suppliers, and their locations mostly within the country of operations, the firm in the United States are able to acquire and maintain large number of air conditioners and refrigerators in their product lines. This may also explain the high net sales found among these firms, as well as their willingness and ability to employ more salespeople with four-year college degree knowledgeable enough to handle the

pressure from increased demand. Also, the high availability and usage of credits and retained earnings enable these firms to establish more departments or working units, and accounts for the large number of clerical and managerial employees they have.

On the other hand, the wholesale firms in Nigeria are characterized by lower net sales, low number of salespeople with four year college degree, low number of clerical and managerial employees, and relatively high number of working units or departments. The low net sales found among these firms can be explained in part by the low demand of these products in Nigeria. It can also be attributed to four factors: (1) these firms do not carry adequate number of products in their product lines due to insufficient number of suppliers in the country, (2) the delay in product arrivals from the large number of suppliers located outside the country, (3) the delay caused by the use of manual inventory system, and (4) the low availability of credits from the manufacturers or banks. Finally, the low number of clerical and managerial employees found among these firms can be tied to their inability to hire more workers due to the low availability of credits from banks and low retained earnings, or possibly because a majority of these firms are relatively young (in terms of the number of years in operation), when compared to their counterparts in the United States.

H. Conclusions Relevant to Hypothesis 8: A majority of the assortment measures were found to be significantly related to the economic environment in the two countries surveyed, therefore, it can be concluded that the level of availability of the products for sale, and their varieties are highly dependent on the level of economic development of the country in which the firm is located.

The findings indicate that the wholesale firms in the United States have more products for sale, and also maintain more variety of models in their

product lines. This is significantly related to the high level of demand for air conditioners and refrigerators existing in this environment, and their ability to acquire the products due to the high availability and usage of credits from manufacturers and banks. It would also appear that while the location of suppliers in the country of operation maximizes product availability, the high use of computerized inventory systems by these firms affords them the advantage of efficient monitoring, and maintenance of high stock level.

On the other hand, the relatively younger firms found in Nigeria carry lesser number and varieties of air conditioners and refrigerators in their product lines, possibly because they do not have enough retained earnings, and/or due to their inability to acquire credit from the manufacturers or the banks. It can also be accounted for by the lower level of demand for these products in Nigeria, which may act as a disincentive to larger product stock. However, despite the low demand for other varieties, a disproportionately high level of demand exists for gas-operated air-conditioners and refrigerators, and as a result, the firms include a higher percentage of them in their product lines. A possible explanation for this may be the widespread irregularities, and the inherent shortages in the electricity power supply in this country.

I. Conclusions Relevant to Hypothesis 9: The findings indicate a significantly high association between the measures in the two countries surveyed, and can lead to the conclusion that the extent of market coverage by wholesale firms is highly influenced by the economic environment of the countries in which these firms are located. Because of the country-wide demand of the products, the wholesale firms in the United States establish and maintain more number of locations in various regions of the country. According to the data provided by the respondents, their ability to set-up, and service such extensive

network of operation is enhanced by three factors: (1) the large number of suppliers, and their locations in the United States assures undisrupted product suppliers, and high availability of the products, (2) the high use of computerized inventory systems enable these firms to monitor stock levels more effectively, to avoid constant product stock-outs and to reallocate excess products to areas of higher demand, (3) the high availability and usage of credit from manufacturers and banks, as well as the high retained earnings enable these firms to sustain the high cost of market expansions. Finally, in an effort to assure maximum coordination, and also create product awareness, these firms place more emphasis on product distribution and promotion.

On the other hand, due to the low demand for these products in Nigeria, and the high concentration of the demand to urban areas, the wholesale firms in this country tend to localize their operations, restricting them to major cities. Their ability to expand their operations is also limited by the low availability of credit from manufacturers or banks, and low retained earnings. Due to the high concentration of the market, these wholesale firms do not consider product promotion a major tool to increase sales, rather, they emphasize more on product pricing, probably undercutting the prices offered by other wholesalers as to attract more customers in the small but highly concentrated market area. Also, to increase sales, they compete with the sub-wholesalers and retailers for the final customers or users. This is indicated by the high sales to these final customers found among these firms.

J. Conclusions Relevant to Hypothesis 10: The findings of significant differences between the organizational structures of the two sets of wholesale firms indicate a strong support for the suggestion by available literature in marketing organization that institutions and methodologies in marketing reflect

the particular environment in which they are found. One can conclude that the location of major suppliers for Nigerian firms more outside the country of operations is a major contributor to the low availability, and constant shortage of products for sale, due to the longer period of time it takes for order deliveries from the suppliers. Also, because of the location of their suppliers in various countries, the assortment structure of the firms in Nigeria are characterized by relatively high product varieties.

Contrary to the expectation of a significant difference in the total number of employment by firms in the two countries, only the various compositions of employment differed. One possible explanation for the near parity in the total employment may be because of necessity for more workers in Nigerian firms to accomplish the labor intensive tasks of the extensive manual operations inventory system. It can also be concluded that due to the complexity of the market structure, and the high competitive pressure in the United States, the firms employ more educated salespeople, and more managers to provide the necessary expertise.

High availability of efficient transportation and warehousing facilities, and the close proximity to the suppliers offer the firms in the United States the opportunity for speed delivery, and product availability. On the other hand, the inadequacy of these facilities, coupled with irregularities in product supply, frequently lead to wide and erratic price fluctuations, seasonal shortages and surpluses for firms in Nigeria. One can conclude that these factors, as opposed to the level of demand, accounts more for the low sales among Nigerian firms in that they do not have the ability to fill all customer orders due to constant product stock-outs.

It can also be concluded that the relatively high existence of gas-operated refrigerators in the product lines of Nigerian firms is a strategic response to

economic conditions existing in that country. The overall purpose may be to satisfy the demand of a target audience which cannot use the electric-operated appliances due to the lack of electricity in the parts of the country they live, and those that use these appliances as back-ups in cases of power failures. Finally, the more number of locations, and the extensive market coverage found among United States' firms can be attributed to the fact that the demand for the product is evenly distributed in the country, as opposed to Nigeria where the demand is highly concentrated in major cities. This is also encouraged by the high availability of computerized inventory systems, transportation, and communication facilities in the United States, which facilitate the physical distribution activities of order transmittal, order processing, and order delivery.

Implications of the Study

The results of the research show that the differences in the basic structures of wholesale firms from country to country may not be vast, but the nuances and variations in the structures are significantly different. Not only does the organizational structure of the firms in a developed environment differ from those in developing environment, the manner of their operation also differs. The implications and ramifications from such findings to marketing practitioners in Nigeria and the United States, international markets, as well as academicians are numerous, and are discussed in the following sections.

A. Implications for Marketing Practitioners in the United States:

The high relationship found between the environmental factors and the size, assortment structures, and market coverage of firms in the United States has several significant managerial implications in the areas of channel design, logistic, sales, and operation policies. A general review of the findings by the wholesalers can provide a basis for developing better marketing strategies and

programs. For example, the knowledge of the importance and the influence the use of each of the components of the communication and transportation facilities on the structural factors of the firms' organization can be enormously useful to wholesale firms relatively new to the industry or have recently established departments for the distribution of air conditioners and refrigerators. These firms, in order to reduce the start-up cost associated with new endeavors, could best allocate their resources by utilizing the kinds of information sources, and modes of tranportation considered most efficient by majority of the firms surveyed.

The findings highlighted the importance of trade journals, trade shows, and trade conventions in contacting both manufacturers and retailers, points out the necessity that wholesalers constantly provide complete and accurate information in these sources. Also, the extensive market areas covered by most of the firms can highlight the need for the individual firm to design more efficient and highly coordinated physical distribution and information network to enable it to maintain adequate control of such marketing activities as product distribution, promotion, pricing, and to achieve differential advantages over other firms in the industry.

For firms developing marketing strategies to enable them to effectively reach their customers, the knowledge that certain customer expectations are more important than others, would be extremely helpful. The high customer expectation of such factors as product quality, product warranties, product information, and product services point out the necessity that firms continously devote a specific percentage of their budget to providing expanded warranties, service training, service centers, buying guides, and complaint-resolution systems, e.g., instituting toll-free telephone calls through which the customers

can present questions and complaints. Additionally, procedures for continually monitoring the service level will become imperative. These could include establishing customer service goals and objectives, setting customer service standards, and measurement and control of customer services.

The wholesalers knowledge of the high existence and enforcement of goverment regulations on product quality and product safety can enable them to develop programs designed to meet the specific standards, and avoid the severe penalties and lawsuits stemming from possible violations. Such programs with the aid of the manufacturers, could be focused on the needs to; (a) adhere to all stated or implied warranties of the products, with implementations through timely recalls, repairs or replacements, (b) maintain prompt and complete responses to all complaints received, (c) increase assurance through adequate quality control, i.e. assuring that quality is at least equal to what customers may reasonably expect on the basis of company's representation, and (d) design or formulation and packaging of products to minimize possibilities of harm or injury in product use. Additionally, the high existence of inventory and sales taxation in this country, and the variation of their enforcement in some states can highlight the need for new firms deciding where to locate, or existing ones planning to expand their operations to other parts of the country, to determine the actual tax burden associated with each location.

B. Implications for Marketing Practioners in Nigeria:

An important implication of the findings in this survey for wholesale firms in Nigeria is the realization that there exist substantial barriers confronting firms who might wish to expand their businesses, or adopt more modern methods of operation. Generally, the wholesalers knowledge of the limitations imposed on their operations by the low availability of carriers, communication

facilities, funds, and the location of a high percentage of their suppliers outside Nigeria can better enable them to develop marketing strategies designed to utilize their organizational structure in ways beneficial to the firms.

The findings showing that the size, assortment structure, and market coverage of wholesale firms in this country are limited by their inability to use other sources of funds except the retained earnings highlights the need for these firms to either design more efficient and profitable marketing programs using the existing organizational structure, or seek out more avenue for additional funds for possible expansions. For example, units or working departments that are duplicitous in functions or activities could be eliminated, so could locations that are considered less profitable due to significantly low sales. Similarly, the high handling costs resulting from inefficient work methods, poor transportation scheduling, inefficient inventory management, improperly designed and poorly managed physical market facilities could be reduced by eliminating some unknowledgeable managerial employees, and replacing them with well-trained marketing experts who could provide the analysis and innovative needs to change the marketing practices.

Alternatively, rather than depending on the limited retained earnings to provide the funding necessary for both internal and external expansions, the firm could utilize the credits available from the banks and the suppliers. The lack of funds to acquire products for sale, as well as to maintain adequate level of services can also highlight the need for the firms to seek a stronger distributor support from the manufacturers to effectively build up the volume of their products. Such supports could include; increased discount systems, adequate credit, training of firms' salespeople, faster product delivery, fair policy of adjustments and returns, and adequate technical and service supports.

As an additional implication, wholesale firms acting as foreign agents may decide to become assemblers or manufacturers on their own account through licensing agreement with their former principles.

The high categorization of consumers in this country into rural and urban groups offer some dissimilarity between their patterns of buyers' behavior. This points out the necessity that firms formulate new marketing policies, and/or reinforce the existing ones to accomodate the need in both market segments. For example, existing product lines could be altered to heavily reflect the high demand for gas-operated air conditioners and refrigerators in the rural markets, and the firms could make significant changes in the nature of their operation to facilitate product deliveries to these areas. Such changes could include; the use of more knowledgeable salespeople to maintain frequent customer contact in the rural markets, and increased use of such public transportation modes as motor carriers and railroads to speed up deliveries to the rural markets. An additional implication for these firms could be to establish service centers in these rural markets to provide such customers needs as product repairs and returns, product information, and product services.

Finally, the existing low level of demand for air-conditioners and refrigerators in this country, and the resulting low sales has an important implication for the wholesale firms. It highlights the need for the firms to put more emphasis on some demand generating marketing programs to increase their sales volume. The firms could create more consumer awareness in both rural and urban markets by using more effective promotional tools, they could also significantly maintain lower prices by including less expensive but efficient products in their product lines. Furthermore, customer confidence in the quality of the products could be enhanced using product warranties, refund and policies, and exchange policies for defective products.

Implications for International Markets

The results of the research show that the differences in the basic structures of wholesale firms from country to country may not be vast, but the nuances and variations with the structures are significantly different. Not only does the organizational structure of the firms in a developed environment differ from those in a developing environment, the manner of their operation also differs. The implications and ramifications from such findings to the international marketers are numerous. The verification that these variations are as a result of differences in the social, cultural, economic, and technological conditions of these countries implies that careful planning is crucial if an international marketer is to obtain the lucrative benefits possible from serving foreign markets, and that only through a knowledge of the likely differences and problem areas can such ventures be undertaken.

To operate in this market, international marketers must exercise maximum control over marketing activities by establishing branch sales offices, branch plant assemble operations, or wholly-owned manufacturing subsidiary to assure higher product availability. Alternatively, they could give over control to economically and often politically powerful firms in the country. To accomplish this, some form of contractual arrangements and broad concessions could be used to encourage the wholesalers to monitor the marketplace, and to engage in more efficient marketing practices.

The inadequate inventories and constant product stock-out found among wholesale firms in Nigeria as a result of low availability of funds and insufficient sources of product suppliers highlight the need for the international marketers planning to operate in this country to provide local warehousing facilities or extend long-term credits as to enable the wholesale firms to

provide these, and give product discounts to encourage the firms to carry large inventories. Also as evidenced by the lack of sufficient product service departments in these firms, it is probable that they do not provide the necessary services required by their customers. The relative importance of the ability to keep the products performing satisfactorily by firms selling mechanical and/or electrical applicances points out the necessity that the international market undertake extensive programs to build adequate service organizations.

Finally, the findings this research show a high segmentation of the consumers into urban and rural markets can be useful to international marketers trying to determing product designs, promotional, and distribution activities in this country. Products must be modified to fit such techical specifications as laws and power usage, or redesigned to fit the demand requirements of the market, and both the promotion and distribution activities must be designed with the consideration of reaching both urban and the inherent large rural markets.

D. Implications for Marketing Educators

The findings in this research would provide marketing educators involved in the teaching of comparative marketing with additional insights into the patterns of marketing organizations in countries with different levels of environmental development, thereby advancing the theoretical development of structural foundations in marketing organizations. The primary objective of this study was to examine the organizational structures of household appliance wholesalers of two countries in different stages of environmental development, and determine their relationship to selected environmental variables. The study demonstrated that there existed some relationship between such marketing

organizational structure as size, assortment structure, and market coverage, and the level of environmental development of the countries in which the firms are located. This is congruent with the findings of previous researches by Wadinambiaratchi (1965) DuBick (1978) Litvak and Bantling (1968) Goldstrucker (1968) and Douglas (1975) and contradicts the notions by Douglas (1971) and Douglas and Winds (1973) that no direct relationship exist between environmental factors and marketing practices. The study also found significant differences in the organizational structures of wholesale firms in Nigeria and the United States. Therefore, the contention of Douglas (1971), and Douglas and Wind (1973) that differences exist in the structure of firms in countries at different levels of environmental development is thus reinforced.

Finally, the methodology employed in this research is not strictly limited to practitioners. Marketing educators can use many of the techniques employed in this dissertation for their own purposes in collecting, analyzing, and interpreting similiar data, as well as for teaching purposes. By providing marketing educators with additional insight into the interaction between marketing organizations and the levels of environmental development, the findings in this study would enhance their ability to better prepare students choosing careers in international business.

Suggestions for Further Research

This research has been primarily concerned with the investigation of the nature of relationship between the organizational structure of wholesale firms in two countries, and the environmental conditions in those countries, using Bartels' conceptual framework. The findings provide some insights into the nature of such relationship in wholesale firms concerned with the distribution of air conditioners and refrigerators. However, additional research is necessary to

further explain the patterns of this relationship in other marketing organizations. Such research could be focused on wholesale firms distributing similiar consumer products as dishwashers, freezers, dryers, and ovens, or industrial products, it could also be focused on wholesalers distributing low value products manufactured in Nigeria.

Another obvious area for further research is the pattern of relationship between environmental factors and the structure of such other marketing organizations as manufacturers and retailers, using the research design employed in this study. Such investigations would allow the study of other major segments of the marketing system, thereby enhancing the advancement of the theoretical developments of the structural formation in the entire system.

Additionally, if the researcher is not significantly constrained by limited funds, as it was in this research, it would be advantageous to include more countries from both similiar and different environmental settings. This could enhance the extent of generalization of the nature of relationship found. Also, further research is needed to determine the nature of these relationships when some of the environmental factors are held constant, irrespective of the level of their development in the countries being investigated. Such research may help to determine which variables could have more influence of marketing organizational structures than others.

Alternative research designs could be used to further investigate the nature of relationship between the marketing organizations and the environmental factors. For example, similiar environmental factors and organizational structures used in this research could be employed, but operationalized differently for such research, economic factors could be

defined in terms of the level of income, rate of inflation, interest rate etc., while technology could be viewed in its operational aspects — the equipping and sequencing of activities in the organization — as opposed to the material approach taken in this research, and the socio-cultural factors could be operationalized as norms, values, attitudes, literacy level, etc. On the other hand, size, as an organizational structure variable could be viewed in terms of the financial strength and market growth rate, while the extent of market coverage could be operationalized as frequency of calls, number of units sold by zone, sales by type of customers, etc. Alternatively, entirely different environmental factors and organizational structure variables could be utilized. Such other environmental factors as the degree of competition, political stability, religious belief etc.. and structural formations as the degree of specialization and the extent of contractual alignments could be employed. Finally, it would also be necessary to other conceptual framework as the flow approach model, or the actor-process-structure-function-environment model. Such research could enhance the degree of generalization of the nature of relationships that exist.

Table 72

SUMMARY OF HYPOTHESES TESTING

| Hypotheses | | Data Source | Statistical Test of Significance | Findings |
|---|---|---|---|---|
| $H_1$: | There exists no relationship between the development in technological, and such wholesalers' organizational structure as size. | Questionnaire Part I, Items 16b (1-8), 16c (1-4), 7a, 7b, 23, 3, 8 Part III, Items 2, 6, 4, 8. | Canonical Correlational Analyses and Factor Analysis | Rejected |
| $H_2$: | There exists no relationship between the development in technology, such wholesalers' organizational structures as assortment structure. | Questionnaire Part I, Items 16b (1-8), 16c (1-4), 14, 20, 22, 24, 26 Part III, Items 1, 9, 10. | Canonical Correlational Analyses and Factor Analysis | Accepted |
| $H_3$: | There exist no relationship between the development in technology, and such wholesalers' organizational structures as the extent of market coverage. | Questionnaire Part I, Items 1, 16b (1-8), 16 ,(1-4) 25, 4, 19, 13, 9 Part III, Items 7, 3, 5, 11. | Canonical Correlational Analyses and Factor Analysis | Rejected |
| $H_4$: | There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as size. | Questionnaire Part I, Items 17 (1-13), 18 (1-14) 7a, 7b, 23, 3, 8 Part IV, Items 4 11, 2, 7. | Canonical Correlational Analyses and Factor Analysis | Rejected |

Table 72 (Con't)

SUMMARY OF HYPOTHESES TESTING

| Hypotheses | | Data Source | Statistical Test of Significance | Findings |
|---|---|---|---|---|
| $H_5$: | There exists no relationship between socio-cultural environment, and such wholesalers' organizational structure as assortment structure. | Questionnaire Part I, Items 17 (1-13), 18 (1-14), 14, 20, 22, 24, 26. Part IV, Items 3, 6, 1, 9. | Canonical Correlational Analyses and Factor Analysis | Rejected |
| $H_6$: | There exists no relationship between the socio-cultural environment, and such wholesalers' organizational structure as the extent of market coverage. | Questionnaire Part I, Items 17 (1-13), 18 (1-14), 25, 4, 19, 13, 9 Part IV, Items 5, 8, 10. | Canonical Correlational Analyses and Factor Analysis | Accepted |
| $H_7$: | There exists no relationship between the economic environment, and such wholesalers' organizational structure as size. | Questionnaire Part I, Items 16a (1-6) 10, 11, 12, 15, 21, 5, 7a, 7b, 23, 3, 8 Part II, Items 8, 12, 11, 7, 9. | Canonical Correlational Analyses and Factor Analysis | Rejected |
| $H_8$: | There exists no relationship between the economic environment, and such wholesalers' organizational structure as assortment structure. | Questionnaire Part I, Items 16a 10, 11, 12, 15, 21, 5, 14, 20, 22, 24, 26, Part II, Items 1, 2, 4, 6, 3. | Canonical Correlational Analyses and Factor Analysis | Rejected |

Table 72 (Con't)

SUMMARY OF HYPOTHESES TESTING

| Hypotheses | | Data Source | Statistical Test of Significance | Findings |
|---|---|---|---|---|
| $H_9$: | There exists no relationship between the economic environment, and such wholesalers' organizational structure as the extent of market coverage. | Questionnaire Part I, Items 16a, (1-6), 10, 11, 12, 15, 21, 5, 25, 4, 9 Part II, Items 5, 10, 15, 13, 14. | Canonical Correlational Analyses and Factor Analysis | Rejected |
| $H_{10}$: | There exist no difference in the organizational structure of wholesalers' in Nigeria and the United States. | Questionnaire Part I, Items 7a, 7b, 23, 3, 8, 14, 20, 22, 24, 26, 25, 4, 19, 13, 9. | Student t-test Analysis | Rejected |

# BIBLIOGRAPHY

# BIBLIOGRAPHY

## Books

Aaker, David, A. Multivariate Analysis in Marketing. 2nd ed. New York: The Scientific Press, 1980.

Alderson, Wroe, "Factors Governing the Development of Marketing Channels" in Richard M. Clewett Marketing Channels for Manufactured Goods. Homewood, IL.: Richard D. Irwin, Inc. 1954.

_____, Marketing Behavior and Execution Action. Homewood, IL.: Richard D. Irwin, Inc., 1957.

Bartels, Robert. Comarative Marketing: Wholesaling in Fifteen Countries. Homewood, IL: Richard D. Irwin, Inc., 1963.

Beckman, Theodore N. "Changes in Wholesaling Structure and Performance" in Peter D. Bennet ed. Marketing and Economic Development. Chicago: American Marketing Association, 1965.

_____, and Davidson, William R. Marketing. New York: The Ronald Press Co., 1967.

_____, ; Davidson, William R.; and Talarzyk, Wayn W. Marketing. 9th ed., New York: Ronald Press Co., 1973.

_____, Engle, N.H.; and Buzzell, R. D. Wholesaling. 3rd. ed. New York: The Ronald Press Co., 1959.

Boddewyn, Jean. Comparative Management and Marketing: Text and Readings. Glenview, IL.: Scott-Foresman and Co., 1969.

Boone, Louis E. and Johnson, James C. Marketing Channels. 2nd ed. Tulsa, OK: Petroleum Publishing Co., 1977.

Breyer, Ralph F. "Some Observations on Structural Formation and the Growth of Marketing Channels" in R. Cox; W. Alderson; and S. J. Shapiro, eds. Theory in Marketing. 2nd Series, Homewood, IL.: Richard D. Irwin, Inc., 1964.

Bryant, Edward C. Statistical Analysis. New York: McGraw Hill Book Co. Inc., 1960.

Bucklin, Louis P. Competition and Evolution in the Distributivie Trades. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972.

Burns, Tom and Stalker, G. M. The Management of Innovation. London, Travistock Publications, 1961.

Carmines, Edward G. and Zeller, Richard A. Reliability and Validity Assessment. Beverly Hills, CA.: Sage Publications, 1979.

Catero, Philip R., and Hess, John M. International Marketing. Homewood, IL.: Richard D. Irwin, Inc., 1971.

Churchill, Gilbert A. Jr. Marketing Research: Methodological Foundations. Hinsdale, IL.: The Dryden Press, 1976.

Clark, Fred E. Principle of Marketing. New York: Macmillian, 1922.

Clover, Vernon T., and Balsley, Howard L. Business Research Methods. 2nd ed., Columbus, OH.: Grid, Inc., 1979.

Davidson, William R., and Doody, Alton, F. Retailing Management. 4th ed., New York: The Ronald Press Co., 1973.

Fayerweather, John. International Marketing. Englewood Cliffs, N.J.: Prentic-Hall, Inc., 1970.

Frey, A. W. Marketing Handbook. New York: The Ronald Press Co,, 1965.

Goble, R. L., and Shaw, R. T. Controversy and Dialogue in Marketing. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1975.

Goldstucker, Jac L. "The Influence of Culture on Channels of Distribution," in R. L. King ed., Marketing and the New Science of Planning. Chicago: American Marketing Association, 1968.

Harman, Harry H. Modern Factor Analysis. Chicago: The University of Chicago Press, 1967.

Heydedrand, Wolfe V. Comparative Organizations: The Results of Empirical Research, Englewood Cliffs, N.J.: Prentice-Hall Inc., 1973.

Hill, Richard M. Wholesaling Management: Text and Cases. Homewood, IL.: Richard D. Irwin Inc., 1975.

Howard, J. A. Marketing Management: Analysis and Decision. Homewood, IL.: Richard D. Irwin Inc., 1975.

Jaffe, Eugene D. "A Flow-Approach to the Comparative Study of Marketing Systems," in J. Boddewyn, Comparative Management and Marketing: Text and Readings. Glenview, IL.: Scott-Foresman and Company, 1969.

Kast, Fremont E. and Rosenweig, James E. Organization and Management: A Systems Approach. New York: McGraw-Hill, 1970.

Katz, Daniel and Kahn, Robert L. The Social Psychology of Organizations. New York: John Wiley and Sons, Inc., 1966.

Kendel, M. G. A Course in Multivariate Analysis. New York: Hafner, 1957.

Kerlinger, Fred N. Foundations of Behavioral Research. 2nd ed., New York: Rinehart and Winston, Inc., 1973.

Kish, Leslie. Survey Sampling. New York: John Wiley and Sons, Inc., 1965.

Lawrence, P. R., and Lorsch, J. W. Organization and Environment. Homewood, IL.: Irwin-Dorsey, 1969.

Likert, Rensis. The Human Organization: Its Management and Value. New York: McGraw-Hill, 1967.

_____. New Patterns of Management. London: Sir Isaac Pitman, 1949.

Litvak, Isaiah A., and Banting, Peter M. "A Conceptual Framework for International Business Arrangements," in R. L. King ed., Marketing and the New Science of Planning. Chicago: American Marketing Association, 1968.

McCammon, Bert C. Jr, and Little, R. W. "Marketing Channels: Analytical Systems and Approaches," in Schwart, G., ed., Science in Marketing. New York: John Wiley and Sons Inc., 1965.

Michman, Ronald. Marketing Channels. Columbus, OH.: Grid Inc., 1974.

Perrow, Charles. "Hospitals: Technology, Structure and Goals" in J. G. March, ed., Handbook of Organizations. Chicago: Rand McNally, 1965.

Revzan, David A. "Marketing Organization Through the Channel," Wholesaling in Marketing Organization. New York: John Wiley and Sons, Inc., 1961.

Rosenbloom, Bert. Marketing Channels: A Management View. Hinsdale, IL.: The Dryden Press, 1978.

Sadler, P. J., and Barry, B. A. Organizational Development. London: Longmans, 1970.

Senter, R. J., Analysis of Data: Introductory Statistics for the Behavioral Sciences. Glenview, IL.: Scott-Foresman and Company, 1969.

Stephen, Frederick F., and McCarthy, Philip J. Sampling Opinions. New York: John Wiley and Sons, Inc., 1958.

Stern, Louis W., and EL-Ansary, Adell I. Marketing Channels. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1977.

Terpstra, Vern. The Cultural Environment of International Business. Cincinnati, OH.: South-Western Publishing Co., 1978.

Thompson, James D. Organization in Action. New York: McGraw-Hill Book Co., 1967.

Tull, Donald S., and Hawkins, Del I. Marketing Research: Meaning, Measurement and Method. New York: MacMillan Publishing Co., Inc., 1976.

Udy, Stanley H. Jr. "The Comparative Analysis of Organization" in James G. March ed., Handbook of Organizations. Chicago: Rand McNally, 1965.

Vaile, R. S., Grether, E. T.; and Cox, R. Marketing in American Economy. New York: Ronald Press Co., 1952.

Van Dalen, Deobold B. Understanding Educational Research: An Introduction. 4th ed., New York: McGraw-Hill Book Company, 1979.

Walters, Charles G. and Bergiel, Blaise J. Marketing Channels. 2nd ed., Glenview, IL.: Scott-Foresman and Company, 1982.

Weber, Max. The Theory of Social Economic Organization. New York: Free Press, 1964.

Woodard, John. Industrial Organization: Theory and Practice. Fair Lawn, N. J.: Oxford University Press, 1965.

OTHER SOURCES

Abdulelah, Abdulla Ali. "A Description and Analysis of the Channels of Distribution for Food Products in the State of Kuwait." Ph.D. dissertation, North Texas University, 1977.

Committee on Definitions of the American Marketing Association. A Glossary of Marketing Terms. Chicago: American Marketing Association, 1960.

Articles

Alderson, Wroe and Martin, Miles W. "Toward a Formal Theory of Transaction and Tranvections," Journal of Marketing Research. Vol. 2 (May, 1965).

Alpert, Mark I. and Peterson, Robert A. "On the Interpretation of Canonical Analysis" Journal of Marketing Research. Vol. IX (May, 1972).

Armstrong, Scott J., and Overton, Terry S. "Estimating Nonresponse Bias in Mail Surveys" Journal of Marketing Research. Vol. XIV (August, 1977).

Bartels, Robert. "Are Domestic and International Marketing Disimiliar," Journal of Marketing. Vol; XXXII (July, 1968).

Beard, Donald W. "The Structure of Organizational Environments: A Factor Analytic Approach" Organization and Administrative Sciences. Vol. 8, No. 4 (Winter, 1977/1978).

Blau, Peter M. "The Comparative Study of Organizations" Labor Relations Review. Vol. 18 (April, 1965).

Boddewyn, Jean. "A Construct for Comparative Marketing Research" Journal of Marketing Research. Vol. III (May, 1966).

_____. "Comparative Marketing: The First Twenty-Five Years" Journal of International Business Studies. Vol. XII, No. 1 (Spring/Summer, 1981).

Cassady, Ralph Jr., and Jones, Wylie L. "The Los Angeles Wholesale Grocery Structure: 1920-1946: A Case Study," Journal of Marketing. Vol. XIV (September, 1949).

Child, John. "Organizational Structure, Environment and Performance: The Role of Strategic Choice," Sociology. Vol. 6, No. 1 (1972).

Dielman, T. E.; Cattel, R. B.; and Wagner, A. " Evidence on the Simple Structure and Factor Invariance Achieved by Five Rotational Methods on Four Types of Data" Multivariate Behavioral Research. Vol. 7 (April, 1972).

Dill, Wilson R. "Environment as an Influence on Managerial Autonomy" Administrative Science Quarterly. Vol. II (1958).

Douglas, Merrill E. "Identifying Organization and Environmental Interaction Patterns: Danish Firms and U.S. Subsidiaries Operating in Denmark" Management International Review. Vol. 15, No. 6, (1975).

_____. "Organizational Environment Interaction Patterns and Firm Performance" Management International Review. Vol. 16, No. 1 (1976).

Douglas, Susan P. "Patterns and Parallels of Marketing Structures in Several Countries," MSU Business Topics. Vol. 19 (Spring, 1971).

_____, and Wind, Yoram. "Environmental Factors and Marketing Practices," European Journal of Marketing. Vol. 7, No. 3 (1973).

DuBick, Michael A. "The Organizational Structure of Newpapers in Relation to their Metropolitan Environments" Administrative Science Quarerly. Vol. 23 (September, 1978).

Duncan, Robert B. "Characteristics of Organizational Environments and Perceived Environment Uncertainty," Administrative Science Quarterly. Vol. 17, No. 3 (September, 1972).

Emery, F. E. and Trist, E. L. "The Casual Texture of Organization Environment" Human Relations, Vol. 18 (1965).

Erickson, Leo G. "Analyzing Brazilian Consumer Markets," MSU Business Topics. (Summer, 1963).

Etgar, Michael. "Channel Domination and Countervailing Power in Distributive Channels," Journal of Marketing Research. Vol. XIII (August, 1976).

_____. "Channel Environment and Channel Leadership," Journal of Marketing Research. Vol. XIV (February, 1977).

Gattorna, John. "Channels of Distribution Conceptualizations: A State-of-the-Art Review," European Journal of Marketing. Vol. 12 (1978).

Gorsuch, R. L. "A Comparison on Biquartim, Maxplane, Promax, and Varimax," Educational and Psychological Measurement. Vol. 30 (Winter, 1970).

Green, P.E.; Halbert, M.H.; and Robinson, P.J. "Canonical Analysis: An Exposition and Illustrative Application," Journal of Marketing Research. Vol. 3 (February, 1966).

Harris, Clyde E. Jr.; Still, Richard R.; and Crask, Melvin R. "A Comparison of Australian and U.S. Marketing Strategies," Columbia Journal of World Business. Vol. 13, No. 2 (Summer, 1978).

Hunter, A. A. "Factoral Ecology: A critique and some suggestions." Demography. Vol. 9 (January, 1972).

Kimberly, John R. "Organizational Size and the Structuralists Perspective: A Review, Critique, and Proposal," Administrative Science Quarterly. Vol. 21 (December, 1976).

Lambert, Zarrel V. and Durrand, Richard M. "Some Precautions in Using Canonical Analysis," Journal of Marketing Research. Vol. XII (November, 1975).

Lewis, Richard J., and Erickson, Leo G. "Marketing Functions and Marketing Systems: A Synthesis," Journal of Marketing. Vol. 33 (July, 1969).

Lopata, Richard S. "Faster Pace in Wholesaling," Harvard Business Review. Vol. 47 (July-August, 1969).

Mallen, Bruce E. "Functional Spin-Off: A Key to Anticipating Change in Distribution Structure," Journal of Marketing. Vol. 2 (May, 1965).

Michaelis, Michael. "Distribution in Developing Economies," in George Wadinambiaratchi, "Channel of Distribution in Developing Economics," The Business Quarterly. Vol. 30 (Winter, 1965).

Mohr, Lawrence B. "Organizational Technology and Organizational Structure" Administrative Science Quarterly. Vol. 16, No. 4 (December, 1971).

Moyer, Reed. "The Structure of Markets in Developing Economies," MSU Business Topics. (Autumn, 1964).

Negandhi, Anant R. and Reimann, Bernard, C. "A Contingency Theory of Organization Re-examined in the Context of a Developing Country," Academy of Management Journal. Vol. 15 (1972)

Schwirian, Kent P. and Blaine, Harry R. "Questionnaire-Return Bias in the Study of Blue-Collar Workers" Public Opinion Quarterly. Vol. 30 (Winter, 1966).

Stewart, David W. "The Application and Misapplication of Factor Analysis in Marketing Research." Journal of Marking Research. Vol. 18, (February, 1981).

Wadinambiaratchi, George "Channels of Distribution in Developing Economies" The Business Quarterly. Vol. 30 (Winter, 1965).

Weld, L. D. H. "Marketing Functions and Mercantile Organization," American Economic Review. Vol. 7 (June, 1917).

# APPENDIX

# APPENDIX A

## QUESTIONNAIRE

**CONFIDENTIAL QUESTIONNAIRE**

The purpose of this questionnaire is to collect information regarding your firm's organizational structure and the environment in which it operates. The questionnaire is divided into four parts, with instructions concerning each part immediately preceding it.

All data will be tabulated the University of Oklahoma and will be held in strictest confidence. Only total industry statistics will be published. No firms or individuals will be identified.

**PART I.** The following questions will allow us to classify your operation for comparison with other wholesalers. (If your firm operates at more than one location or branch, please answer in regard to your operation or branch only.)

1. Title of Respondent _____
2. Location of Firm _____
3. Number of departments, or working units in the firm _____
4. Number of locations (domestic only) _____
5. When did your firm begin operations? _____
6. Type or form of firm. (Check one)
   - ( ) Sole Proprietorship
   - ( ) Partnership
   - ( ) Corporation
   - ( ) Cooperative
7. How many employees (full and part-time) do you have?

| | Hourly | Salaried | Commission (or Salary plus commission) |
|---|---|---|---|
| Managerial | _____ | _____ | _____ |
| Clerical | _____ | _____ | _____ |
| Salespeople | _____ | _____ | _____ |
| Others (Please specify) _____ | _____ | _____ | _____ |

8. How many salespeople presently employed by your firm possess a four-year college degree or its equivalent? _____

9. How many of your firm's immediate customers (in terms of number of units sold) are:

   _____ Sub-wholesalers

   _____ Retailers

   _____ Final Customers or users?

   100%

10. Approximately, how many suppliers does your firm have? _____

11. Where are your firm's major suppliers located? (Check one)

   ( ) exclusively within the country of operation.

   ( ) exclusively outside the country of operation.

   ( ) more within the country of operation than outside.

   ( ) equally within and outside the country of operation.

   ( ) more outside the country of operation than within.

12. Is your inventory system primarily: (Check one)

   ( ) manual?

   ( ) computerized?

   ( ) combination of both?

13. On the average, how many days does it take from when customers place an order with your firm, to when they receives the item(s)? _____

14. On the average, how many days does it take from when your firm places an order with your suppliers to when the good are received by you?

   _____

15. In terms of product value, indicate the percentage stored at each of the following:

   _____ Owned warehouse(s)

   _____ Leased warehouse(s)

   _____ Rented warehouse(s)

   100%

16. Please indicate the extent to which the following factors exist in the country your company operates and the level of their usage by your company. (Circle your responses)

| | | Extent of Availability | | | | | Rate of Usage | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Always Available | | | | Never Available | Regularly Used | | | | Never Used |
| (a) | Sources of funds for operations | | | | | | | | | | |
| | 1. Credit extended by manufacturers | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 2. Credit extended by local banks | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 3. Credit extended by large national banks | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 4. Sale of stock | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 5. Retained Earnings | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 6. Others (Please list) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | _____ | | | | | | | | | | |
| (b) | Methods used by your firm in contacting manufacturers or retailers | Always Available | | | | Never Available | Regularly Used | | | | Never Used |
| | 1. Telephone | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 2. Central Computer | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 3. Direct mail | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 4. Small Computers in each branch | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 5. Telegram | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 6. Trade shows and conventions | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 7. Trade Journals | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| | 8. Personal Contact | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

(c) Carriers used for transporting the largest amount (in terms of units) of the products you sell.

| | | Always Available | | | | Never Available | Regularly Used | | | | Never Used |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. | Motor Carriers (including private and public) | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 2. | Railroads | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 3. | Airlines | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 4. | Others (Please specify) _____ | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

17. Please indicate the extent of existence of the following government regulations, and the level of their enforcement in the country in which you operate.

| | | Existence of Regulation | | | | | Level of Enforcement | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Highly Regulated | | | | Not Regulated | Regularly Enforced | | | | Not Enforced |
| 1. | Product quality | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 2. | Product safety | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 3. | Price fixing | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 4. | Price discrimination | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 5. | Hiring discrimination | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 6. | Wage discrimination | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 7. | Federal taxation | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 8. | Inventory taxation | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 9. | Antitrust Legislation | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 10. | Building Codes | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 11. | Sales taxation | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 12. | Property taxation | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| 13. | Zoning regulations | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |

18. How important are the following factors with regard to what your customers expect from your company?

| | | Extr. Impt. | | | | Of no Impt. |
|---|---|---|---|---|---|---|
| 1. | Seasonal discounts offered | 1 | 2 | 3 | 4 | 5 |
| 2. | Quantity discounts offered | 1 | 2 | 3 | 4 | 5 |
| 3. | Product availability (in-stock position) | 1 | 2 | 3 | 4 | 5 |
| 4. | Quality of the products | 1 | 2 | 3 | 4 | 5 |
| 5. | Exchange policies for defective products | 1 | 2 | 3 | 4 | 5 |
| 6. | Refunds/Return policies | 1 | 2 | 3 | 4 | 5 |
| 7. | Reputation of the firm | 1 | 2 | 3 | 4 | 5 |
| 8. | Availability of credit | 1 | 2 | 3 | 4 | 5 |
| 9. | Product warranties | 1 | 2 | 3 | 4 | 5 |
| 10. | Product information | 1 | 2 | 3 | 4 | 5 |
| 11. | Availability of product services | 1 | 2 | 3 | 4 | 5 |
| 12. | Depth (assortment) of product line | 1 | 2 | 3 | 4 | 5 |
| 13. | Product Price | 1 | 2 | 3 | 4 | 5 |
| 14. | National brands carried (as opposed to private brands) | 1 | 2 | 3 | 4 | 5 |

19. What emphasis does your firm place on each of the following marketing activities?

_____% product (assortment, quality, width and depth of product lines)

_____% price

_____% promotion (advertising, personal selling, sales promotion)

_____% distribution (outlets served, physical distribution activities)

_____% others (Please specify) _____

100%

20. What major product lines are were sold and/or distributed by your company in 1982?

| Types of Product | Number of Units (in %) | Sales $ (in %) |
|---|---|---|
| Refrigerators | _____ | _____ |
| Air Conditioners | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| | 100% | 100% |

21. How much product (in number of units) did your company sell in 1982?

Air Conditioners _____

Refrigerators _____

22. How many units of product does your company presently have for sale?

Air Conditioners _____

Refrigerators _____

23. What was the amount of net sales in dollars (Gross sales less returns and allowances) for your firm during your last yearly accounting period?

_____

24. How many models do you have in your product lines?

Air Conditioners _____

Refrigerators _____

25. How do you describe your firm's operations geographically (by number of units sold)? (Check one)

_____ Local

_____ Regional (Please state the regions served) _____

_____

_____ National

_____ International

26. Please indicate how each of the following product lines carried by your firm are powered?

| | Refrigerators | Air Conditioners |
|---|---|---|
| Electric | _____ | _____ |
| Gas | _____ | _____ |
| Kerosene | _____ | _____ |
| Others (Please specify) _____ | _____ | _____ |
| | 100% | 100% |

**DIRECTIONS FOR COMPLETION OF PARTS 2, 3, AND 4 OF THIS QUESTIONNAIRE.**

Listed below are a series of statements which relate to your firm's size, product assortment, and market coverage. Next to each statement is a set of numbers, ranging from 1 to 5. Please indicate the extent to which you agree or disagree to each statement by circling the number after each statement as follows:—

1 - Strongly Agree
2 - Slightly Agree
3 - Slightly Disagree
4 - Strongly Disagree
5 - Neither Agree nor Disagree

**PART II.** The following statements relate to the extent of influence which selected economic variables have on your firm's structure. (Circle your response)

| | | |
|---|---|---|
| 1. | A major factor limiting the number of products our firm sells is the lack of capital to buy the products from suppliers. | 1 2 3 4 5 |
| 2. | The limited credit line extended to our firm by its suppliers restricts the number of products available for sale. | 1 2 3 4 5 |
| 3. | Some models of products our firm carries are not very profitable, but are included in the product line due to the demand for them by our customers. | 1 2 3 4 5 |
| 4. | The variety of products for sale by our firm is limited because of the lack of an adequate source of product supply | 1 2 3 4 5 |
| 5. | Our firm has not set up new facilities in other parts of the country due to lack of capital. | 1 2 3 4 5 |
| 6. | The firm experiences shortages of items to sell to its customers because the arrival times for the products are delayed by the suppliers. | 1 2 3 4 5 |
| 7. | Our firm does not employ additional sales-people unless there is an increase in the demand for its products. | 1 2 3 4 5 |

| | | |
|---|---|---|
| 8. | Because of the lack of money needed to pay the salaries for additional salespeople, our firm experiences shortages of qualified sales persons for its operations. | 1 2 3 4 5 |
| 9. | Our firm's operations are limited geographically to areas with high population densities. | 1 2 3 4 5 |
| 10. | In order to avoid the high cost of servicing rural market areas, our firm restricts its operations to retailers in urban areas. | 1 2 3 4 5 |
| 11. | Our firm is not able to fill all customer orders from due to product stock-outs. | 1 2 3 4 5 |
| 12. | Due to the lack of capital required to build, maintain, and/or staff its own warehouses, our firm stores its products in public warehouses. | 1 2 3 4 5 |
| 13. | Our suppliers define our firm's market territory by stipulating where the products may be sold. | 1 2 3 4 5 |
| 14. | Our firm's distribution centers are limited to areas with highest demand for our product. | 1 2 3 4 5 |
| 15. | Our firm would have more customers if we could offer a greater product assortment. | 1 2 3 4 5 |

**PART III.** This portion of the questionnaire is designed to find out how some selected technological factors influence your firm's structure.

| | | |
|---|---|---|
| 1. | When our firm orders its product from suppliers delivery is delayed by the lack of adequate motor carriers and/or railroad systems. | 1 2 3 4 5 |
| 2. | Our firm has lost sales because of poor delivery of products to customers by motor carriers. | 1 2 3 4 5 |
| 3. | Due to inadequate highway and railroad systems necessary for the delivery of products to rural areas, our firm restricts its operations to retailers in urban areas. | 1 2 3 4 5 |
| 4. | To enhance their ability in providing product information to the customers, our salespeople are required to have a college degree at the time of employment. | 1 2 3 4 5 |

| | | |
|---|---|---|
| 5. | Our firm does not set up establishments in areas of the country with no fast and dependable communication facilities, such as telephone, computer, telegraph, etc. | 1 2 3 4 5 |
| 6. | Our firm cannot provide emergency shipment to our customers due to lack of fast delivery services. | 1 2 3 4 5 |
| 7. | Our firm and its establishments are located only in areas where transportation facilities and equipment are located. | 1 2 3 4 5 |
| 8. | The inability of our firm to inform its customers through media advertisements about the existence of some products in its product lines limits the amount of items it sells. | 1 2 3 4 5 |
| 9. | Our firm's ability to notify the suppliers about sudden changes in consumer demand for the products is limited by inadequate telephone and telegraph facilities. | 1 2 3 4 5 |
| 10. | Because our suppliers do not inform the firm about new products available in their stock, the variety of items our firm sells is limted. | 1 2 3 4 5 |
| 11. | In order to be able to inform the customers about its products, our firm concentrates its operations in areas with such mass communication media as television. | 1 2 3 4 5 |

**PART IV.** In this portion of the questionnaire, we would like to have you evaluate the extent to which the structure of your firm is influenced by some socio-cultural factors.

| | | |
|---|---|---|
| 1. | The firm carries in its product lines, only those products that have warranties supplied by the manufacturer. | 1 2 3 4 5 |
| 2. | In order to meet our customers' service requirements, our firm has established departments in its locations to handle complaints, returns, and provide information. | 1 2 3 4 5 |
| 3. | The safety of the products carried by our firm is mandated by government regulations. | 1 2 3 4 5 |
| 4. | Economic restrictions imposed on our firm by the government limits the location of our firms' facilities. | 1 2 3 4 5 |

| | | |
|---|---|---|
| 5. | Due to laws against resale restrictions, our suppliers do not stipulate where and to whom their products are to be sold. | 1 2 3 4 5 |
| 6. | Because of legal restrictions, our suppliers cannot sell our firm a product line only on the condition that it purchases other products. | 1 2 3 4 5 |
| 7. | In order to be able to provide the product information often demanded by our customers, our firm's salespeople are required to undergo special training. | 1 2 3 4 5 |
| 8. | Our firm does not operate in some of the states in the country because of the rules and regulations set by those states. | 1 2 3 4 5 |
| 9. | Some varieties of products our firm carries are low profit items, but are added in the product line to maintain a complete line of merchandise. | 1 2 3 4 5 |
| 10. | In order to maximize our firm's quality image, our firm sells its products only through selected retailers or sub-wholesalers. | 1 2 3 4 5 |
| 11. | The composition of our firm's employees in terms of race, color, and sex is determined by government regulations regarding employment practices. | 1 2 3 4 5 |

**THANK YOU**

## APPENDIX B

ORIGINAL AND FOLLOW-UP COVER LETTERS

November 7, 1983

Dear Business Executive:

We, at the University of Oklahoma, are undertaking a research project to examine the organizational structures of Air Conditioners and Refrigerator wholesalers in two countries, namely Nigeria and the United States, and to determine the impacts of various environmental factors on those firms. This is the first study of its kind, and as such your input is valuable for our results. Please forward this questionnaire to the appropriate individual within your firm.

Enclosed is a questionnaire which attempts to measure the structure of your firm, and your perceptions of the impact on various environmental factors on the organizational structure of your firm. Your response to the question will remain confidential. The data are being gathered in such a manner that they cannot be identified by individual or organization. This is necessarily a small sample and your response will count heavily in our results. Your cooperation and participation is necessary to the successful completion of this research.

If you are interested in receiving a report on the findings of this research just write your name and address at the end of this questionnaire, or if you prefer, request the results of the "Comparative Organizational Study" in a separate letter. We will be pleased to send you a complimentary report when ready.

Please return the completed questionnaire at your earliest convenience in the self-addressed stamped envelope provided. Thank you for your participation.

Sincerely yours,

Rowland C. Chidomere

James R. Stock, Ph.D.

Gary Green, Ed. D.

November 28, 1983

Dear Business Executive:

We recently mailed the enclosed questionnaire to you for completion regarding a research project being undertaken at the University of Oklahoma. As I sent out only a limited number of these, your answer is very important to the accuracy of this study.

We would appreciate it very much if you could please spare a few minutes to complete and return the questionnaire. If you have already done so, many thanks for your response. If you have not yet had a chance to complete it, I would be most grateful if you would do so now.

Thank you very much.

Sincerely yours,

Roland C. Chidomere

James R. Stock, Ph.D.

Gary Green, Ed.D.

# APPENDIX C

## LIST OF VARIABLES

## AND

## INPUT CARDS

# LIST OF VARIABLES

## Demographic Information

Country of location (COLOT)*
- USA (COLOT1
- NIGERIA (COLOT2)

Type of Firm (TOF1)
- Sole Proprietor (TOFI1)
- Partnership (TOFI2)
- Corporation (TOF13)
- Cooperative (TOF14)

## Size

Number of departments or working units (NODSZ1)
Total number of employment (NOESZ2)
Composition of employment (COESZ)
- Managerial (COESZ1)
- Clerical (COESZ2)
- Salespeople (EOESZ3)
- Other (COESZ4)

Number of salespeople with four-year college degree ( ) (NOSFYCO)

Amount of Net Sales ($ or ₦) in 1982 (ANS 82)

## Assortment

Average number of days it takes from when the firm places orders with the suppliers to when they are received (ORDAIN)

Number of units presently available for sale (NUPAS)

Number of models in the product line (NOMPL)

Composition of product lines in terms of type of power used (COUSE)

| | Refrigerators | Air Conditioners |
|---|---|---|
| Electric | (COUSE1) | (COUSE2) |
| Gas | (COUSE3 | (COUSE4) |
| Kerosene | (COUSE5) | (COUSE6) |

*Letters in parentheses comprise the variable name used in computer processing

## Market Coverage

Extent of geographic operations (EGO)

| | |
|---|---|
| Local | (EGO1) |
| Regional | (EGO2) |
| National | (EGO3) |
| International | (EGO4) |

Number of locations (NOLOC)

Extent of emphasis placed on marketing activities (EEMA)

| | |
|---|---|
| Product | (EEMA1) |
| Price | (EEMA2) |
| Promotion | (EEMA3) |
| Distribution | (EEMA4) |

Average number of days it takes from when customers place an order, to when they receive the items. (ORDOUT)

Composition of immediate customers (%) (COIMC)

| | |
|---|---|
| Sub-wholesalers | (COIMC1) |
| Retailers | (COIMC2) |
| Final consumers or users | (COIMC3) |

## Economics

Extent of availability of funds (EAF)
Rate of usage of sources of funds (RUSF)
Number of firm's suppliers (NOFSU)
Location of major suppliers (LOSUP)
- Exclusively within the country of operation (LOSUP1)
- Exclusively outside the country of operation (LOSUP2)
- More within the country of operation than outside (LOSUP3)
- Equally within and outside the country of operation (LOSUP4)
- More outside the country of operation than within (LOSUP5)

Inventory systems used (ISU)
- Manual (ISU1)
- Computerized (ISU2)
- Combination of both (ISU3)

Percentage composition of warehouse usage (COWU)
- Owned warehouses (COWU1)
- Leased warehouses (COWU2)
- Rented warehouses (COWU3)

Number of units sold in 1982 (NUS82)

Number of years in business (NOYIB)

## Technology

Extent of availability of communication facilities used in contacting manufacturers or retailers (AMCMR)

Rate of usage of communication facilities in contacting manufacturers or retailers (EUCMR)

Extent of availability of carriers used for transporting largest amount (in terms of units) of the products sold (CAVAL)

Rate of usage of carriers used for transporting largest amount (in terms of units) of the products sold (CASAL)

## Socio-Cultural

Extent of existence of government regulations (EXGRE)

Level of enforcement of government regulations (LEGOR)

Level of importance of customer expectations (LICE)

## Scale Titles and Statements in Part II, III, and IV of the Questionnaire

II. Influence of Economic Factors and the Organizational Structure of the Firms.

ECOSZ1 Inadquate sales people due to lack of capital to pay salaries.

ECOSZ2 Does not own warehouse due to lack of capital to build and maintain one.

ECOSZ3 Loss of sales due to constant product stock-outs.

ECOSZ4 Employs additional salespeople only during periods of increased demand.

ECOSZ5 Limits operations to areas with high population densities.

ECOAS1 Lack of capital to buy products from suppliers limits the number of items of for sale.

ECOAS2 Number of products available for sale limited by insufficient credit line.

ECOAS3 Inadequate source of supply limits the variety of products for sale.

ECOAS4 Delay in product arrival from the suppliers causes shortage of products for sale.

ECOAS5 Some models are not very profitable, but are included in the product lie due to the demand for them.

ECOMC1 Inability to set up new facilities due to lack of capital.

ECOMC2 Restricts operations to urban areas to avoid the high cost of servicing rural markets.

ECOMC3 Suppliers stipulate where the products may be sold.

ECOMC4 Distribution centers are restricted to areas with highest demand.

III. Influence of Technological Factors on the Organizational Structure of the Firms.

TECSZ1 Loss of sales due to poor delivery by motor carriers.

TECSZ2 Lack of fast delivery services for emergency shipments.

TECSZ3 Salespeople are required to have college degree at the time of employment.

TECSZ4 Inability to inform customers about the products through media advertisement limits the amount of sales.

TECAS1 Product delivery from suppliers delayed by the lack of adequate motor carriers and/or railroad systems.

TECAS2 Inadequate telephone and telegraph facilities to inform suppliers about sudden changes in consumer demand.

TECAS3 Variety of items for sale limited by the inability of suppliers to inform the firm about new products.

TECCO1 Locates only in areas with transportation facilities and equipment

TECCO2 Restricts operations to urban areas due to adequate highway and railroad systems.

TECCO3 Setting up establishments only in areas with fast and dependable communication facilities.

TECCO4 Concentrates operations in areas with mass communication media.

IV. Influence of Socio-Cultural Factors on the Organizational Structure of the Firms.

SCOSZ1 Location of facilities are limited by government economic restrictions.

SCOSZ2 Government regulations determine the composition of firms' employees.

SCOSZ3 Establish departments to handle customers' service requirements.

SCOSZ4 Salespeople undergo special training to be able to provide product information.

SCOAS1 Government regulates product safety.

SCOAS2 Suppliers are legally restricted to sell only on the condition that the firm purchases other products.

SCOAS3 Restricts product lines to products that are warranted by the manufacturers.

SCOAS4 Adds low profit items to the product line to maintain a complete line of merchandise.

SCOCO1 Laws against resale restrictions prevent suppliers from stipulating where and to whom products are sold.

SCOCO2 Rules and regulations set up by some states prevent the firms from operating in those states.

SCOCO3 Sells through selected retailers or sub-wholesalers to maximize quality image.

# APPENDIX D

## STRUCTURAL PROFILES OF RESPONDENTS AND NON-RESPONDENTS

Table 73

**RESULTS OF THE STUDENT T-test ANALYSIS FOR DIFFERENCES IN THE SIZE, ASSORTMENT STRUCTURE, AND MARKET COVERAGE OF RESPONDENTS AND NON-RESPONDENTS IN THE UNITED STATES**

| | Measures | Respondents | Nonrespondents | "t" |
|---|---|---|---|---|
| 1. | Number of departments or working units | 3.4 | 3.1 | -.87 |
| 2. | Total number of employment | 35.9 | 38.2 | 1.79 |
| 3. | Number of salespeople with four-year college degree | 3.8 | 4.1 | .41 |
| 4. | Amount of net sales in 1982 | 8,038,759.5 | 7,890,601.1 | -1.13 |
| 5. | Number of units presently available for sale | 806.1 | 785.9 | 1.5 |
| 6. | Number of models in the product line | 19.2 | 20.3 | -.93 |
| 7. | Extent of geographic operations | 2.5 | 3.1 | 1.33 |
| 8. | Number of locations | 6.3 | 5.8 | .67 |

*Significant at the .05 level.

Table 74

**RESULTS OF THE STUDENT T-test ANALYSIS FOR DIFFERENCES IN THE SIZE, ASSORTMENT STRUCTURE, AND MARKET COVERAGE OF RESPONDENTS AND NONRESPONDENTS IN NIGERIA**

| | Measures | Respondents | Nonrespondents | "t" |
|---|---|---|---|---|
| 1. | Number of departments or working units | 4.8 | 3.3 | 1.61 |
| 2. | Total number of employment | 26.7 | 30.1 | -.83 |
| 3. | Number of salespeople with four-year college degree | 1.0 | .90 | .34 |
| 4. | Amount of net sales in 1982 | 3,934,266.1 | 4,188,101.6 | -1.11 |
| 5. | Number of units presently available for sale | 365.2 | 356.9 | .77 |
| 6. | Number of models in the product line | 12.6 | 10.7 | -.91 |
| 7. | Extent of geographic operations | 1.1 | 1.3 | .27 |
| 8. | Number of locations | 3.6 | 4.1 | .59 |

*Significant at the .05 level.