

64
12R

A STUDY OF
OPTIMUM SUPERMARKET
SIZE

A THESIS

Presented to the
Faculty of the Graduate Division

by

Donald Thomas Kelley

In Partial Fulfilment
of the Requirements for the Degree
Master of Science in Industrial Engineering

Georgia Institute of Technology

June, 1960

A STUDY OF OPTIMUM
SUPERMARKET SIZE

Approved By:

S. J. ...
C. M. ...
...

Date of Approval:

June 1, 1960

ACKNOWLEDGMENTS

The basic data used in this study were provided by a large food chain, and its executives assisted in the definition of the problem. Dr. Joseph Krol directed the research and offered suggestions in the analytical work. His enthusiasm was a continual stimulus.

Professor Cecil Johnson insisted on scholarly work and helped in the formulation of the conclusions and recommendations. Professor George Maddox contributed to the identification of the necessary assumptions and the research limitations; and my wife, Kathleen, provided the confidence that the work would be completed successfully.

LIST OF TABLES

Table	Page
1. Growth of Six Leading Food Chains, 1925-1957	6
2. 1959 Performance Data on Five Supermarkets of Varying Size	15
3. Basic 1957 Data on 401 Stores Opened Before January, 1957	29
4. Distributions of Annual Net Sales per Square Foot by Size Classes	60
5. Distributions of Annual Fixed Costs per Square Foot by Size Classes	61
6. Distributions of Annual Variable Costs per Square Foot by Size Classes	62
7. Distributions of Annual Pretax Net Profit per Square Foot by Size Classes	63
8. Distributions of Annual Fixed Costs as a Percent- age of Annual Net Sales by Size Classes	64
9. Distributions of Annual Variable Costs as a Percent- age of Annual Net Sales by Size Classes	65
10. Distributions of Annual Pretax Net Profits as a Percentage of Annual Net Sales by Size Classes	66
11. Distributions of Percentage Break-even Points by Size Classes	67
12. Attribute Values For the Median Stores in Size Classes 1-6	68

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	ii
LIST OF TABLES	iii
LIST OF ILLUSTRATIONS	iv
SUMMARY	v
CHAPTER	
I. INTRODUCTION	1
II. THE SUPERMARKET: PAST, PRESENT, AND FUTURE	3
III. PREVIOUS RESEARCH ON ENTERPRISE SIZE	9
IV. OBSERVATIONS ON SUPERMARKET SIZE	14
V. AN ANALYSIS OF THE OPERATING RESULTS OF 401 STORES	18
VI. CONCLUSIONS AND RECOMMENDATIONS	24
APPENDIX	26
BIBLIOGRAPHY	69

LIST OF ILLUSTRATIONS

Figure		Page
1.	A Chronological Outline of Food Industry Developments with Respect to Size, 1860-196X	4
2.	Description of Fixed and Variable Costs used in the Performance Analysis of 401 stores	27
3.	An Explanation of the Break-even Analysis	28
4.	Annual Net Sales, Variable and Fixed Costs, and Pretax Net Profit for the Median Stores of Classes 1-6 on a Per Square Foot Basis	22
5.	Annual Net Sales, Variable and Fixed Costs, and Pretax Net Profit as a Percentage of Annual Net Sales and Percentage Break-even Points for the Median Stores of Classes 1-6	23

SUMMARY

In the retail food industry a major problem is the determination of a most economical store size. With strong competition and rising labor and promotion expenses, unprofitable stores cannot be tolerated. Therefore, the objective of this investigation is to identify an optimum supermarket size if one exists.

Manufacturing plants, warehouses, insurance companies, cities, and schools have been investigated for possible optimum sizes with varying results, but no studies on this specific subject have been encountered. The literature survey and the observations of the writer while working for four months in five supermarkets of varying size led to the decision that a macroscopic problem approach would be appropriate.

Sales, expense, profit, and total floor area data were collected for the full year of 1957 from the performance records of 401 stores operated by a large food chain. The stores were grouped into 10 size classes and the expenses were classified into fixed and variable to facilitate a break-even analysis. For the median store in each size class, the sales, expense, profit, and break-even figures were plotted and analyzed. It was concluded that there exists an overall optimum supermarket size near 16,000 square feet of total store area.

It was recommended that the significant variables affecting supermarket size for a particular location be identified and further that construction cost, customer comfort, efficiency of labor, and the display of merchandise be considered separately in future studies on this subject.

CHAPTER I

INTRODUCTION

Is there an optimum supermarket size? If so, what is it?

This study will attempt to answer one or both of these questions.

What is a supermarket? Retail food stores range in size from 1,000 to over 100,000 square feet and may have annual sales in excess of \$3,500,000. For this study, however, a supermarket is defined as a self-service food store with no limit in floor area but with an annual sales volume of at least \$375,000. Stores of the above description comprised 10 per cent¹ of the total food stores in operation during 1958 and accounted for 68 per cent of total U. S. food sales. Thus 29,900 supermarkets produced 1958 sales totaling \$32,900,000,000 which means average annual sales per supermarket of approximately \$1,100,000.

This statement of performance yields an incomplete picture, however. Competition in the retail food industry is intense. New stores in excess of 25,000 square feet have frequently failed to reach expected sales and profit objectives and the crowded conditions in stores with sales exceeding the designed capacities disturb the customers and generate inefficient work. It seems necessary, then, to determine the most economical store size to insure a profitable operation.

¹This and other data in this paragraph were taken from a comprehensive survey of food retailing for the year 1958 which appeared in the Progressive Grocer, April, 1959, pp. 53-73.

A detailed problem description with a discussion of past and expected trends in supermarket operations is presented in the second chapter. In Chapter III, a brief review is made of previous research on enterprise size. The personal observations of the writer, after working in five supermarkets of varying size, are discussed in the fourth chapter. Chapter V is a presentation of the operating results of 401 stores when analyzed with respect to varying store size. Finally, Chapter VI contains a number of conclusions and recommendations.

CHAPTER II

THE SUPERMARKET: PAST, PRESENT, AND FUTURE

The purpose of this chapter is to provide background in the problems of supermarket size.

Since the period covered in this review of supermarket developments approaches one hundred years, it seems appropriate that the material be presented in outline form. Figure 1, which is a chronological ordering of trends in the retail grocery industry for the years 1960 through 196X¹, is a one page summary of the salient points discussed in this chapter.

With Table 1 as a guide, one thesis to be established by this chapter is that supermarket size has steadily increased with time as a result of many forces.

Retail distribution of food in 1860 was accomplished primarily through the so-called specialty stores. Typical of these were the meat market, the straight grocery or staple goods store, and the produce stand. It was not until almost 60 years later that the combination of these specialized stores was effected on a large scale. This step immediately preceded the innovation of the supermarket and the simple combination of these sales activities naturally produced a store larger than each of the separate units.

¹The figure "196X" is used to refer to an indefinite time between 1960 and 1969.

- 1860 Food sold primarily through specialty stores--meat markets, produce stands, straight grocery stores.
One A & P store.
- 1920 Introduction of the combination store--with meats, produce, and groceries sold in one store. Store size begins to grow.
4,621 A & P stores.
- 1930 First supermarkets opened in Los Angeles.
Massive displays introduced.
Self-service in grocery departments of supermarkets.
Approximately 1,000 items handled.
15,737 A & P stores.
- 1940 Supermarkets grow in numbers and size.
Three to four small stores closed for each supermarket opened.
10,000 square feet near maximum store size.
Approximately 2,000 items handled.
7,230 A & P stores.
- 1950 Trading stamps and premium merchandise first introduced.
Self-service spreading to meat and produce departments.
Post-war migration to suburbs brings construction of shopping centers with larger stores resulting.
Approximately 4,000 items handled.
4,500 A & P stores.
- 1958 Approximately 3,000 shopping centers.
10,000 square feet near minimum in store size.
Items handled reaches 5,600.
Strong development of the "Midget market" (small, drive-in food store).
Reassessment of rapid growth.
Strong movement toward non-food items.
4,200 A & P stores.
- 196X Technological changes may have been responsible for a small, heavily automated food store with 100 per cent self-service.
Rapid growth of discount houses may have resulted in mergers of food, drug, clothing, and general retailers with stores of 100,000 square feet in which almost any commodity can be purchased.

Figure 1. A Chronological Outline of Food Industry Developments with Respect to Size, 1860-196X.

By 1930 the supermarket had been introduced in the Far West and in 1933 there were some 260 Los Angeles supermarkets which accounted for an estimated 35 per cent of that city's grocery business. The idea spread quickly, for it was economically sound. With the unstable economy of the depression years, the emphasis was on low cost operation. Consequently, self-service, the elimination of credit purchasing and delivery services, and the specialization of labor, all features of the new supermarkets, were welcomed by the food merchants.

In 1930 an estimated 1,000 items were handled in supermarkets and by this time the Great Atlantic and Pacific Tea Company (A & P) had 15,737 stores.

According to Lebar (1), three to four small stores were closed for every supermarket opened in the early forties and 10,000 square feet represented the approximate maximum in store size. In the ten years from 1930 to 1940 two noticeable movements occurred. As shown in Figure 1, A & P had reduced its number of stores by 50 per cent and the estimated number of items carried in supermarkets had doubled. This increase in items offered for sale and the corresponding rapid development of larger stores, usually of the supermarket type, caused this drastic reduction in number of stores operated by any one concern.

Table 1 shows the effect of increasing store size on the growth pattern of several leading food chains. For six national food chains, number of stores and annual sales are tabulated for the years 1925, 1935, and 1957. In each case the replacement of small, service-type units with large, modern supermarkets resulted in a decreased number of stores and a concomitant increase in total sales volume.

Table 1. Growth of Six Leading Food Chains, 1925-1957

Chains	1925		1935		1957	
	Number of Stores	Annual Sales in Millions	Number of Stores	Annual Sales in Millions	Number of Stores	Annual Sales in Millions
American Stores, Inc.	1,792	108.9	2,826	115.9	903	799.9
A & P Tea Co.	14,034	440.0	14,926	872.0	4,200	4,769.0
The Kroger Co.	2,559	116.2	4,250	229.9	1,421	1,674.1
National Tea Co.	761	46.5	1,224	63.1	883	681.1
Safeway Stores	330	13.4	3,330	294.7	1,958	2,117.7
First National Stores	--*	--*	2,623	111.3	607	507.4

*Data available from 1927 only.

Source: Lebhar, G. M., Chain Stores in America: 1859-1959.

Since the last war, population migration to the suburbs and the continuous introduction of non-food lines into supermarkets have combined with the continual increase in food items to necessitate larger stores. By 1958, there were approximately 3,000 shopping centers according to Chain Store Age (2) with from 8,500 to 10,000 being expected by 1965. Ten thousand square feet had become the virtual minimum in store size, with items handled reaching 5,600. While total annual sales continued to rise A & P had dropped to 4,200 stores, almost one-fourth of their number before the birth of the supermarket. The small store, 1,500 to 5,000 square feet, has again become important in food distribution in the last few years. The financial success of these drive-in and midget markets and the failure of many luxury supermarkets of the 30,000 square foot area and beyond have resulted in considerable interest in store size. An illustration of this interest appeared in a recent newspaper article (3) in which Mr. Joseph Seitz, president of Colonial Stores stated, ". . . food retailers still do not know what is the optimum size for efficient supermarket operations with or without non-food sections."

Possible future influences on store size, though not fully determinable, seem to be of two types. The first is the expected introduction of automated merchandising in which assembling of purchases and computation of total cost would be done through electronics. It is felt that this influence would result in small, efficient stores with prime features of rapid service at low labor costs. The other conceivable movement would result in giant stores of the 100,000 square foot size. This may be one possible result of the present trend toward general merchandising. Continued growth of discount houses could force food, drug, variety, and

apparel retailers to merge as a defensive measure. In essence, a consideration of the future simply adds greater complexity to the question of supermarket size.

CHAPTER III

PREVIOUS RESEARCH ON ENTERPRISE SIZE

Professional and trade journals, economics text books, personal correspondence, and publications of retail trade associations were the chief sources of the literature survey. Of these, the professional journals were of greatest value, for they yielded all of the factual studies reviewed. The literature studied seems representative of that available on this problem.

Three major conclusions were revealed by this survey. First, there was no evidence of previous research concerning the optimum size of a supermarket. Second, there were few empirical studies on economics of scale although these were of high quality. And finally, there was no pattern in the conclusions presented by the authors except the division of these conclusions into two groups -- those which could be interpreted to show that in certain circumstances optimum enterprise size was determinable and those which show the opposite. The literature surveyed has been grouped according to these divisions.

Sloan and Zurcher (4), in a dictionary of economic terms, state the following concerning returns to scale, ". . . as expansion continues, additional increments of the factors may produce a disproportionately low rate of increased output because of lack of intimate first-hand knowledge of operation on the part of management, delegation of responsibilities, inevitable delays in rendering decisions, and, in general, the complicated routine associated with very large organizations."

Bowman (5) investigated an ice cream firm having ten plants. Using an operations research approach, a mathematical model for optimum output was developed with cost per thousand gallons of product as the measure of effectiveness. Through a year of data collection the necessary cost figures were accumulated and optimum volume for each plant was compared with the actual volume. Of the ten plants, one was above optimum, five near 50 per cent optimum, and four below one-half of the optimum size. This revealed, if the model was valid, that the present total sales of the company could be produced with virtually one-half the number of plants.

Bowman (6) also made a comparison of predicted cost (using the model) at actual volume to predicted cost at optimum volume. It was found that a plant which operates at 50 per cent below optimum incurs a five to eight per cent cost increase while one operating at 50 per cent above optimum incurs only a one to two per cent rise in cost. Therefore, optimum plant sizes were determined and it was observed that of the extremes, too big or too small, the former was less costly.

A study of optimum city size by Clark (7) revealed that a city between 100,000 and 200,000 people is near optimum in size when provision of services is the criterion. Building and construction, commerce, transportation, education, and public administration were the services considered. Within this study another investigator (8) was reported to have found that per capita cost for municipal services rose for populations above 150,000 and rose sharply for numbers beyond 300,000. This study was extensive in nature, using historical data from American, British, and Australian cities. Here a vague optimum was established but the

work showed that increasing and decreasing returns to scale were observed on either side of this optimum.

James B. Conant (9), Harvard's President Emeritus, was reported recently to have recommended that our nation's 21,000 high schools be reduced to 9,000 for better utilization. Only 4,000 of the present 21,000 schools have graduating classes numbering over 100. Conant's recommendations may be interpreted as an attempt to find the optimum number of students per school.

In the second division of the literature, Hensley's (10) empirical study on economies of scale in non-life insurance companies may be mentioned. It was hypothesized that between classes (by size) of financial enterprises the difference in average expense ratios (incurred expenses divided by premiums written) was zero. With a study for the period 1950 to 1954, Hensley concluded that the hypothesis was false and further that the expense ratios decreased as the size increased. This investigator questioned the existence of an optimum firm size in this field of economic activity, and since the expense ratios were lower for larger firms it was deduced that further economies are likely with further increases in size, all else being equal. The economies were attributed to management specialization and lower costs for services (particularly legal and sales) when secured in volume. It was concluded that there was no upper limit on firm size in the activity investigated.

Samuelson (11), in the latest edition of his general economic text, carefully uses the word law in reference to the "law" of increasing returns. No general law of returns to scale including decreasing returns is submitted nor is there any discussion of decreasing returns beyond

some optimum.

In an economics text by Due (12) the following statement was made: ". . . whether or not an ultimate decline in output per unit is inevitable, or is confined to those fields in which management problems are particularly serious, is open to question. Empirical studies are very limited in scope." Further, Due states that there is little evidence to prove or disprove the belief that average costs rise as the scale of operations rises beyond a certain optimum but that clear evidence exists for the proof that average costs decline as the scale is increased from a very small size. This approach by Due is wisely cautious and has certainly been proven as a realistic assessment of the problem area as verified by the literature surveyed in this thesis.

Finally, Penrose (13), in a theoretical discussion on the limits to the growth and size of firms, attacks traditional economic theory which attributes decreasing returns to scale to the increased problems of large scale management by the following argument:

- (1) There is no evidence that large, decentralized firms require supermen to run them.
- (2) There is no evidence that the abilities to fill high administrative posts are excessively rare.
- (3) That central government (control) can be dispensed with over wide areas has surely been amply demonstrated by many large firms in the present day monopoly, and that the end is not yet in sight is generally accepted. Neither the conception of a fixed factor nor the analysis of the diseconomies of scale is relevant in these circumstances.

Though no factual evidence was presented to support these observations, they should not be discounted. To the contrary, these may prove significant as the body of knowledge on returns to scale increases with continued research.

The article by Hensley (14) was helpful in presenting a list of possible measures of the relationship between size and efficiency. They are:

- (1) Physical productivity (output per man-hour).
- (2) Statistical cost curves of manufacturing plants or business units.
- (3) Profits or profit rates.
- (4) Estimates of synthetic costs (engineering approach).
- (5) Actual unit cost (most widely used).

In summary, the apparent disagreement among theorists and researchers concerning economics of scale, together with the growing influences on retail store size, indicates the need for additional factual studies.

CHAPTER IV
SOME OBSERVATIONS ON
SUPERMARKET SIZE

For a 15.5 week period the writer worked in five supermarkets of from 5,000 to 25,000 square feet in total store area. From this experience and from personal conversations with customers and store planning executives, some of the variables affecting store size have been identified and are discussed in this chapter.

Population and population income, existing and expected competition, consumer preferences and buying habits, number of items to be offered for sale, and occasional "prestige" factors are the variables influencing store size as identified by the writer.

To provide a foundation for the work done in the following chapter and to assist in discussing the variables just mentioned, Table 2 is presented. This is a tabulation of specific data on the five supermarkets in which the writer worked. The material is presented in increasing magnitude of store size and no attempt is made to draw conclusions about optimum supermarket size from this data.

In Store 1 of Table 2, average weekly sales and the average weekly sale per customer are very low. Population shifts have left only low income families in the market area of Store 1. Were the question of store size under consideration in this case the decision would likely be to abolish any store building plans for this market area. In Store 5, the influence of competition has been so strong that the large store

Table 2. 1959 Performance Data on Five Supermarkets of Varying Size.

	1	2	3	4	5
Store Size - sq. ft.	4,704	9,114	9,240	11,074	24,769
Average Weekly Sales*	\$ 5,439	\$20,708	\$35,901	\$36,327	\$50,110
Average Weekly Sales/sq. ft.	\$ 1.15	\$ 2.27	\$ 3.90	\$ 3.28	\$ 1.22
Average Weekly Actual Man-Hours*	343	825	1284	1349	1202
Average Weekly Sales/Man-Hours	\$ 15.85	\$ 24.40	\$ 28.00	\$ 26.90	\$ 25.00
Average Number of Customers Weekly*	5,444	5,055	8,268	6,555	4,239
Average Sale/Customer	\$ 1.00	\$ 4.10	\$ 4.34	\$ 5.54	\$ 7.10
Number of Registers	3	5	5	7	7
Average Weekly Sales/Register	\$ 1,815	4,150	7,180	5,190	4,450
Average Weekly Customers/Register	1,816	1,013	1,650	940	605
Pretax Net Profit**	(\$ 6,383)	\$ 5,653	\$23,090	\$17,798	\$ 6,259
Pretax Net Profit as % Sales	(10.05)	2.37	5.52	4.19	1.80
Sales Space-sq.ft.	3,312	6,160	6,930	7,797	13,686
Sales Space as % Total	70.0	78.0	75.0	70.0	55.5
Number of Weeks Observation	1	$\frac{1}{2}$	4	4	6

* For the week ending March 21, 1959.

** For the first quarter ending March 21, 1959.

has been unable to reach the volume of sales expected of a 25,000 square foot store. Had it been possible to accurately measure the expected growth of competition in this case, a smaller store would have been constructed.

Consumer preferences for a variety of items and for spacious supermarkets have an influence on size. The data in Table 2 does not readily illustrate this but it was observed that Stores 3 and 4 did not have the available space to stock and display the variety of items necessary to adequately serve the customers. The overcrowded condition in these two stores not only adversely affected employee efficiency and safety but seemingly drove customers away. If store size were presently being considered in these locations, number of items to be offered and the need to at least create the impression of spaciousness would be important.

The final identified variable found to influence store size is the "prestige" factor. Table 2 cannot assist in confirming this observation but it has been noticed that leading food chains occasionally construct a large supermarket in new shopping areas for prestige reasons. There seems to be an advantage in having the largest food store in a particular shopping center. Further, some supermarkets are built because it is felt that the company must be represented in a shopping area in order that their name continue to appear before the buying public.

Based on these observations, it was felt that the initial contribution to the study of store size should be a general analysis. The significance of the problem variables will not be determined but the performances of actual stores will be studied in an attempt to find an

answer to the question--Is there an optimum supermarket size? Following this approach, the research procedure presented in the next chapter was designed.

CHAPTER V
AN ANALYSIS OF THE OPERATING
RESULTS OF 401 STORES

This chapter falls naturally into three parts. The data collected for the study are discussed; then a presentation of the analysis procedures used follows. Finally, the results of the analysis are presented and explained.

The decision to use a macroscopic approach to this problem, based primarily on the observations discussed in Chapter IV, influenced the data collection and analysis phases of the study. Since store performance records were available it was decided that the sample of data should be complete rather than partial. Consequently, the data collected covers 401 stores of a leading food chain which had 473 stores in operation when the study was commenced in January of 1959. The sample size of 401 resulted when it was decided to collect data for all the stores of the co-operating company which operated for the full year of 1957. The year of 1957 was selected because it was the most recent year for which data unaffected by the 1958 business recession were available.

It is now necessary to refer once again to the definition of a supermarket, for not all of the 401 stores studied are supermarkets as earlier defined. Fourteen of the 401 stores or 3.5 per cent have annual net sales less than \$375,000. All fourteen of the non-supermarkets were less than 9,000 square feet in total store area with 12 having total areas

less than 4,500 square feet. With 96.5 per cent of the data representing supermarkets as defined and with the remaining 3.5 per cent not spread over the complete size scale, it was decided to use the total of 401 stores for the study. The data were collected from company accounting records which were unchanged during the period studied. The range in annual net sales was from \$284,889 to \$2,713,207 while total store area spread from 2,645 to 43,788 square feet. The stores sampled conducted business in 11 states east of the Mississippi in which approximately 240 communities were represented.

It was assumed that the management policies of the company were consistently applied in each of the 401 stores, and that the store operating results reflect the collective influence of population and consumer income, customer preferences, number of items offered, and certain "prestige" factors.

To study the performance versus size relationship for a large sample size a simple and reliable analysis tool was needed. It was decided to make a detailed break-even analysis of each store and to analyze the results for possible answers to the question of optimum supermarket size. The data were compiled to facilitate the break-even analysis. Net sales, variable costs, fixed costs, and pretax net profits were determined for each store. Net sales and variable costs, fixed costs, and pretax net profits were then computed on a per square foot of total area basis. These figures and the computations of variable and fixed costs and pretax net profits as a percentage of net sales are presented in Table 3 of the Appendix. The calculated break-even points may be found in Table 4. Figure 2 in the Appendix explains the breakdown of store costs into

variable and fixed categories and an explanation of the break-even computations is presented in Figure 3.

To begin the statistical evaluation of the continuous² data collected, ten size classes were established with a class interval of 4,500 square feet. Frequency distributions by size class of the eight previously mentioned store attributes (net sales/sq. ft., variable costs/sq.ft., fixed costs/sq. ft., pretax net profits/sq. ft., variable costs and fixed costs as a percentage of sales, pretax net profits as a percentage of sales, and the break-even percentage) were made and are presented in Tables 4-11 of the Appendix. Since 80 distributions (8 attributes and 10 size classes) resulted, with numerous variations in central tendency, general variability, distribution symmetry, and kurtosis, the choice of statistical measures was made difficult. It was observed that 99.25 per cent of the data fell into the first six size classes and further that classes two and three accounted for approximately 77 per cent of the sample. Distributions of the store attributes for these two classes followed consistent patterns, with class two usually having a positively skewed unimodal distribution and class three being represented with multi-modal distributions with positive skewness and some wide variability.

With many distributions to consider it was decided to arrange the data in order of increasing annual net sales per square foot for each

²This means that the data are such that they can take on any values within a given range. This is in contrast to discrete data which are typified by integral or whole numbers.

size class and thus determine the median store for each class. The values of the other store attributes were determined for the median stores of the first six classes and are shown in Table 12 of the Appendix. Since only three stores fell into the last four size classes, these classes were eliminated from the analysis. From the tabulation of Table 12, Figures 4 and 5 were plotted and from these presentations the study conclusions were made.

To check the reliability of this median and accompanying attribute value method of determining central tendency, the medians for the attributes were determined from the frequency distributions in Tables 4-11 and the general patterns of plotted values were found to coincide favorably with those in Figures 4 and 5. Also, the representations in Figures 4 and 5 are realistic since for any size class the variable cost, fixed cost, and pretax net profit figures can be added to total the net sales figures as shown. This was not the case when the medians for all the attributes were determined and plotted.

In analyzing the plotted results the general trend was of importance. From Figure 4 it was observed that annual net sales/sq. ft. and variable costs/sq. ft. declined as store size increased with a marked decline beyond 15,750 square feet. Also fixed costs/sq. ft. and pretax net profits/sq. ft. declined mildly as size was increased. In Figure 5, variable costs as a percentage of sales retain almost a constant value as size increases. Additionally, fixed costs as a percentage of sales climbed gradually with size increases up to 25,750 square feet while pretax net profits as a percentage of sales showed no noticeable change. Of note, however, was the general rise in the break-even points as size increased with a steep increase being noticed beyond 21,600 square feet.

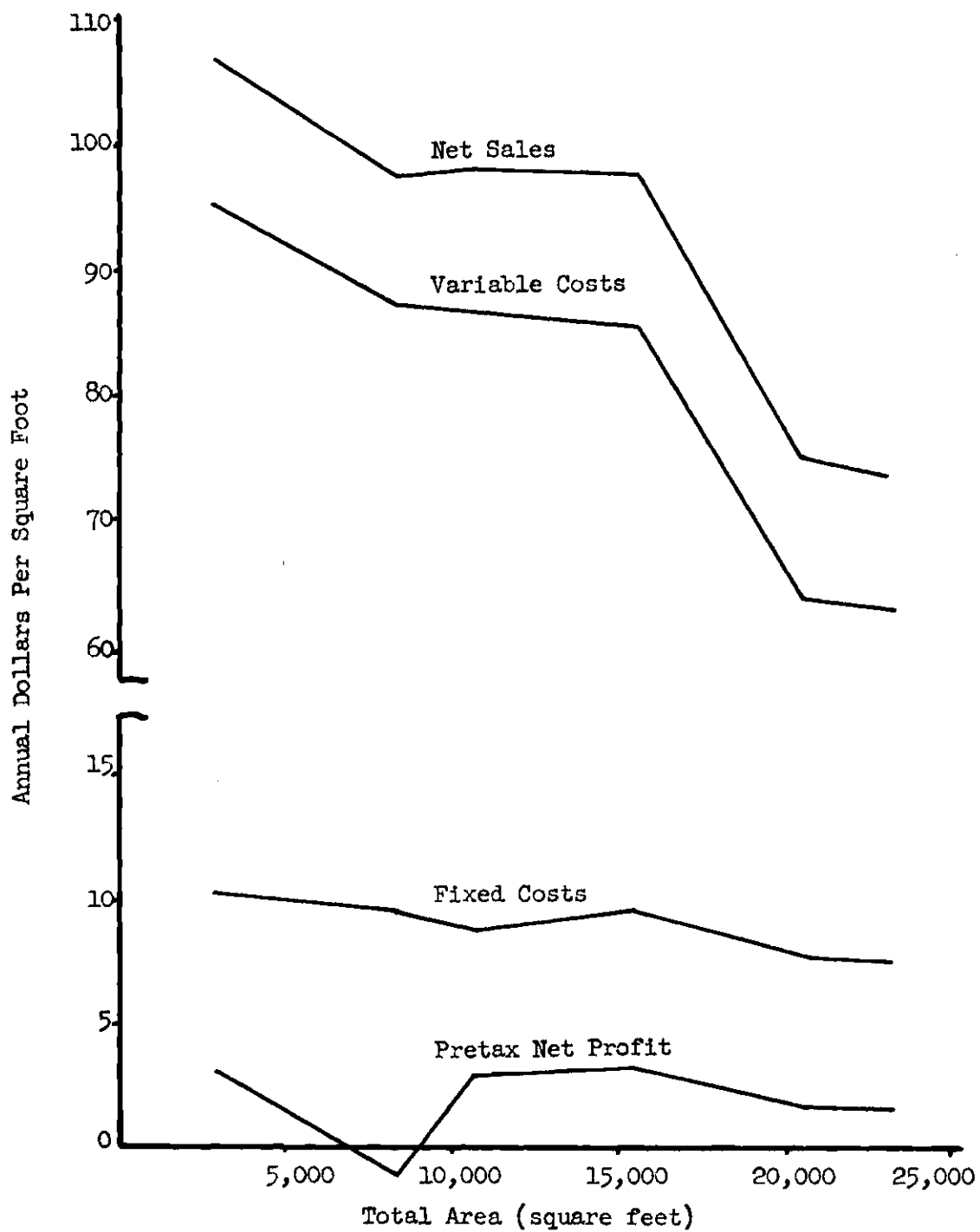


Figure 4. Annual Net Sales, Variable Costs, Fixed Costs, and Pretax Net Profit Per Square Foot For The Median Stores In Size Classes 1-6.

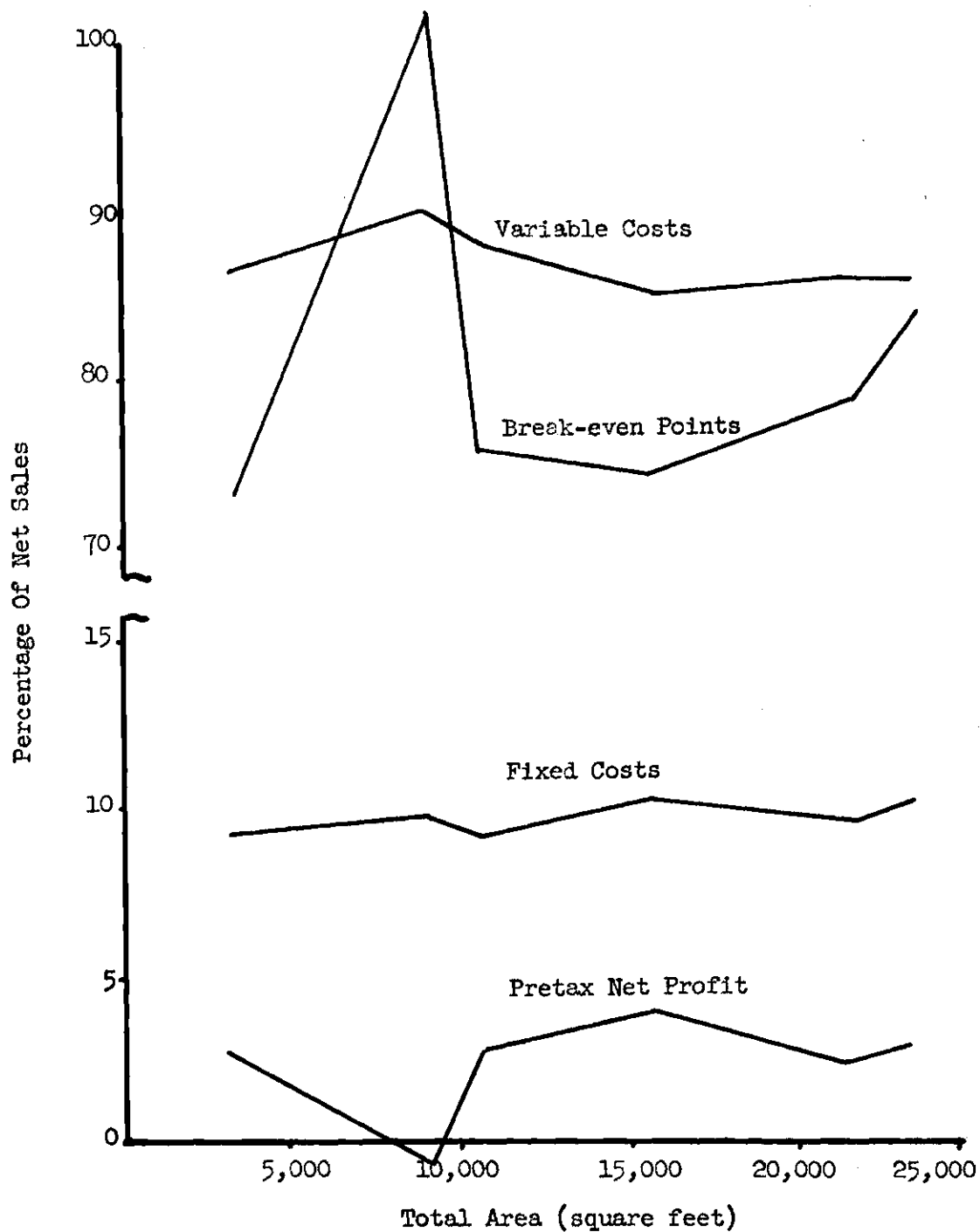


Figure 5. Variable Costs, Fixed Costs, Pretax Net Profit, And Break-even Points As A Percentage Of Net Sales For Median Stores In Size Classes 1-6.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Based upon the data collected and the analysis techniques used, it is concluded that:

1. Net sales per square foot decrease with size increases.
2. Variable costs per square foot decrease with size increases because by classification they vary with sales.
3. Fixed costs per square foot rise slightly with size increases due primarily to the greater initial and maintenance costs of the larger stores.
4. Net profits per square foot reach a peak at a total store area of approximately 16,000 sq. ft.
5. Break-even points rise with size increases due to constant or rising fixed costs and decreasing sales and variable costs. This indicates that as store size increases an increasing percentage of net sales is required to make a zero profit or to break even.
6. For the co-operating company, there is an optimum store size near 16,000 square feet of total store area. This is an optimum based on an overall analysis meaning that for a specific location there may be an optimum size different from the one found by this investigation.
7. The results of the study were strongly influenced by the small number of stores with areas greater than 20,000 square feet.
8. Time is a determinant of optimum supermarket size. It is expected that a study of this kind covering the operations for a year

other than 1957 would result in somewhat modified conclusions due to technological and merchandising changes.

This has been a macroscopic study with the problem of optimum store size being broadly defined. As a result of this study the following recommendations are made:

1. Studies should be made to find the significant variables to be considered in a determination of the optimum store size for a particular location.

2. A series of optimum sizes could be developed through studies using the following criteria:

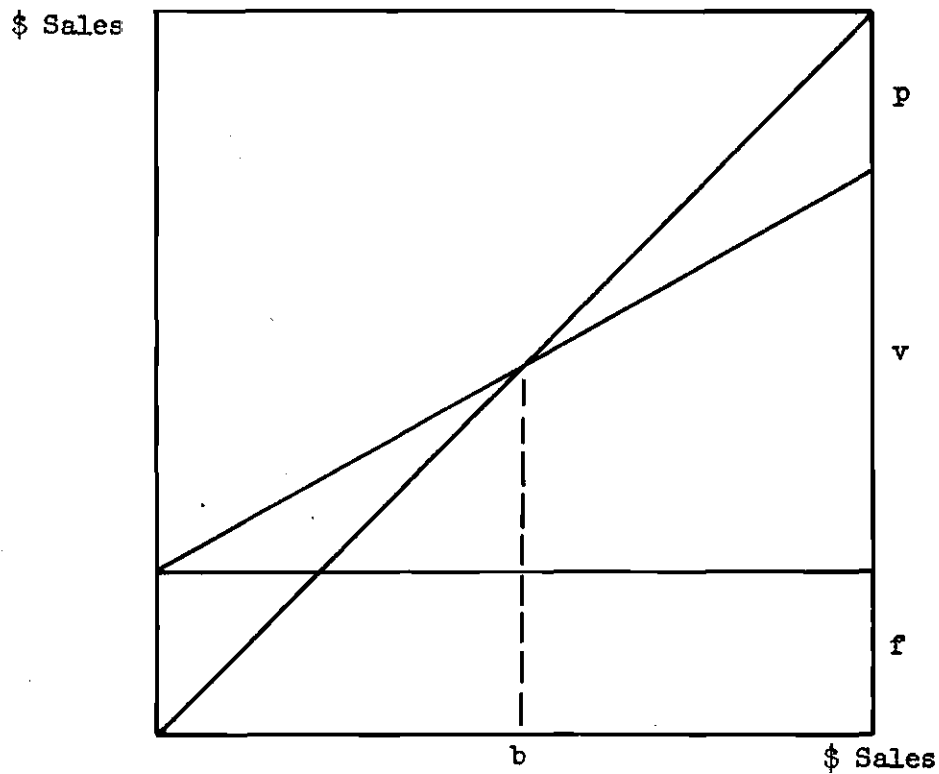
- a) construction cost.
- b) customer comfort.
- c) efficiency of labor.
- d) display of merchandise.

From these a more reliable determination of the collective optimum size should result.

APPENDIX

<u>FIXED COSTS</u>	<u>VARIABLE COSTS</u>
Salaries	Goods Sold
Wages	Wrapping Supplies
Vacations	Traffic
Rent	Warehouse
Electricity	Other Expenses and Income
Ice	Promotions and Trading Stamps
Fuel	Miscellaneous
Water	Loss on Bad Checks
Laundry	Advertising
Telephone	Miscellaneous Store Supplies
Repairs and Maintenance	
Depreciation	
Licenses and Taxes	
Insurance	
Cash Over and Short	

Figure 2. Description of Fixed and Variable Costs Used in the Performance Analysis of 401 Stores.



Where: $p = \frac{\text{Pretax Net Profit}}{\text{Net Sales}}$

$v = \frac{\text{Variable Costs}}{\text{Net Sales}}$

$f = \frac{\text{Fixed Costs}}{\text{Net Sales}}$

$b =$ Break-even point or percentage of net sales needed to make zero profit.

Also: $b = \frac{f}{1-v}$

Figure 3. An Explanation of the Break-even Analysis.

Table 3. Basic 1957 Data on 401 Stores Opened Before January, 1957.

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profits	PNP Sq. Ft.	PNP*** % Sales
4	22500	1805464	80.24	164556	7.31	8.9	1591450	70.73	88.1	74.8	49459	2.20	2.7
5	21600	1628052	75.37	163272	7.36	10.0	1423300	65.87	87.4	79.4	41480	1.92	2.5
4	15000	1266029	84.40	134969	9.00	10.7	1108192	73.88	87.5	85.6	22868	1.52	1.8
4	15960	1053317	66.00	112761	7.07	10.7	939385	58.23	84.3	85.8	11171	.70	1.1
3	10350	1006859	97.28	97547	9.42	8.7	883951	85.41	87.7	71.3	25361	2.45	2.5
3	12480	866235	69.41	90497	7.25	10.4	756817	60.64	87.4	82.5	18921	1.52	2.2
3	11250	1038054	92.27	103348	9.19	10.0	914693	81.31	88.1	84.0	20013	1.78	1.9
3	13500	1025826	75.99	101826	7.54	9.9	898806	66.58	87.6	79.8	25194	1.87	2.5
4	18000	2324072	129.12	185857	10.33	8.0	2024743	112.49	87.1	62.0	113472	6.30	4.9
5	18906	1139461	60.27	130547	6.91	11.5	990008	52.36	86.9	87.7	18906	1.04	1.7
2	8000	520875	76.11	78310	9.79	15.0	465475	58.18	89.4	141.5	(22910)	(2.86)	(4.4)
2	8174	627153	77.95	67753	8.29	10.6	564129	69.02	88.5	92.2	5271	.64	.8

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP/ Sq. Ft.	PNP*** % Sales
4	15300	911151	59.55	89968	5.88	9.9	802245	52.43	88.0	82.5	18938	1.24	2.1
2	7720	760029	98.45	83598	10.83	11.0	681100	88.23	89.6	105.8	(4669)	(.60)	(.6)
2	7200	834432	115.89	82300	11.43	9.9	730679	101.48	87.6	79.8	21453	2.98	2.5
3	9500	824298	86.77	85696	9.02	10.4	722995	76.10	87.7	84.6	15607	1.64	1.8
2	7500	968776	129.17	84244	11.23	8.7	851083	113.48	87.9	71.9	33449	4.46	3.4
3	13243	1108896	83.73	115363	8.71	10.4	1015909	96.71	91.6	123.8	(22376)	(1.69)	(2.0)
4	17250	2446315	141.82	202098	11.71	8.3	2135420	123.79	87.3	65.4	108797	6.31	4.4
4	14854	1598256	107.60	155296	10.45	9.7	1419234	95.55	88.8	86.6	23726	1.60	1.4
3	13500	1421762	105.32	135687	10.05	9.5	1272555	94.26	89.5	90.5	13520	1.00	1.0
4	14347	1739011	121.21	165211	11.51	9.5	1538061	107.20	88.4	81.9	35739	2.49	2.1
2	8900	977976	109.88	96248	10.81	9.8	870260	97.78	89.0	89.1	11468	1.29	1.1
2	5440	806731	148.30	75555	13.88	9.4	717269	131.85	88.9	84.7	13907	2.56	1.7

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP/Sq. Ft.	PNP*** % Sales
2	7920	940999	118.81	83266	10.51	8.8	823780	104.01	87.5	70.4	33953	4.29	3.6
2	8688	801592	92.26	88535	10.19	11.1	719228	82.79	89.7	106.8	(6171)	(.71)	(.7)
4	17600	1473758	83.74	142295	8.08	9.7	1304099	74.10	88.5	84.3	27364	1.55	1.8
6	24000	2037414	84.89	189855	7.91	9.3	1751686	72.99	86.0	66.4	85873	4.00	4.7
5	19600	2181894	111.32	195266	9.96	8.9	1916359	97.77	87.8	73.0	70269	3.58	3.2
5	19182	1838918	95.87	209090	10.90	11.4	1644718	85.74	89.4	107.5	(14890)	(.78)	(.8)
8	32100	2120731	66.05	244913	7.63	11.5	1868372	58.20	88.1	96.6	6946	.22	.3
2	6500	543516	83.62	94925	14.60	17.5	488413	75.14	89.9	173.3	(39822)	(6.13)	(7.4)
3	11200	1189778	106.23	40380	12.53	11.8	1046147	93.41	87.9	97.5	3251	.29	.3
3	10800	1134273	105.03	147366	13.65	13.0	1015891	94.06	89.6	125.0	(28984)	(2.68)	(2.6)
5	20000	566823	28.34	404860	5.24	18.5	523585	26.18	92.4	243.4	(61622)	(3.08)	(1.1)
3	10000	702547	70.25	104866	10.48	14.9	639317	63.93	91.0	165.6	(41636)	(4.16)	(6.0)

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP/ Sq. Ft.	PNP*** % Sales
4	15600	943379	60.47	124976	8.01	13.2	827366	53.04	87.7	107.3	(8963)	(.57)	(.9)
5	22500	1281965	56.98	145067	6.45	11.3	1132789	50.35	88.3	96.6	4109	.18	.3
5	19800	1248598	63.06	154012	7.78	12.3	1095104	55.31	87.7	100.0	(518)	(.03)	(.1)
3	9500	718993	75.68	112475	11.80	15.6	631762	66.50	87.9	128.9	(25244)	(2.66)	(3.5)
6	25600	1010395	39.47	147638	5.77	14.6	897094	35.04	88.8	130.4	(34337)	(1.34)	(3.4)
5	20500	893722	43.60	150976	7.36	16.9	795149	44.40	89.0	153.6	(52403)	(2.56)	(5.8)
5	19600	2577706	131.52	229912	11.73	8.9	2235020	114.03	86.7	66.9	112774	5.57	4.3
3	13280	2097438	157.94	187028	14.08	8.9	1814929	136.67	86.5	65.9	95481	7.19	4.5
3	11580	1008409	87.08	105769	9.13	10.5	880082	76.00	87.3	82.7	22558	1.95	2.3
3	12750	1619993	127.06	148195	11.62	9.1	1412876	110.81	87.2	71.1	58922	4.69	3.6
4	13550	1776952	131.14	185386	13.68	10.4	1550618	114.44	87.3	81.9	40948	3.02	2.3
3	12750	1615306	126.70	166185	13.03	10.3	1414101	110.91	87.5	82.4	35020	2.75	2.2

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP/ Sq. Ft.	PNP*** % Sales
3	11278	1581275	140.21	151540	13.43	9.6	1368621	121.35	86.6	71.6	61114	5.42	3.9
3	10221	1346768	131.76	125945	12.32	9.3	1162554	113.74	86.3	69.9	58269	5.70	4.3
3	13125	1917883	146.12	169374	12.90	8.8	1662789	126.69	86.7	66.2	85720	6.53	4.5
3	10593	1455759	137.43	144281	13.62	9.9	1259745	100.04	86.5	73.3	51733	4.88	3.6
3	10500	942213	89.73	104297	9.93	11.1	817089	77.82	86.7	83.5	20827	1.98	2.2
3	10500	1705176	162.40	152484	14.52	8.9	1478128	140.77	86.7	66.9	74564	7.10	4.4
2	8994	1443421	160.49	136642	15.19	9.5	1249092	138.88	86.5	70.4	57687	6.41	4.0
4	13600	1255171	92.29	127761	9.39	10.2	1099000	80.80	87.6	82.3	28410	2.09	2.2
2	8640	687299	79.55	89450	10.35	13.0	606838	70.24	88.3	111.1	(8989)	(1.04)	(1.3)
3	9072	919795	101.39	87596	9.65	9.5	799157	88.09	86.9	72.5	33042	3.61	3.6
2	6900	1273370	184.55	118064	17.11	9.3	1111686	161.11	87.3	73.2	43620	6.32	3.5
2	6612	658323	99.56	72645	10.99	11.0	578498	87.49	87.9	90.9	7180	1.09	1.1
2	8066	589603	73.10	71550	8.87	12.0	516378	64.02	87.6	97.6	1675	.21	.3

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	8775	600935	68.48	76615	8.73	12.7	527244	60.08	87.7	103.3	(2924)	(.33)	(.5)
2	8220	749326	91.16	85961	10.46	11.5	651750	79.29	87.0	88.5	11615	1.41	1.6
2	8700	552764	63.54	70638	8.12	12.8	483744	55.60	87.5	102.4	(1618)	(.19)	(.3)
3	10587	1765950	166.80	149893	14.6	8.5	1541297	145.58	87.3	66.9	74760	7.06	4.2
2	7800	925981	118.72	96581	12.38	10.4	803754	103.05	86.8	78.8	25646	3.29	2.8
2	8280	1296278	156.56	129107	15.59	10.0	1128613	136.31	87.1	77.5	38556	4.66	3.0
2	8550	482451	56.44	67247	7.86	13.9	425903	49.81	88.3	118.8	(10609)	(1.24)	(2.3)
3	12000	1937264	161.44	171182	14.27	8.8	1704080	142.01	88.0	73.3	62002	5.17	3.2
4	16208	1732210	106.87	165946	10.24	9.6	1531922	94.52	88.4	82.8	34342	2.12	2.0
5	19600	2713207	138.43	238919	12.19	8.8	2341160	119.45	86.3	64.2	133128	6.80	4.9
4	12000	1397009	116.42	134460	11.20	9.6	1250180	104.18	89.5	91.4	12369	1.03	.8
6	23500	1470154	62.56	162283	6.97	11.1	1309015	55.70	89.0	100.9	(1144)	(.05)	(.1)
5	20000	2161748	108.09	195225	9.76	9.0	1902822	95.14	88.0	75.0	63701	3.18	3.0

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	8460	747886	88.40	80263	9.48	10.7	668283	78.99	89.4	100.9	(660)	(.08)	(.1)
3	12160	1414926	116.36	156465	12.86	11.1	1247537	102.59	88.2	94.1	10924	.90	.8
4	15048	1668873	110.90	154852	10.29	9.3	1450816	96.41	86.9	71.0	63205	4.20	3.8
3	11960	1598757	133.68	158204	13.23	9.9	1403551	117.35	87.8	81.1	37002	3.09	2.3
3	11110	1955903	176.05	185489	16.69	9.5	1726736	155.42	88.3	81.2	43677	3.93	2.2
7	27662	1359372	49.14	222009	8.03	16.3	1293365	46.76	95.1	332.7	(156002)	(5.64)	(11.5)
10	43788	1398795	31.94	256303	5.85	18.3	1342044	30.69	95.5	446.3	(199552)	(4.56)	(14.3)
1	3500	422853	120.81	406088	11.63	9.6	374254	106.93	88.5	83.5	7920	2.26	1.9
3	9648	1099240	113.93	101139	10.48	9.2	968600	100.39	88.1	77.3	29501	3.06	2.7
3	10760	1002415	93.16	104679	9.73	10.4	877677	81.57	87.6	83.9	20069	1.87	2.0
3	12750	1149371	90.15	122968	9.64	10.7	1000364	78.46	87.0	82.3	26039	2.04	2.3
3	11700	701094	59.92	91062	7.78	13.0	637967	54.53	91.0	144.4	(27935)	(3.39)	(4.0)
4	13775	812790	59.00	109355	7.94	14.4	740394	53.75	91.0	150.6	(36959)	(2.68)	(4.6)

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	7426	1110226	149.53	99424	13.39	8.8	970346	130.69	87.4	70.6	40456	5.45	3.6
2	6550	517360	78.99	49531	7.56	9.6	456933	69.76	88.3	82.1	10896	1.66	2.1
2	4680	843825	180.30	79237	16.93	9.4	744708	159.13	88.3	80.3	19880	4.25	2.4
2	6250	1027872	164.45	83495	13.36	8.1	898670	143.78	87.4	64.3	45707	7.33	4.5
1	3200	301344	94.17	32833	10.26	10.9	265485	82.96	88.1	91.6	3026	.95	1.0
3	9260	962316	103.92	83976	9.07	8.7	847883	91.56	88.1	73.1	30457	3.29	3.1
2	8107	803084	99.06	74263	9.16	9.2	707431	87.26	88.1	77.3	21390	2.64	3.5
2	6780	552711	81.52	55079	8.12	10.0	488241	82.01	88.3	85.5	9391	1.39	1.6
3	11500	840867	83.12	82790	7.20	9.8	744630	64.75	88.6	86.0	13447	1.17	1.6
3	10200	864181	84.72	77791	7.63	9.0	765259	75.03	88.6	78.9	21131	2.07	2.4
3	10010	1634527	163.29	127379	12.73	7.8	1434425	143.30	87.8	63.9	72723	7.27	4.4
3	11500	1384430	120.39	113938	9.91	8.2	1210952	105.30	87.5	65.6	59540	5.18	4.3
2	8184	1003391	122.60	83075	10.15	8.3	881855	107.75	87.9	68.6	38461	4.70	3.8

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	11135	1205453	108.26	102451	9.20	8.5	1058993	95.10	87.9	70.2	44009	3.95	3.6
2	5400	609300	112.83	57352	10.62	9.4	523923	98.69	87.5	72.2	19205	3.52	3.1
2	5530	473960	85.71	45541	8.24	9.6	422709	76.44	89.2	88.9	5710	1.03	1.2
3	13490	1142628	84.70	105393	8.81	9.2	992192	73.55	86.8	69.7	45043	3.34	4.0
3	9072	582946	64.26	56433	6.22	9.7	517187	57.01	88.7	85.8	9326	1.03	1.6
1	4484	316976	77.38	34786	7.76	10.0	313378	69.89	90.3	103.1	(1188)	(.26)	(.3)
2	8125	966085	118.90	81990	10.09	8.5	842732	87.20	66.4	65.4	41363	5.09	4.3
3	9400	719187	76.50	69810	7.43	9.7	636397	67.70	88.5	84.3	12980	1.38	1.8
3	10000	1065565	106.56	91542	9.15	8.6	946810	94.68	88.9	77.5	27213	2.72	2.5
4	15052	845562	56.18	89137	5.92	10.5	759922	50.49	89.9	104.0	(3497)	(.23)	(.4)
2	7700	546101	70.92	51658	6.71	9.5	476815	61.92	87.3	74.8	17628	2.29	3.2
2	8000	672961	84.12	69796	8.72	10.4	583145	72.89	86.7	78.2	20020	2.50	2.9
2	7560	706943	93.51	63922	8.46	9.0	622166	88.00	82.3	75.0	20855	2.76	3.0

* %f represents fixed costs as a percentage of net sales.
 ** %v represents variable costs as a percentage of net sales.
 *** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	10500	728342	69.37	72133	6.87	9.9	642595	61.20	88.2	83.9	13416	1.30	1.9
3	11344	522992	46.10	64116	5.65	12.3	468976	41.34	87.9	119.4	(10110)	(.89)	(.2)
3	9775	1134405	116.05	96015	9.91	8.5	986562	100.93	87.0	65.4	50928	5.21	4.5
3	12450	1451269	116.57	119675	9.61	8.2	1259329	101.15	86.8	62.1	72265	5.80	5.0
5	18400	704635	38.30	73058	3.97	10.4	625979	34.02	88.8	92.9	5598	.30	.8
3	10000	1176550	117.66	98288	9.83	8.4	1014473	101.45	86.2	60.9	63789	6.38	3.4
2	7590	674110	88.82	62507	8.24	9.3	588402	77.52	87.3	73.2	23201	3.06	3.4
1	4125	372361	90.27	38904	9.43	10.4	333698	80.90	89.6	100.0	(241)	(.06)	(.0)
2	8840	507770	57.44	52636	5.95	10.4	449395	50.84	88.5	90.4	5739	.65	1.1
2	8725	1146596	131.42	87718	10.05	7.7	1006186	115.32	89.8	63.1	52692	6.04	4.5
2	4640	547360	117.97	47789	10.30	8.7	482032	103.89	88.1	73.1	17539	3.78	3.2
3	9315	734172	78.82	66741	7.16	9.1	640541	68.76	87.2	71.1	26890	2.89	3.7
3	13000	1229183	94.55	103558	7.97	8.4	1063261	81.78	86.5	62.2	62364	4.80	5.1

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	7578	660163	87.12	59881	7.90	9.1	573133	75.63	86.8	68.9	27149	3.58	4.1
1	3060	309635	101.19	29899	9.77	9.7	274780	89.80	88.7	85.8	4956	1.12	1.6
2	5702	369918	64.88	38808	6.81	10.5	336612	59.03	91.6	116.7	(5502)	(.96)	(1.5)
2	7000	864389	123.48	73343	10.48	8.5	755104	107.87	87.4	67.5	35942	5.13	4.1
2	6875	697815	101.50	65054	9.46	9.3	621986	90.47	89.1	85.3	10775	1.57	1.6
2	8907	577623	64.85	62571	7.02	10.8	526846	59.15	91.2	122.7	(11794)	(1.32)	(2.0)
2	6600	548316	83.08	44771	6.78	8.2	483911	73.32	88.3	70.1	19634	2.97	8.5
2	5830	489864	84.02	43640	7.49	8.9	436332	74.84	89.1	81.7	9892	1.70	2.0
2	5800	867671	149.60	69129	11.92	8.0	755646	120.28	87.1	62.0	42896	7.40	4.9
2	7500	548088	73.08	55379	7.29	10.1	480565	64.08	87.7	82.1	12144	1.62	2.2
1	3232	345778	106.99	30146	9.33	8.9	303138	93.79	87.7	70.7	12494	3.87	3.6
2	6600	733752	111.17	66356	10.05	9.0	643085	97.44	87.6	72.6	24311	3.68	3.4
2	8775	1107673	114.83	89192	10.16	8.1	971065	110.66	87.7	65.9	47416	4.40	1.2

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	7600	762082	100.27	70479	9.27	9.2	678367	89.26	89.0	83.6	13236	1.74	1.8
1	3030	284889	93.71	25329	8.33	8.9	250264	82.32	87.8	73.0	9296	3.06	3.3
3	10125	1122113	110.83	101186	9.99	9.0	987145	97.50	88.0	75.0	33782	3.34	3.0
3	10049	1432453	142.55	116682	11.61	8.1	1257808	125.17	87.8	66.4	57963	5.77	4.1
2	6750	497956	73.77	51244	7.59	10.3	441583	65.42	88.7	91.2	5129	.76	1.0
3	12735	818657	64.28	116676	9.16	14.3	739175	58.04	90.3	147.4	(56344)	(4.42)	(4.6)
4	14016	671694	47.92	83242	5.94	12.4	594340	42.40	88.5	107.8	(12860)	(.92)	(.9)
3	13140	992834	75.56	94354	7.18	9.5	872337	66.39	87.9	78.5	14510	1.10	2.6
3	10200	902690	88.50	86021	8.43	9.5	846006	79.02	89.3	88.8	10663	1.04	1.2
3	10285	842916	81.96	79401	7.72	9.4	743187	72.26	88.2	79.7	20328	1.97	2.4
3	13395	1096791	81.88	97292	7.26	8.9	965055	72.05	88.0	74.2	34444	2.47	3.1
3	13500	927962	68.74	86280	6.39	9.3	813198	60.24	87.6	75.0	16747	1.24	3.1
3	11610	935688	80.59	89189	7.68	9.5	805170	69.35	86.1	68.3	41329	3.56	4.4

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PMP Sq. Ft.	PMP*** % Sales
4	14050	1610124	114.60	136042	9.68	8.4	1371976	99.65	85.2	56.8	102106	7.27	6.4
3	11875	1224176	103.09	110444	9.30	9.0	1057308	89.04	86.4	61.2	43339	3.65	4.6
2	7800	808790	103.69	73199	9.38	9.1	709004	90.90	87.7	74.0	26587	3.41	3.2
3	10815	827616	76.52	88259	8.16	10.7	716993	66.30	86.6	79.9	19516	1.80	2.7
3	9175	1113912	123.91	100484	10.95	8.8	988951	107.79	87.0	67.7	47477	5.17	4.3
2	7744	736732	95.09	65710	8.49	8.9	644074	83.17	87.5	71.2	26588	3.43	3.6
4	13900	719099	51.73	80779	5.81	11.2	626135	45.00	87.1	86.8	12185	.87	1.7
3	11709	491713	41.99	54413	4.65	11.1	434663	37.12	88.4	95.7	2637	.44	.5
3	11250	801844	71.28	80493	7.15	10.0	708678	62.99	88.4	86.2	12673	1.13	1.6
3	10735	522966	48.72	51053	4.76	9.8	460705	42.92	88.1	82.4	11208	1.04	2.1
4	13678	999371	73.06	96282	7.04	9.6	878628	64.24	87.9	79.3	24461	1.79	2.5
4	17919	759721	42.40	94607	5.28	12.5	670693	37.43	88.3	106.8	(5579)	(.31)	(.8)
2	7830	688310	87.91	64339	8.22	9.3	609146	77.80	88.5	80.9	14825	1.89	2.2

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PMP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	7998	801548	100.22	72990	9.13	9.1	702011	87.77	87.6	73.4	26547	3.32	3.3
2	7500	516405	68.85	52252	6.98	10.1	462857	61.64	89.6	97.1	1296	.17	1.8
3	9243	658815	71.28	63635	6.88	9.7	592172	64.07	89.9	96.0	3008	.33	.4
2	6775	693913	102.42	58034	8.57	8.4	611541	90.26	88.1	70.6	24338	3.59	3.5
3	9312	676484	72.65	66430	7.13	9.8	600812	64.52	88.8	87.5	9242	.99	1.4
2	7500	617300	82.31	56019	7.47	9.1	546555	72.87	88.5	79.1	14726	1.96	2.4
2	7183	355059	49.43	40865	5.69	11.5	318546	44.35	89.7	111.7	(4352)	(.61)	(1.2)
3	10225	1007393	98.52	89545	8.76	8.9	890049	87.05	88.4	76.7	27799	2.72	2.7
2	7280	1021101	140.26	85071	11.69	8.3	894389	122.85	87.6	66.9	41641	5.72	4.1
3	11000	383517	34.87	46746	4.25	12.2	349853	31.80	91.2	138.6	(13082)	(1.19)	(3.4)
2	7500	556777	74.24	59845	7.98	10.7	489908	65.32	88.0	89.2	7024	.94	1.3
2	8343	772362	92.58	68578	8.22	8.9	684293	82.02	88.6	78.1	19491	2.34	2.5
3	9500	532396	56.04	56023	5.90	10.5	467492	49.21	87.8	86.1	8881	.93	1.7

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profit.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
4	13750	1198885	87.19	106382	7.74	8.9	1044525	95.97	87.1	69.0	47978	3.49	5.0
3	11639	648228	55.69	64042	5.50	9.9	573761	49.30	88.5	86.1	10425	.89	1.6
3	12325	1183871	96.05	95579	7.75	8.1	1022742	82.98	86.4	59.6	65550	5.32	5.5
2	6875	525877	76.49	53091	7.72	10.1	464765	67.60	88.4	87.1	8021	1.17	1.5
2	5000	399482	79.90	38706	7.74	9.7	351989	70.40	88.1	81.5	8787	1.76	2.2
3	11390	947125	83.15	93368	8.20	9.9	831051	72.96	87.7	80.5	22706	1.99	2.4
3	13305	887542	66.71	109166	8.20	12.3	777543	58.44	87.6	99.2	833	.06	.1
4	14457	669431	46.30	72695	5.03	10.9	587562	40.64	87.8	89.3	9174	.63	1.3
2	7815	1013540	129.69	99116	12.68	9.8	895237	114.55	88.3	83.8	19187	2.45	1.9
2	8085	1274868	157.68	112124	13.87	8.8	1115774	138.00	87.5	70.4	46970	5.81	3.7
3	9775	994860	101.78	95280	9.75	9.6	869388	88.94	87.4	76.2	30192	3.19	3.0
2	8120	500344	61.62	61195	7.54	12.2	437877	53.93	87.2	97.6	1272	.16	.6
1	3826	346536	90.57	33849	8.85	9.8	305056	79.73	88.0	81.7	7631	1.99	2.2

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	9000	479842	53.32	60686	6.74	12.6	430268	47.81	89.7	122.3	(11112)	(1.23)	(2.3)
3	11585	739461	63.83	75555	6.52	10.2	683047	58.96	92.4	134.2	(19141)	(1.65)	(2.6)
4	14450	826940	57.23	76303	5.28	9.2	739813	51.20	89.5	87.6	10824	.75	1.3
4	14395	746236	51.84	81423	5.66	10.9	666980	46.33	89.4	102.8	(2167)	(.15)	(.3)
2	8500	842719	99.14	77234	9.09	9.2	743236	87.44	88.2	78.0	27249	2.62	2.6
2	8125	593944	73.10	57529	7.08	9.7	522847	64.35	88.0	80.8	13568	1.67	2.3
2	7500	395396	52.72	57572	7.68	14.6	354655	47.29	89.7	141.7	(16831)	2.25	4.3
2	7800	538713	69.07	58565	7.51	10.7	480649	61.62	89.4	99.1	(501)	(.06)	(.1)
3	9155	763801	83.43	73436	8.02	9.6	675433	73.78	88.4	82.8	14932	1.64	2.0
3	12500	955255	76.42	119009	9.52	12.5	855615	68.45	89.6	120.2	(19369)	(1.55)	(2.1)
2	7800	1038879	133.18	84503	10.83	8.1	904628	115.98	87.1	62.8	50108	6.42	4.8
2	9000	856464	95.16	77742	8.64	9.1	751214	83.47	87.7	74.0	27508	3.05	3.2
2	7884	690911	87.63	64703	8.21	9.4	607553	77.06	87.9	77.7	18655	2.38	2.7

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	13140	684231	52.07	97001	7.38	14.2	627585	47.76	91.7	171.1	(40355)	(3.07)	(5.9)
3	13140	843283	64.18	110559	8.41	11.9	763331	58.09	90.5	125.3	(30607)	(2.33)	(2.4)
3	13140	943358	71.79	112351	8.55	11.9	857494	65.26	90.9	130.8	(26487)	(2.02)	(2.8)
4	15075	1009997	67.00	116973	7.76	11.6	889471	59.00	88.1	97.5	3553	.24	.3
4	17000	1252393	73.67	111073	6.53	8.9	1098851	61.05	87.7	72.4	42469	2.50	3.4
3	13140	753325	57.33	93457	7.11	12.4	661180	50.32	87.8	101.6	(1212)	(.09)	(.2)
3	8125	715803	88.10	70697	8.70	9.9	634217	78.06	88.6	86.8	10889	1.34	1.5
4	13800	1700689	123.24	159226	11.54	9.4	1479539	107.21	87.0	72.3	61924	4.49	3.6
3	10875	1377363	126.65	119286	10.97	8.7	1196646	110.04	86.9	66.4	61431	4.65	4.4
2	85400	1781097	208.55	147749	17.30	8.3	1539892	180.31	86.5	61.5	93546	10.94	5.2
3	9576	1102041	115.08	101316	10.58	9.2	960884	100.34	87.2	71.9	39841	4.16	3.6
2	8400	720373	85.76	70900	8.44	9.8	626514	74.57	87.0	75.4	22959	2.73	3.2
2	9000	596298	66.26	67243	7.47	11.3	522898	58.10	87.7	91.9	6157	.69	1.0

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	11880	1593401	134.12	145604	12.26	9.1	1368956	115.23	85.9	64.5	78841	6.65	5.0
2	8370	1560573	186.44	121795	14.55	7.8	1356994	162.12	87.0	60.0	81784	9.79	5.2
3	10080	1500612	148.87	135913	13.48	9.1	1296694	128.64	86.4	66.9	68005	6.75	4.5
3	10625	2188799	206.00	178566	16.81	8.2	1887284	177.63	86.2	59.4	122949	12.20	5.6
3	12152	1833511	150.88	146010	12.02	8.0	1586083	130.52	86.5	59.3	101418	8.35	5.5
3	11475	1847495	161.00	151347	13.19	8.2	1597822	139.24	86.5	60.7	98326	8.56	5.3
2	7795	1313393	164.27	111024	13.89	8.5	1136640	142.16	86.5	63.0	65729	8.24	5.0
3	10625	1837289	172.92	152391	14.34	8.3	1587249	149.39	76.4	61.0	97649	9.20	5.3
4	15065	1804736	119.80	159403	10.58	8.8	1564448	103.85	86.7	66.2	80885	5.54	4.5
3	10560	1341888	127.07	111742	10.58	8.3	1164205	110.25	86.8	62.9	65941	6.24	4.9
3	11138	1272830	114.28	109690	9.85	8.6	1100740	98.83	86.5	63.7	62400	5.60	4.9
3	11500	1892219	164.54	168686	14.67	8.9	1640502	142.65	86.7	66.9	83031	7.22	4.4
2	8100	1097788	135.52	98227	12.13	8.9	954311	117.82	86.9	67.9	45240	5.47	4.2

* %f represents fixed costs as a percentage of net sales.
 ** %v represents variable costs as a percentage of net sales.
 *** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	10500	1188182	113.16	112733	10.74	9.5	1026554	97.77	86.4	69.9	48895	4.65	4.1
4	15750	1538572	97.69	155721	9.89	10.1	1327681	84.30	86.3	73.7	55171	3.50	3.6
3	11400	619400	54.33	70013	6.14	11.3	538355	47.22	86.9	86.3	11032	.97	1.8
2	7800	764536	98.02	77492	9.93	10.1	671725	86.12	87.9	83.5	15319	1.97	2.0
2	7500	718988	95.87	72772	9.70	10.1	620256	82.70	86.3	73.7	25960	3.46	3.6
2	8125	845374	104.05	82990	10.21	9.8	733514	90.28	86.8	74.2	28870	3.56	4.4
2	6750	707954	104.88	72642	10.76	10.3	616681	91.36	87.1	79.8	18631	2.26	2.6
2	7920	818247	103.31	75461	9.53	9.2	710864	89.76	86.9	70.2	31923	4.01	3.9
2	7370	1017987	138.12	89974	12.21	8.8	880316	119.45	86.5	65.2	47697	6.47	4.7
2	7945	877921	110.50	79052	9.95	9.0	755623	95.11	86.1	64.7	43246	5.46	4.9
2	7500	973268	129.77	94550	12.61	9.7	850462	113.40	87.4	77.0	28256	3.77	2.9
2	6270	708834	113.05	77322	12.33	10.9	616917	98.39	87.0	83.8	24595	3.92	2.1
1	3420	550593	160.99	49270	14.41	8.9	480431	140.48	87.3	70.1	20892	6.10	3.8

* %f represents fixed costs as a percentage of net sales.
 ** %v represents variable costs as a percentage of net sales.
 *** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	5147	384430	74.69	44408	8.63	11.6	339336	65.94	88.3	99.1	656	.13	.1
1	2814	474603	168.66	59131	21.01	12.5	401875	142.81	84.7	81.7	13597	6.64	2.8
2	8784	724557	82.49	65837	7.50	9.1	633865	72.16	87.5	72.8	24855	2.83	3.4
1	4114	377174	91.68	37772	9.18	10.0	332859	80.91	88.3	85.5	6543	1.59	1.7
3	10000	1188462	118.95	112895	11.29	9.5	1026969	102.70	86.4	69.9	48598	4.86	4.1
1	4180	362070	86.62	35755	8.85	9.9	315266	75.42	87.1	76.7	11049	2.65	3.0
1	2805	426182	151.94	35081	12.51	8.2	370950	132.25	87.0	63.1	20151	7.20	4.8
2	5572	610434	109.56	51608	9.26	8.5	533580	95.76	87.4	67.5	25246	4.53	4.1
1	3540	536262	151.49	43514	12.29	8.1	471452	133.18	87.9	66.9	21296	6.20	4.0
2	7160	714617	99.81	65393	9.13	9.2	623607	87.10	87.3	72.4	25617	3.59	4.5
1	3835	373454	97.38	29066	7.58	7.8	328332	85.61	87.9	64.5	16056	4.20	3.3
2	7500	557566	74.34	48618	6.48	8.7	495615	66.08	88.9	78.4	13333	1.75	2.4
2	7800	982840	126.01	87222	11.18	8.9	859960	110.25	87.5	71.2	35658	4.56	3.6

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	7800	1351499	173.26	103922	13.32	7.7	1172138	150.27	86.7	59.9	75439	9.65	5.6
2	5600	682316	121.84	53724	9.59	7.9	596013	106.43	87.4	62.7	32579	5.81	4.7
2	4750	456025	96.01	42016	8.85	9.2	402417	74.82	88.2	78.0	11592	2.44	2.6
2	5670	654220	115.38	53484	9.43	8.2	574448	101.31	87.8	67.2	26288	4.74	4.0
3	11000	1282360	116.58	112902	10.26	8.8	1125051	102.28	87.7	71.5	44407	4.00	3.5
3	9045	1320579	146.00	110602	12.23	8.4	1150271	127.17	87.1	65.1	59706	6.62	4.5
1	3822	414233	108.38	37747	9.88	9.1	364146	95.28	87.9	75.2	12340	3.22	3.0
1	3960	473179	119.49	43039	10.87	9.1	417722	105.49	88.3	77.8	12418	3.14	2.6
2	5000	445788	89.16	40720	8.14	9.1	390780	78.16	87.7	74.0	14288	2.86	3.2
3	10560	1937145	183.44	156368	14.81	8.1	1687307	159.78	87.1	62.8	93470	8.74	4.8
2	8162	604476	74.06	55230	6.77	9.1	529953	64.93	87.7	74.0	19293	2.36	4.2
1	4180	531178	127.08	56908	11.22	8.8	466866	111.69	87.9	72.7	17404	4.18	3.3
1	4500	560931	124.65	48276	10.73	8.6	493093	109.58	87.9	71.1	19562	4.35	3.5

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	9035	823480	91.14	69545	7.70	8.4	714851	79.12	86.8	63.6	39084	4.33	4.8
3	11138	1236000	110.97	104647	9.40	8.5	1062440	95.39	86.0	60.7	68913	6.16	5.5
1	4443	498346	112.16	41841	9.42	8.4	432970	97.45	86.9	64.1	23535	5.30	4.7
2	7600	550636	72.45	49677	6.54	9.0	495373	63.86	88.1	75.6	15586	2.02	2.9
1	2645	300788	113.72	28879	10.92	9.6	265060	100.21	88.1	70.7	6849	2.58	2.3
3	11016	1159192	105.23	99231	9.01	8.6	1008373	91.54	87.0	66.2	51588	4.69	4.4
2	6660	747539	112.24	69482	10.43	9.3	657759	98.76	88.0	77.5	20298	3.05	2.7
2	6000	557534	92.92	50669	8.44	9.1	488909	81.48	87.7	74.0	17956	3.00	3.2
1	4180	418140	100.03	42916	10.28	10.3	368330	88.12	88.1	86.6	6895	1.65	1.6
3	11138	554118	49.75	80170	7.20	14.5	509525	45.75	92.0	181.25	(35577)	(3.21)	(6.5)
3	11138	1039321	93.31	98092	8.81	9.4	942999	84.67	90.7	101.1	(1770)	(.16)	(.1)
3	11620	915176	78.76	93627	8.06	10.2	835700	71.92	91.3	117.2	(14151)	(1.22)	(1.5)
3	11138	892365	80.12	94979	8.53	10.6	820917	73.70	92.0	132.5	(25531)	(2.11)	(2.6)

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	9900	576590	76.42	80322	8.11	10.1	681186	68.81	90.0	105.0	(4918)	(.49)	(.5)
3	11138	845096	75.88	91136	8.18	10.8	752829	67.59	89.1	99.1	1131	.10	.1
2	8625	838350	97.20	82292	9.54	9.8	757193	87.80	90.3	101.0	(1135)	(.13)	(.1)
2	8625	735403	85.26	75842	8.79	10.3	670068	77.69	91.1	115.7	(10507)	(1.22)	(1.4)
3	9775	643704	65.85	74308	7.00	11.5	589038	60.26	91.5	135.3	(19642)	(2.26)	(3.0)
3	12898	1709343	132.53	143857	11.53	8.4	1478099	114.60	86.5	62.2	87387	6.80	5.1
3	12898	1100676	85.34	106125	8.23	9.6	954739	74.02	86.7	72.2	39812	3.09	4.7
3	12800	705742	55.14	104104	8.13	14.7	606600	47.39	86.0	105.0	(4962)	(.39)	(.7)
3	10800	1080829	100.08	103784	9.61	9.6	945237	87.52	87.5	76.8	31808	2.94	2.9
3	9680	653285	67.49	64703	6.68	9.9	569613	58.84	87.2	77.3	18967	1.96	2.9
3	11130	1245996	111.87	112964	10.14	9.1	1076824	96.68	86.4	66.9	56208	5.04	4.5
3	12800	840433	65.66	93549	7.31	11.4	767330	59.95	91.3	127.6	(20446)	(1.60)	(2.4)
3	12800	498769	37.40	90669	7.08	17.9	442769	34.59	92.5	252.0	(54689)	(4.26)	(11.4)

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	12800	898643	70.21	92373	7.22	10.3	799995	62.50	89.0	93.6	6275	.49	.7
3	10700	727152	67.33	79651	7.38	11.0	648959	60.09	89.2	101.9	14933	1.38	1.2
3	10800	714772	66.18	72875	6.75	10.2	636357	59.92	89.0	92.7	5540	.51	.8
5	20440	934954	45.74	120424	5.89	12.9	826000	40.41	88.3	110.3	(11470)	(.56)	(1.3)
3	10800	717920	66.47	73544	6.81	10.2	626600	58.02	87.3	80.3	17776	1.64	2.5
2	6468	453081	70.05	45437	7.02	10.1	407759	63.04	90.0	100.0	(115)	(.02)	(.1)
2	7800	528651	67.78	63222	8.11	12.0	485825	62.29	91.9	148.1	(20396)	(2.61)	(3.9)
3	9300	733859	78.91	80054	8.61	10.9	642332	69.07	87.5	87.2	11473	1.23	1.6
3	9595	1065929	111.09	56223	5.86	5.3	960623	100.12	90.1	53.5	49083	5.12	4.6
3	13500	1350204	100.02	120285	8.91	8.9	1180231	87.42	87.4	70.6	49688	3.68	3.7
2	5000	443254	88.65	39413	7.88	8.9	386769	77.35	87.3	70.1	11194	2.24	3.8
2	6384	434369	68.04	42745	6.70	9.8	381696	59.79	87.7	81.0	9928	1.56	2.3
1	4480	395297	88.24	35660	8.00	9.1	345382	77.09	87.4	77.2	3864	.86	3.5

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	4704	443560	94.29	36551	7.77	8.2	396154	84.22	89.3	76.6	10855	2.31	2.5
3	9375	970010	103.47	90111	9.61	9.3	851528	90.83	87.8	72.7	28371	3.03	3.9
3	9500	996842	104.93	93345	9.83	9.4	883704	93.02	88.7	83.2	19793	2.08	1.9
3	11138	789977	70.93	84474	7.58	10.7	690452	61.99	87.4	84.9	15051	1.35	1.9
3	12750	1282487	100.59	117662	9.23	9.2	1124590	88.27	87.8	75.4	39335	3.09	3.0
3	12420	779988	62.80	94218	7.59	12.1	692361	55.75	88.8	108.0	(6598)	(.53)	(.9)
2	7500	1182226	159.63	86332	11.51	7.3	1033173	137.75	87.3	57.5	12721	8.36	5.4
1	3480	452656	130.07	40816	11.73	9.0	398754	114.58	88.1	75.6	13086	3.76	2.9
1	4478	385996	86.20	35165	7.85	9.1	343493	76.71	88.9	82.0	7338	1.64	2.0
3	10450	4575311	43.78	61765	5.91	13.5	409598	39.20	89.5	128.6	(13832)	(1.32)	(3.0)
2	4704	567335	120.61	45919	9.76	8.1	494861	105.20	87.2	63.3	26535	5.65	4.7
2	8625	936372	108.56	95581	11.08	10.2	820128	95.09	87.6	82.3	20663	2.40	2.2
2	8737	670472	76.74	62020	7.10	9.3	592796	67.85	88.4	80.2	15656	1.79	2.3

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	8737	914846	104.71	84846	9.71	9.3	806248	92.28	88.1	78.2	23752	2.72	2.6
2	6222	395432	63.55	40548	6.52	10.3	348005	55.93	88.0	85.8	6879	1.11	1.7
2	7920	260249	78.31	58482	7.38	9.4	547951	69.19	88.3	80.3	13816	1.74	2.3
1	4180	426337	101.99	44371	10.62	10.4	381067	91.16	89.4	98.1	899	.22	.2
2	4950	543807	109.86	46070	9.31	8.5	475584	96.08	87.5	68.0	22153	4.48	4.0
2	8100	1151986	142.22	123234	15.21	10.7	1007200	124.35	87.4	84.9	21552	2.66	1.9
2	8075	940407	116.46	73572	9.11	7.8	819951	101.54	87.2	60.9	46884	5.81	5.0
2	7980	1108841	138.95	98192	12.30	8.9	976233	122.33	88.0	74.2	34416	4.31	3.1
2	8775	590502	67.29	60163	6.86	10.2	524356	59.76	88.8	91.1	5983	.68	1.0
3	11700	1106613	94.58	111340	9.52	10.1	961897	82.21	86.9	77.1	33353	2.84	3.0
3	11340	2191932	193.29	176220	15.54	8.0	1931308	170.31	88.1	67.3	84404	7.43	3.9
2	5905	641392	108.62	58585	9.92	9.1	572443	96.94	89.2	84.3	10364	1.75	1.7
3	10030	1986897	198.10	172954	17.24	8.7	1712846	170.77	86.2	63.0	101097	10.08	5.1

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
1	2759	360988	130.84	35117	12.73	9.7	316275	134.63	87.6	78.2	9596	3.51	2.7
2	5073	562903	110.96	51977	10.25	9.2	493402	97.26	87.7	74.8	17524	3.46	3.1
2	4950	615284	124.30	57249	11.57	9.3	543571	109.81	88.3	79.5	14464	2.92	2.4
2	4950	387885	78.36	43523	8.79	11.2	347030	70.11	89.5	106.7	(2668)	(.54)	(.7)
2	7890	1131948	143.46	96195	12.19	8.5	976729	123.79	86.3	62.0	59024	7.50	5.2
2	8625	2195124	254.50	168038	19.48	7.7	1896938	219.93	86.4	56.6	130148	15.10	5.9
3	9280	2125068	228.99	162311	17.49	7.6	1851292	199.49	87.1	58.9	111465	12.01	5.3
3	9375	1327823	141.63	118065	12.59	8.9	1152020	122.88	86.8	67.4	57738	6.15	4.3
2	5208	570397	109.52	52976	10.17	9.3	497702	95.56	87.3	73.2	19719	3.79	4.4
3	11936	1855537	155.46	153020	12.82	8.2	1594932	133.62	86.0	58.6	107585	9.01	5.8
2	8600	1636364	190.27	130869	15.22	8.0	1426637	165.89	87.2	662.5	78858	9.15	4.8
3	9600	855798	89.15	82422	8.59	9.6	755527	78.70	88.3	82.1	17849	1.86	2.1
3	13750	1507676	160.81	128562	13.71	8.5	1315499	140.32	87.3	66.9	63615	6.80	4.2

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	6800	865093	127.22	76288	11.22	8.8	736114	108.25	85.1	59.1	52691	7.74	6.1
1	3280	411951	125.99	38971	11.88	9.5	358231	109.22	87.0	73.1	14749	4.50	3.5
5	18600	970661	52.19	87423	4.70	9.0	842741	45.31	86.8	68.2	40497	2.18	4.2
5	18589	1678198	90.28	173690	9.34	10.3	1459866	78.53	87.0	79.2	44642	2.42	2.7
3	9775	1252833	128.16	117326	12.00	9.4	1082488	110.74	86.4	69.1	53019	5.44	4.2
3	11125	1500777	134.90	133632	12.01	8.9	1303469	117.17	86.9	67.9	63676	5.71	4.2
4	16200	1371425	84.66	171810	10.61	12.5	1187729	73.32	86.6	93.3	11886	.73	.9
3	11125	1308460	117.61	118130	10.62	9.0	1133711	101.91	86.6	67.2	56619	5.10	4.4
3	11656	1350468	115.87	131919	11.32	9.8	1167497	100.16	86.5	72.6	51052	4.38	3.7
3	11700	732703	62.62	91174	7.79	12.4	640923	54.78	87.5	99.2	607	.05	.1
3	9408	803180	85.37	81651	8.68	10.2	707275	75.18	88.1	85.7	14254	1.52	1.7
3	11250	1388695	123.44	141136	12.55	10.2	1216078	108.10	87.6	82.3	31481	2.80	2.2
2	8355	504806	60.42	62508	7.48	12.4	443876	53.13	87.7	102.5	(1578)	(.19)	(.3)

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	8800	585770	66.57	69322	7.88	11.8	524653	59.62	89.6	113.5	(8205)	(.93)	(1.4)
3	9720	694502	71.45	81554	8.39	11.7	607119	62.46	87.4	92.9	5829	.60	.9
2	8986	1017949	113.28	103119	11.48	10.1	895987	99.93	88.0	84.2	18843	2.10	1.9
2	8200	413172	50.39	52358	6.39	12.7	363510	44.33	88.0	105.8	(2969)	(.33)	(.7)
2	5538	408441	76.52	49954	9.36	12.2	362078	67.83	88.6	107.0	(3591)	(.67)	(.8)
3	9775	1979155	202.47	168759	17.26	8.5	1720033	175.96	86.9	64.9	90363	9.24	4.6
3	11700	1964720	167.92	152767	13.06	7.8	1713014	146.41	87.2	60.9	98939	8.46	5.0
3	10629	1177950	110.82	115230	10.84	9.8	1025319	96.46	87.0	75.4	37401	3.52	3.2
2	7084	469163	66.23	48920	6.91	10.4	412231	58.19	87.7	86.0	8012	1.13	1.7
2	7800	538453	69.03	60750	7.79	11.3	468579	60.07	87.0	86.9	9124	1.17	1.7
3	9378	684018	72.94	71935	7.67	10.5	600243	64.01	87.7	86.1	11840	1.26	1.7
2	73320	785654	107.15	71488	9.75	9.1	687849	93.81	87.6	73.4	26677	3.14	3.3
6	24236	2421130	99.90	245369	10.13	10.1	2132051	87.97	88.1	84.9	43710	1.80	1.8

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/Sq.Ft.	Fixed Costs	Fixed Costs/Sq.Ft.	%f*	Variable Costs	Var. Costs/Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
3	11250	1345511	119.60	135956	12.08	10.1	1190296	105.80	88.5	87.8	19259	1.71	1.4
3	9055	924083	102.05	94236	10.41	10.2	819766	90.53	88.7	90.3	10081	1.11	1.1
3	11250	1294504	115.07	123350	10.96	9.5	1144623	101.74	88.4	81.9	26531	2.36	2.1
3	9375	862587	92.01	93353	9.96	10.8	771233	82.26	89.4	101.9	(1909)	(.21)	(.2)
3	10800	1395352	129.20	113611	12.09	9.4	1241471	114.95	89.0	85.5	23270	2.15	1.6
2	7890	769296	97.50	84863	10.76	11.0	680271	86.22	88.4	94.8	4162	.53	.6
2	6900	901154	130.60	88904	12.88	9.9	799712	115.90	88.7	87.6	12538	1.82	1.4
2	7200	532535	73.96	56661	7.87	10.6	473672	65.79	88.9	95.5	2203	.31	.5
2	6452	514233	79.70	52219	8.09	10.2	460540	71.38	89.6	98.1	1474	.23	.2
2	8509	1027846	120.80	93650	11.01	9.1	890877	104.70	86.7	67.9	43319	5.09	4.2
4	14025	1595307	113.75	143142	10.21	9.0	1363917	97.25	85.5	62.1	88248	6.01	5.5
3	9775	1164976	119.18	106886	10.93	9.2	1002346	102.54	86.0	65.7	55744	5.70	4.8
4	14025	1611745	114.92	153938	10.98	9.6	1379492	98.36	85.6	66.7	78315	5.58	4.8

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 3. Continued

Size Class	Total Area	Net Sales	Net Sales/ Sq.Ft.	Fixed Costs	Fixed Costs/ Sq.Ft.	%f*	Variable Costs	Var. Costs/ Sq.Ft.	%v**	Break Even %	Pretax Net Profit	PNP Sq. Ft.	PNP*** % Sales
2	5400	497597	92.15	52397	9.70	10.5	434141	80.40	87.2	82.0	11059	2.05	2.3
1	2646	287597	108.69	27501	10.39	9.6	253082	95.65	88.0	24.6	7014	2.64	2.4
3	11700	1241803	106.14	120809	10.33	9.7	1082135	92.49	87.1	75.2	38859	3.32	3.2
2	7800	409515	52.50	58524	7.50	14.3	360367	46.20	88.0	119.2	(9376)	(1.20)	(2.3)
2	5800	611644	105.46	58333	10.06	9.5	535671	92.36	87.6	76.6	17640	3.04	2.9
1	3963	434758	109.70	45730	11.54	10.5	381519	96.27	87.8	86.1	7509	1.90	1.7
3	12366	1284625	103.88	123741	10.09	9.6	1113082	90.75	86.6	71.6	47802	3.86	3.8
4	15808	2531338	160.13	214607	13.58	8.5	2175479	137.62	85.9	60.3	141252	8.95	5.6
5	20717	2037518	98.35	211816	10.22	10.4	1769111	85.39	86.8	78.8	56591	2.74	2.8
4	16144	1600887	99.16	156340	9.68	9.8	1393257	86.30	87.0	75.4	51290	3.18	3.2
4	16044	2384243	148.61	208218	12.98	8.7	2091299	130.35	87.7	70.7	84726	5.28	3.6
3	11616	1014172	87.31	107464	9.25	10.6	895426	77.09	88.3	90.6	11282	.97	1.1
4	15808	1671596	105.74	166114	10.51	9.9	1463148	92.56	87.5	79.2	42334	2.68	2.6

* %f represents fixed costs as a percentage of net sales.

** %v represents variable costs as a percentage of net sales.

*** PNP represents pretax net profits.

Table 4. Distribution of Annual Net Sales Per Square Foot by Size Classes.

Dollars Per Year/Sq. Ft.	1	2	3	4	5	6	7	8	9	10
20.0 - 29.9					1					
30.0 - 39.9			2		1	1				1
40.0 - 49.9		1	5	3	2		1			
50.0 - 59.9		6	7	6	2					
60.0 - 69.9		17	16	3	2	1		1		
70.0 - 79.9	1	22	21	2	1					
80.0 - 89.9	3	18	17	4	1	1				
90.0 - 99.9	6	19	11	3	3	1				
100.0 - 109.9	7	17	18	3	1					
110.0 - 119.9	3	15	20	6	1					
120.0 - 129.9	4	11	9	3						
130.0 - 139.9	2	6	6	1	2					
140.0 - 149.9		6	6	3						
150.0 - 159.9	2	3	3	1						
160.0 - 169.9	2	3	8	1						
170.0 - 179.9		1	2							
180.0 - 189.9		3	1							
190.0 - 199.9		1	2							
200.0 - 209.9		1	2							
210.0 - 219.9										
220.0 - 229.9			1							
230.0 - 239.9										
240.0 - 249.9										
250.0 - 259.9										
	30	151	157	39	17	4	1	1		1

Table 5. Distributions of Annual Fixed Costs Per Square Foot By Size Classes.

Dollars Per Year/Sq. Ft.	1	2	3	4	5	6	7	8	9	10
0.0 - 0.9										
1.0 - 1.9										
2.0 - 2.9										
3.0 - 3.9					1					
4.0 - 4.9			3		1					
5.0 - 5.9		2	5	8	2	1				1
6.0 - 6.9		13	9	1	2	1				
7.0 - 7.9	3	25	31	5	4	1		1		
8.0 - 8.9	4	25	21	2			1			
9.0 - 9.9	6	25	30	5	3					
10.0 - 10.9	7	24	16	9	2	1				
11.0 - 11.9	5	11	6	4	1					
12.0 - 12.9	3	10	14	2	1					
13.0 - 13.9		6	9	2						
14.0 - 14.9	1	2	7							
15.0 - 15.9		4	1							
16.0 - 16.9		1	2							
17.0 - 17.9		2	3	1						
18.0 - 18.9										
19.0 - 19.9		1								
20.0 - 20.9										
21.0 - 21.9	1									
	30	151	157	39	17	4	1	1		1

Table 6. Distributions of Annual Variable Costs Per Square Foot By Size Classes.

Dollars Per Year/Sq. Ft.	1	2	3	4	5	6	7	8	9	10
20.0 - 29.9					1					
30.0 - 39.9			4		1	1				1
40.0 - 49.9		6	8	4	3		1			
50.0 - 59.9		13	13	8	3	1		1		
60.0 - 69.9	1	23	26	2	1					
70.0 - 79.9	4	23	19	5	3	1				
80.0 - 89.9	7	21	15	2	1	1				
90.0 - 99.9	6	21	18	6	2					
100.0 - 109.9	5	14	18	5						
110.0 - 119.9	3	10	11	2	2					
120.0 - 129.9		4	6	1						
130.0 - 139.9	2	7	4	2						
140.0 - 149.9	2	2	8							
150.0 - 159.9		2	2							
160.0 - 169.9		3								
170.0 - 179.9			4							
180.0 - 189.9		1								
190.0 - 199.9			1							
200.0 - 209.9										
210.0 - 219.9		1								
220.0 - 229.9										
230.0 - 239.9										
	30	151	157	39	17	4	1	1		1

Table 7. Distributions of Annual Pretax Net Profit Per Square Foot By Size Classes.

Dollars Per Year/Sq. Ft.	1	2	3	4	5	6	7	8	9	10
-6.9 - 6.0		1								
-5.9 - 5.0							1			
-4.9 - 4.0			3							1
-3.9 - 3.0			2		1					
-2.9 - 2.0		3	6	1	1					
-1.9 - 1.0		8	7			1		1		
-0.9 - 0.0	2	12	8	5	3	1				
0.9 - 0.9	3	14	15	6	2					
1.0 - 1.9	6	27	31	6	2	1				
2.0 - 2.9	4	25	14	5	4					
3.0 - 3.9	6	22	18	4	2					
4.0 - 4.9	4	11	10	2		1				
5.0 - 5.9	1	13	17	3	1					
6.0 - 6.9	3	6	10	3	1					
7.0 - 7.9	1	4	6	1						
8.0 - 8.9		2	4	1						
9.0 - 9.9		3	3							
10.0 - 10.9		1		1						
11.0 - 11.9										
12.0 - 12.9			2							
13.0 - 13.9										
14.0 - 14.9										
15.0 - 15.9		1								
	30	151	157	39	17	4	1	1		1

Table 8. Distributions of Annual Fixed Costs as a Percentage of Annual Net Sales by Size Classes.

Per Cent Of Sales	1	2	3	4	5	6	7	8	9	10
4.0 - 4.9										
5.0 - 5.9			1							
6.0 - 6.9										
7.0 - 7.9	1	7	3							
8.0 - 8.9	8	34	42	8	4					
9.0 - 9.9	13	54	53	15	2	1				
10.0 - 10.9	7	30	29	8	4	1				
11.0 - 11.9		12	11	3	3	1		1		
12.0 - 12.9	1	9	7	3	2					
13.0 - 13.9		2	3	2						
14.0 - 14.9		2	6			1				
15.0 - 15.9		1	1							
16.0 - 16.9					1		1			
17.0 - 17.9		1								
18.0 - 18.9			1		1					1
	30	151	157	39	17	4	1	1		1

Table 9. Distributions of Annual Variable Costs as a Percentage of Annual Net Sales by Size Classes.

Per Cent of Sales	1	2	3	4	5	6	7	8	9	10
84.0 - 84.9	1			2						
85.0 - 85.9		1	1	4						
86.0 - 86.9	1	16	45	4	5	1				
87.0 - 87.9	14	65	49	16	4					
88.0 - 88.9	11	43	31	8	5	2		1		
89.0 - 89.9	2	20	12	4	2	1				
90.0 - 90.9	1	2	6							
91.0 - 91.9		4	9							
92.0 - 92.9			4		1					
93.0 - 93.9										
94.0 - 94.9										
95.0 - 95.9										
	30	151	157	39	17	4	1	1		1

Table 10. Distributions of Annual Pretax Net Profits as a Percentage of Annual Net Sales by Size Classes.

Per Cent of Sales	1	2	3	4	5	6	7	8	9	10
-14.9 - 14.0										1
-13.9 - 13.0										
-12.9 - 12.0										
-11.9 - 11.0			1				1			
-10.9 - 10.0										
- 9.9 - 9.0										
- 8.9 - 8.0										
- 7.9 - 7.0		1								
- 6.9 - 6.0			2							
- 5.9 - 5.0			1		1					
- 4.9 - 4.0		3	2	1						
- 3.9 - 3.0		1	4				1			
- 2.9 - 2.0		4	8							
- 1.9 - 1.0		5	2		2					
- 0.9 - 0.0	1	11	7	5	2		1			
0.0 - 0.9	2	8	10	3	2			1		
1.0 - 1.9	7	23	22	7	1		1			
2.0 - 2.9	8	32	27	7	4					
3.0 - 3.9	9	30	23	8	2					
4.0 - 4.9	3	24	34	4	3		1			
5.0 - 5.9		8	14	3						
6.0 - 6.9		1		1						
	30	151	157	39	17	4	1	1		1

Table 11. Distributions of Percentage Break-even Points by Size Classes.

Per Cent of Sales	1	2	3	4	5	6	7	8	9	10
40.0 - 49.9										
50.0 - 59.9		4	4	1						
60.0 - 69.9	4	20	34	6	3	1				
70.0 - 79.9	12	47	33	7	6					
80.0 - 89.9	10	45	40	16	2	1				
90.0 - 99.9	2	12	16	2	2			1		
100.0 - 100.9	2	11	5	6	1	1				
110.0 - 119.9		7	3		1					
120.0 - 129.9		2	5							
130.0 - 139.9			4			1				
140.0 - 149.9		2	2							
150.0 - 159.9				1	1					
160.0 - 169.9			1							
170.0 - 179.9		1								
180.0 - 189.9			1							
190.0 - 199.9										
200.0 - 209.9										
210.0 - 219.9										
221.0 - 229.9										
230.0 - 239.9										
240.0 - Above			1		1		1			1
	30	151	157	39	17	4	1	1		1

Table 12. Attribute Values For the Median Stores in Size Classes 1-6.

Description	1	2	3	4	5	6
Number of Stores	30	151	157	39	17	4
Per Cent of Total Stores	7.5	37.6	39.2	8.7	4.3	1.0
Median Net Sales/Sq. Ft.	108.53	97.20	98.52	97.69	75.37	73.72
Fixed Costs/Sq.Ft.	10.14	9.54	8.76	9.89	7.56	7.52
Variable Costs/Sq. Ft.	95.47	87.80	87.05	84.30	65.89	64.35
Pretax Net Profit/Sq. Ft.	2.94	(.13)	2.72	3.50	1.92	1.98
Fixed Costs as % of Sales	9.2	9.8	8.9	10.1	10.0	10.2
Var. Costs as % of Sales	87.2	90.3	88.4	86.3	87.4	87.5
Pretax Net Profit as % of Sales	2.7	(.1)	2.7	3.6	2.6	2.8
Percentage Break-even	72.6	101.1	76.7	73.7	79.4	83.6
Total Store Area	3234	8625	10225	14750	21600	23750

BIBLIOGRAPHY

LITERATURE CITED

1. Lebhar, E. M., Chain Stores in America: 1859-1959, Centennial Edition, Clinton, Massachusetts: The Colonial Press Inc., 1959, p. 32.
2. Kaylin, S. O., "Centers in High Gear", Chain Store Age, May, 1959, p. 29.
3. " '59 Question Faced by Supermarkets", The Atlanta Journal and Constitution, January 11, 1959, p. 12-D.
4. Sloan, H. S., and A. J. Zurcher, A Dictionary of Economics, Third Edition, New York: Barnes and Noble, Inc., 1957, p. 279.
5. Bowman, E. H., "Scale of Operations - - An Empirical Study", Operations Research, 6, (1958), pp. 320-328.
6. Ibid., p. 326-328.
7. Clark, C., "The Economic Functions of a City in Relation to its Size", Econometrica, 13, (1945), pp. 97-113.
8. Lomax, K. S., "The Relationship Between Expenditure per Head and Size of Population of County Boroughs in England and Wales." Journal of the Royal Statistical Society, 106, (1943), pp. 51-59.
9. "People in the News", The Atlanta Journal and Constitution, November 16, 1958, p. 20-C.
10. Hensley, R. J., "Economies of Scale in Financial Enterprises", Journal of Political Economy, 66, (1958), pp. 389-398.
11. Samuelson, P. A., Economics - An Introductory Analysis, Fourth Edition, New York: McGraw-Hill, 1958, p. 34.
12. Due, J. F., Intermediate Economic Analysis, Third Edition. Homewood, Illinois: Richard D. Irwin, Inc., 1956, p. 145.
13. Penrose, E., "Limits to the Growth and Size of Firms", American Economic Review, 45, (1956), pp. 531-543.
14. Hensley, op. cit., p. 390.