A STUDY OF THE POTENTIALS OF VENDING MACHINES IN THE FIELD OF RETAIL FOOD DISTRIBUTION

Thesis for the Degree of M. A.

MICHIGAN STATE UNIVERSITY

Thomas P. Barrett

1958

A STUDY OF THE POTENTIALS OF VENDING MACHINES IN THE FIELD OF RETAIL FOOD DISTRIBUTION

by

Thomas P. Barrett

AN ABSTRACT

Submitted to the College of Business and Public Service
of Michigan State University of Agriculture and
Applied Science in partial fulfillment of
the requirements for the degree of

MASTER OF ARTS

Department of Marketing and Transportation Administration

Curriculum in Food Distribution

1958

Approved: E. G. Brand

THOMAS P. BARRETT ABSTRACT

This thesis is a study of the use of vending machines in the retail food field. Experiments with venders conducted by several leading chains are analyzed. This analysis in combination with background information on the nature of vending, and the vending industry, presents what the author believes is an accurate appraisal of the status and potentials of vending in the retail food business today.

A vending machine is a coin operated device which dispenses a good or a service.

Although vending machines were first used over two thousand years ago, the modern era of vending began with the invention of the cigarette vender in 1925. Grocery vending was initiated in 1956 when the Grand Union Company installed a bank of eight vending machines in front of its headquarters store at East Patterson, New Jersey.

Soon Grand Union's move into the vending field was followed by similar moves by A&P, Colonial, National Tea, Kroger, and others. The food chains apparently saw in vending a potential medium for providing convenient around the clock shopping facilities for "fill-in" items.

The hoped for success in vending did not materialize however. Mechanical failures of the machines and poor sales results caused most of the chains to discontinue using venders. Grand Union, the pioneer in the field, and the

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company with the largest vending installation, is the only chain still experimenting with venders. Industry sources report that sales at Grand Union's venders are satisfactory.

Although Grand Union's venders appear to be successful, difficulties of location, servicing, and products combined to render the results of the other experiments inconclusive.

As a result of this study, the author believes that there is a definite potential for convenience-type distribution of products which have a mass market; the challenge of the vending industry is sufficient to justify careful consideration of the opportunities in grocery vending by the food chains; improved machines are vital to further growth and development in vending; recent developments in the areas of change making, legislation, and industry development indicate that a new breakthrough in vending is imminent.

The author recommends that:

1. Vending machine manufacturers concentrate on improving or perfecting the mechanical features of their vending machines.

2. Food chains, vending machine operating companies, and others interested in vending gather more information on the various vending problems from all possible sources including their installations. The areas of site selection, product vendability, et cetera, need more research.

4. If and when the food chains again experiment with venders, professional servicemen should be hired on a contract basis. After the machines have been proven successful the task of training servicemen should be undertaken by the food chains.

The Curriculum in Food Distribution at Michigan State University is under the sponsorship of the National Association of Food Chains.

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ACKNOWLEDGMENTS

The author thanks his employer Stop & Shop, Inc., and the Thomas J. Lipton Company for making possible his year of study at Michigan State University.

Grateful appreciation is extended to Dr. E. A. Brand, Director of the Curriculum in Food Distribution at Michigan State University for his assistance, guidance, and helpful suggestions which facilitated the preparation of this thesis.

Thanks also are due to Ann Brown for her invaluable secretarial assistance.

Special acknowledgment is due the author's wife Elizabeth, without whose encouragement, assistance, untiring effort and endless patience this thesis would not have been possible.

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CHAPTER I

INTRODUCTION

Retailing Institutions and Mrs. Consumer

An important lesson to be learned from all historical studies of retailing institutions is that these institutions "have been evolved and modified in response to changing environmental circumstances and that they have tended to decline and disappear when the conditions that favored their growth and development ceased to exist."[1]

The retailing principles involved herein may be stated as follows:

> If an institution performs essential and productive services, it continues to exist as long as the conditions that favored its development remain in some degree . . . when the need for a new institution is apparent, it will be evolved.[2]

The present status of the food distribution industry attests to the soundness of these principles. Few people today will dispute the fact that the ability and the willingness of the food distribution industry to adapt to changing environmental circumstances has been at least

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[1]Paul L. Brown and William R. Davidson, Retailing Principles and Practices (New York: The Ronald Press, 1953), p. 9.

[2]Ibid., p. 14.

partially responsible for the continued growth of the industry. In short, food distributors have found what Mrs. Consumer wants, and have given it to her.

Changes in Mrs. Consumer's Wants

Over the years, Mrs. Consumer has asked for and received self-service, low prices, larger selections of goods, ample parking facilities, et cetera. Recently, Mrs. Consumer has been asking for more convenience and she has been getting it in the form of frozen foods, prepared foods, et cetera. The trade journals of the food industry report that Mrs. Consumer's desire for convenience will soon bring about changes so drastic that the whole food industry will be affected. Supposedly, Mrs. Consumer will no longer be required to plan her shopping according to a fixed schedule; nor will she be required to drive to a distant supermarket to shop; instead, "silent salesmen" will serve her at her convenience. Table I lists a sampling of the multitude of news items heralding the coming of the silent salesman.

Purpose of the Study

In spite of the many pronouncements declaring that automatic selling is destined to revolutionize food retailing, supermarket operators have been conspicuously hesitant to install vending machines on a permanent basis. The vast majority of supermarket vending machine installations have been considered as mere experiments. In fact,

TABLE I

RECENT NEWS RELEASES

From Food Field Reporter:

FROZEN FOODS FIRMS GET SET FOR ERA OF VENDING MACHINES, BIG EXPANSION, July 23, 1956.

NEW FOOD LINES MADE FOR VENDORS UNVEILED, December 10, 1956.

From Food Topics:

35 IGA UNITS PLAN OUTDOORS VENDING SETUPS, January 7, 1957.

OUTDOORS VENDOR PLANS SPEEDED UP, February 18, 1957.

VENDING MACHINES PRESCRIBED BY IGA TO SOLVE PROBLEMS OF SMALLER STORES, March 4, 1957.

From Supermarket News:

A & P INSTALLS MULTIPLE-UNIT OUTSIDE VENDING MACHINES, December 3, 1956.

SEVERAL CHAINS EYE OUTDOOR VENDING DEVICES, January 7, 1957.

OUTSIDE VENDORS AT COAST UNIT, February 11, 1957.

RED & WHITE PLANS TO RECOMMEND VENDING OPERATIONS TO ITS MEMBERS, February 18, 1957.

VARI-VEND SETS OUTSIDE VENDORS, March 8, 1957.

COLONIAL TESTS INSTALLATION OF OUTDOORS VENDERS IN N. C., March 11, 1957.

GRAND UNION SETS OUTSIDE 'FOOD-MAT', March 11, 1957.

EBERHARD'S SETS OUTSIDE VENDOR TEST, April 8, 1957.

OWN VENDING MACHINES DEVELOPED BY GRAND UNION, FRONT N. J. STORE, June 10, 1957.

TABLE I (continued)

From Supermarket News:

4 OUTDOOR VEND MACHINES FEATURE SID'S REMODELING June 17, 1957.

OUTDOOR VENDERS INSTALLED BY KROGER, July 8, 1957.

OUTDOOR VENDORS DRAW AT KELLEY'S, July 15, 1957.

SAY GRAND UNION 25-VENDING-MACHINE UNIT WILL OFFER 1,400-2,1000 ITEMS OUTSIDE STORE, July 29, 1957.

VENDING MACHINES SUCCESSFUL AT KROGER'S BRANCH, July 29, 1957.

SIX APARTMENT BUILDINGS GET VENDING UNITS, August 5, 1957.

HEAR GRAND UNION PLANS 2D VENDOR, July 14, 1958.

From Vend:

A NEW WAY TO MARKET EGGS, October, 1957.

MORE MILK VENDORS FOR 1958, October, 1957.

MILK MARKET TRENDS BOOST VENDING POTENTIAL, December, 1957.

OUTDOOR VENDING--IT'S STILL UP FOR GRABS, December, 1957.

during recent months, the number of vending machines operated by food retailers has actually declined.

The purpose of this thesis is threefold:

1. To bring together in a condensed and readable form the currently available information on the subject of grocery vending.
2. To make a modest addition to this limited body of knowledge.
3. To present this information in a form which will provide some insight into the future of the "silent salesman" in retail food distribution.

The Need for the Study

The uncertainty and confusion which have characterized recent experiments in grocery vending clearly demonstrate the need for a factual study of grocery vending. To the knowledge of the author, no such study is presently available.

Scope and Limitations of the Study

The study will focus on the unique nature of vending as a facility of distribution, the vending industry and its potentials, the results of grocery vending experiments, and recent developments in the field which appear to be of significance for the future.

Within the above framework, the study is further limited because of one of vendings' greatest problems: lack

of accurate statistical data. Vending machine operators typically do not keep accurate sales and operating figures. Those who do keep accurate figures are somewhat inclined to overdo this. They keep the figures to themselves.

In spite of this very real limitation, the author believes that this thesis will achieve the purpose stated above.

Research Methodology

The background material has been drawn from secondary sources such as the trade journals of the food industry and of the vending industry, articles on the subject appearing in periodical magazines, and the reports of Marshall[3] and Schreiber[4] on the vending industry.

The primary sources of information include vending machine manufacturers, distributors, and operators. The author met a number of these men personally and corresponded with others.

Definition of Terms

The terms "automatic merchandising," "vending," "vending machine," "silent salesman," and "vender" will appear frequently in the text. For purposes of this thesis these terms are defined as follows:

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[3]Martin V. Marshall, Automatic Merchandising (Boston: Harvard University Press, 1954).

[4]G. R. Schreiber, Automatic Selling (New York: John Wiley and Sons, Inc., 1954).

Automatic merchandising. "Sale of merchandise or service through machines which become operative after the insertion of a coin or coins."[5]

Vending. Synonymous for automatic merchandising.

Vending machine. A coin operated mechanism which dispenses a good or a service.

Silent salesman. Synonymous for vending machine.

Vender (sometimes spelled Vendor). Synonymous for vending machine; also used sometimes in reference to the person who distributes his goods through vending machines.

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[5] 1954 Directory of Automatic Merchandising (Chicago: National Automatic Merchandising Association, 1953), p. 6.

CHAPTER II

THE NATURE OF VENDING

Why Vending

Almost everywhere, one is confronted by vending machines. Whether it be public transportation terminals, theater lobbies, military post exchanges, gasoline stations, supermarkets, or even post offices, silent salesmen are always nearby. One might logically ask "why?"

> Pioneers of automatic selling envisioned vending as a supplementary or complimentary method of retailing. They saw the machine succeeding where the volume was insufficient to warrant personal selling. . . . There was the additional concept that automatic selling could make products available at a profit where those products were an unprofitable, but necessary, item for a retail outlet to handle.[1]

Until very recently, vending machines have been used almost exclusively as a supplementary sales tool in convenience goods field.

> For all practical purposes, automatic selling until 1950 was confined to candy, gum, nuts, soft drinks, and cigarettes. These products were the backbone of the average vending machine company and they represented 90 per cent of the automatic sellings' total sales volume.[2]

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[1] Schreiber, op. cit., p. 32.

[2] Ibid., pp. 12-13.

Recent developments, however, indicate that silent salesmen are being used to reach new markets, to recapture existing markets, and to increase efficiency in serving other markets. Among those seeking new markets are a number of supermarket operators who have placed vending machines outside their markets in an attempt to serve the late night and the holiday shoppers while the markets themselves remain closed.

Many local dairies having gradually lost volume to the supermarkets have entered the vending business in an attempt to regain some of their sales volume. Among the attractions which the use of vending machines offer to dairies are: a greater degree of market control, smaller losses on returns, more cash sales, less dependence upon retailers.

Constantly increasing selling costs have led many retailers to experiment with vending machines for the sale of nuisance items. Notable examples are The Penn Fruit Company and ACF Wrigley Stores. These firms sell all single packages of cigarettes through vending machines located strategically within the stores.

History of Vending

First known venders. Vending machines are far from new. A coin operated device to sell Holy Water to the worshippers in the Greek temples was built in 219 B. C. by

the Greek inventor, Hero Cstebus.

> Hero's vending apparatus was a simple but ingenious mechanism consisting of a tube, a lever which opened a crude valve and a cap which closed the opening. A horizontal lever at the top of the tube controlled the dispensing action. A coin inserted in an opening at the top of the machine fell on the control lever. The weight of the coin pushed the lever down, opened the cap and released a quantity of water. Once the coin fell off the lever into a money box, the lever returned to its original position and the valve closed.[3]

Hero's dispenser was apparently one of a kind, however, for there are no other known references to vending devices until the days of the tobacco venders in the early nineteenth century.

European venders. In 1822, Richard Carlile, an English publisher and bookstore proprietor, with moral standards apparently quite different from those of Hero Cstebus, produced a vending machine to sell censored books. Carlile's theory was that the prosecuting authorities would thus be unable to legally identify the seller of the censored literature. Carlile was prosecuted successfully, however, and his vender disappeared.[4]

Early British vending machines were not limited to the vending of censored books. At about the same time as

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[3] Ibid., p. 2.

[4] The story of Carlile's book vender is described in Martin V. Marshall's Automatic Merchandising (Boston: Harvard University Press, 1954), p. 6.

Carlile's book vending experiment, tobacco vending machines appeared in inns and public houses throughout England. These early tobacco venders, in spite of their crudeness, were extremely durable and some models were still in use fifty years later.

During the nineteenth century, vending machines spread across Europe. In 1883 Percival Everitt, another Englishman designed a coin operated postal card vending machine which proved popular with the English public. Everitt eventually designed a variety of vending machines including a penny ticket scale which was later adapted for use as a tobacco vender. Thomas Adams later converted this machine to a gum vender to sell his "Tutti-Frutti" gum on the platforms of New York City's elevated railroad.

A beverage vender dispensing beer, wine, and other liquors was put into operation in Paris in 1890, and in Berlin shortly thereafter. Book vending machines developed by Philip Reclam, a Brussels book publisher, were installed in German railroad stations beginning in 1895. Coin operated restaurants were opened in Germany during the same year.

Venders come to the United States. As mentioned previously, Thomas Adams introduced vending machines to the United States in 1888. By 1910, over fifty American companies were engaged in vending--most were vending bulk gum balls and candy. Dollar sales of these early venders were negligible but the influence of the machines was widespread.

As early as 1925, the Rural New Yorker commented: "We have become a nation of gum chewers largely because the slot machines have made it easy to obtain gum. . ."[5]

The modern era of vending. Both Marshall and Schreiber attribute the so-called "modern era" of vending to the invention of the first cigarette vending machine in 1925.[6] The success of the early cigarette venders clearly demonstrated that machines could be used to sell items of more than a penny value. These venders also showed their potential for serving the convenience goods' market when they succeeded in selling cigarettes at fifteen cents a package while conventional retailers sold the same brands of cigarettes for eleven and twelve cents.

Three factors were responsible for the rapid development of cigarette vending:

1. The acceptance and recognition by a large portion of the public of the service rendered by cigarette machines;
2. The great increase in cigarette consumption during the 1920's and later; and
3. The technological improvements in machines.[7]

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[5]"An Apple Vending Machine--Nickel in the Slot," Rural New Yorker, May 30, 1925, cited in Dana G. Dalrymple, Automatic Fruit Vending (Ithaca, New York: Cornell University Press, 1955), p. 5.

[6]Marshall, op. cit., p. 5; and Schreiber, op. cit., p. 6.

[7]Marshall, op. cit., p. 8.

Candy bar vending and soft drink vending grew rapidly beginning in the 1930's. The first Coca-Cola machine appeared in 1937. Although vending grew quite rapidly in the pre-war years, the National Automatic Merchandising Association (NAMA) feels that the vending industry first fully realized its potentials during World War II when defense plants demonstrated a desperate need for refreshment facilities and a flexible method of feeding employees in the plants.[8]

By 1946 vending machine sales in the United States had reached the half billion dollar level. This growing industry attracted national attention. In 1948 the Associated Merchandise Corporation (AMC) undertook a study of vending and its possible applications in member stores.[9]

As a result of the AMC study, the J. L. Hudson Company of Detroit, and William Filene's Sons Company of Boston, experimented with vending machines as a means of selling department store type goods. The Hudson experiment was conducted during the period December 1-29, 1949; Filene's experiment lasted from May 1950 to February 1952.

At Hudson's the venders were installed inside the store in direct competition with personal selling facilities.

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[8] 1954 Directory of Automatic Merchandising, op. cit., p. 10.

[9] Marshall, op. cit., pp. 154-157.

The short life of the experiment gives ample evidence of its failure. Yet, because of the manner in which the experiment was conducted, the results are generally regarded as inconclusive.[10]

The Filene experiment, which was much more elaborate than the Hudson experiment, was an attempt to sell department store type goods in public transportation terminals through vending machines. Although this experiment was also a financial failure, the data provided by the test has been a significant contribution to vending knowledge.[11]

Since the end of the Filene experiment with department store type goods, vending machine operators have concentrated on the sale of convenience goods. This topic will be covered in detail in succeeding chapters.

Economic Aspects of Vending

Availability. The widespread success of self-service merchandising has clearly demonstrated that making a product more readily available is one of the secrets of increased sales. In vending, availability has a dual meaning. Availability refers to concepts of both place and time.

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[10] See Marshall, op. cit., Chapter 9, pp. 153-173, for an analysis and critical appraisal of this equipment.

[11] Ibid., Chapters 10 and 11, pp. 174-211.

Because vending machines usually do a better selling job in the absence of competition from personal selling,[12] and because most personal selling is confined to day and evening hours only while vending machines operate around the clock, vending machines can make goods available at regular retail establishments after the stores close, as well as at locations which cannot support "personal" selling.[13]

Personnel. Although automatic selling eliminates many of the personnel problems of "personal" selling, the personnel problems confronting vending machine operators are every bit as challenging as those facing conventional retailers.

Vending machines, like all other machines, require constant attention and frequent service. The seemingly routine job of servicing a vending machine is in reality a four-step process as follows:

1. replenish the stock in the machine,
2. empty the coin box and refill the change chutes,
3. clean the machine, and
4. make minor adjustments.

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[12] Ibid., p. 165.

[13] Under these conditions vending machines serve what often amounts to a "captive" market.

Because minor adjustments must be made almost every-time that a vender is restocked, semi-skilled personnel must be employed to perform this (otherwise) routine job.[14]

Mechanical failures which cannot be corrected by "minor adjustments" call for the services of a skilled technician.[15] Thus, only semi-skilled and skilled workers are employed by vending machine operators.[16] The workers who have been "replaced" by vending machines are the un-skilled workers.

* Capital requirements. The capital requirements of vending machine operators are high. Unlike most other retailers whose principal investment is in the form of mer-chandise inventory,[17] independent vending machine operators are obliged to invest heavily in equipment. "While the

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[14]In the words of one operator, ". . . venders aren't too complicated mechanically, but, at the same time, it takes some ability to open up the front of a vender and immediately figure out why the machine doesn't work right. . ." Quoted in Marshall, op. cit., p. 46.

[15]Although precise figures are not available, oper-ators generally estimate that "the expense of an emergency service call exceeds the expense of a regular service call by three or four times," ibid., p. 45.

[16]Supermarket operators who have experimented with vending machines have typically used store clerks to service their machines. These experiments will be discussed in detail in Chapter IV.

[17]Brown and Davidson, op. cit., p. 54.

operator incurs large outlays for merchandise, . . . his largest investment is in automatic machines."[18]

Vending machines capable of vending grocery products cost over $1500.00 apiece. In October 1957 Vari-Vend venders were offered to food chains in the midwestern part of the United States at the following prices:[19]

Standard non-refrigerated	$1,545.00
Refrigerated 35-40 degrees	$1,695.00
Frozen	$1,795.00 FOB Chicago

The immediate impact of such a large investment in fixed assets is an apparent lack of flexibility by the vending machine operator. The mere size of the investment required and the rapid obsolescense of the machines combine to make the capital requirements for the equipment a perpetual problem of the vending machine operator.

As early as 1956, the United States Department of Commerce reported that "the capital requirements for new equipment have become too heavy to handle from retained earnings."[20]

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[18]Summary of Information on Automatic Merchandising, BSB-151 (Washington, D. C.: Business and Defense Services Administration, U. S. Department of Commerce, 1956), p. 3.

[19]Personal letter from E. Lee Feller, Jobbers Service, Inc., Coldwater, Michigan, October, 1957.

[20]Summary of Information on Automatic Merchandising, op. cit., p. 3.

Apparently, the time is not too far distant when the sale of stock to the public will replace retained earnings as the principal source of growth capital.[21]

The cost of selling through machines. A large segment of the American public today believes that increased mechanization is a sure route to lower costs. Unfortunately, in the case of vending machines, this idea is not always completely accurate.

The "cost of selling through [vending] machines" can probably best be determined by studying the (a) margins, (b) expenses, and (c) profits of vending machine operators.[22]

The data on vending machine operator's costs and profits presented below have been drawn from the 1957 Operating Ratio Report of the National Automatic Merchandising Association. The report was "prepared from figures submitted by a representative group of 163 operators with a combined sales volume of $75,000,000."[23]

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[21] At the present time only two vending companies' stocks are listed on the New York Stock Exchange--the firms are ABC Vending Corporation and Automatic Canteen Company of America.

[22] To the knowledge of this writer no reliable information is available on the operating results of grocery venders. The analysis in this section must be regarded as merely a rough guide to vending in general.

[23] "Industry News," Vend, Vol. 12 (July, 1958), 78.

Unfortunately, the complete Operating Ratio Report is not available to this writer. Therefore the data have several limitations as follows:

1. The claimed representativeness of the sample cannot be verified.
2. The mathematical procedures employed to arrive at the "average" figures are not revealed.

Despite these limitations, the report is believed by this writer to be the only reliable source for this type of data.

(a) Margins. According to the above mentioned Operating Ratio Report, merchandise sold through vending machines during 1957 cost operators $58.13 for each $100 of sales.[24] Gross margin on sales, therefore, was 41.87 per cent.

The Harvard Business School reports that during 1956, the fifty-five food chains participating in the Harvard study operated on a gross margin of 19.53 per cent.[25] Thus, allowing for the lack of comparability of the figures, one can see that vending machine operators tend to operate on a margin approximately twice that of the food chains. The cause of this high margin will be analyzed on the following pages.

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[24] Ibid., p. 78.

[25] Wilbur B. England, Operating Results of Food Chains in 1956, Bulletin No. 151 (Cambridge: Harvard University Graduate School of Business Administration, September, 1957), p. 7. This is a percentage computed from the combined figures of fifty-five chains.

(b) Expenses. Operating expenses of vending machine operators during 1957 totaled 39.46 per cent.[26] The individual expense percentages are not available to this writer. However, the most significant items of expense are:

1. Maintenance costs of vending machines
2. Service salaries and commissions
3. Vending equipment depreciation
4. Location commissions
5. Automobile and truck expense
6. Taxes, in addition to Federal Income and State Sales
7. Insurance[27]

(c) Profits. The NAMA Operating Ratio Report listed operating profit as 2.41 per cent of sales.[28] Other income and charges of .92 per cent brought the total profit, before income taxes, to 3.33 per cent.[29] Before tax profit amounted to 10.6 per cent on total assets and 20.19 per cent on net worth.[30]

For comparison the Harvard report on food chains listed before tax profits of 2.88 per cent of sales and 29.34 per cent of net worth.[31]

Generally speaking, the profits of vending machine operators appear to be fairly comparable to those of the

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[26]"Industry News," op. cit., 78.

[27]Summary of Information on Automatic Merchandising, op. cit., p. 3.

[28]"Industry News," op. cit., p. 78.

[29]Ibid. [30]Ibid.

[31]England, op. cit., p. 7.

food chains. If this is so, then the profits of vending machine operators would not be considered as exorbitant. However, in order to achieve the moderate profits reported by the National Automatic Merchandising Association, vending machine operators were obliged to employ a gross margin on sales double that of the food chains.

Since the gross margin of vending machines operators is approximately double that of the food chains, and the profits of both businesses are comparable, these facts seem to indicate that the cost of selling through machines is relatively high.

The figures quoted above are reproduced in Table II in order to facilitate this comparison.

The supplementary nature of vending. Although vending machines now dispense over two billion dollars worth of consumer goods per year, and vending machine sales of goods are increasing rapidly, the silent salesman does not yet appear ready to replace the retail sales clerk.[32]

At the present time, "automatic merchandising is designed to supplement personal selling--not to replace it."[33] Vending machines are used to sell when and where

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[32] 1957 sales were estimated at $2,052,000,000 by the National Automatic Merchandising Association. See, "Vend, 1958 Annual Market Data and Directory," op. cit., p. 28.

[33] 1958 Directory of Automatic Merchandising, op. cit., p. 6.

TABLE II

COMPARISON OF AVERAGE OPERATING RESULTS[1] OF VENDING MACHINE OPERATORS AND FOOD CHAINS

	Vending Machine Operators	Food Chains
Gross Margins	41.87%	19.53%
Operating Expenses	39.46%	17.85%
Profit on Sales	2.41%	2.88%
Profit on Net Worth	20.19%	29.34%

[1]The figures presented here are not exactly comparable. Those for venders are for the year 1957. Those for the food chains are for 1956.

The figures presented are the latest reliable figures which are available.

Sources of data: Vending Machine Operators: "1957 Operating Ratio Report of the National Automatic Merchandising Association," reported in "Industry News," Vend, July, 1958, p. 78; and Food Chains: Wilbur B. England, Operating Results of Food Chains in 1956, Bulletin No. 151 (Cambridge: Harvard University Graduate School of Business Administration, September, 1957), p. 7.

there is not sufficient volume to warrant the employment of a salesperson. Silent salesmen could therefore be called "auxiliary salesmen" who serve a market that could not be profitably served otherwise.

Since the middle 1930's when the vending industry began its rapid expansion, even the most optimistic proponents of automatic merchandising have agreed that vending machines will not replace personal selling for many years to come--if at all. In spite of the tremendous progress in vending that has recently been made, including the development of a paper money changer, this writer has uncovered no evidence with which to challenge the idea that vending is a supplementary type of selling.

The Potentials of Vending

If, as previously stated, vending is merely a supplement to personal selling, what are the potentials of vending?

Vending machines appear to possess great potential as a means of capturing "plus" sales (i.e., sales that would not otherwise be made) by making merchandise available at times and places which cannot support personal selling.

To the supermarket operator, vending machines potentially can:

1. Make marginal floor space productive.
2. Product sales from areas outside the store. Store fronts, parking lots, or remote locations are possible in outside areas.

3. Serve customers around the clock.

4. Improve store operations and eliminate costly services by taking over the selling of nuisance items.[34]

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[34] This section adapted from Herman Rodalph, "What's Ahead for Automatic Selling?," Women's Wear Daily, June 28, 1950, reprinted in J. H. Westing (ed.), Readings in Marketing (New York: Prentice-Hall, Inc., 1953), p. 99.

CHAPTER III

THE VENDING INDUSTRY AS POTENTIAL SUPERMARKET COMPETITION

In Chapter II of this thesis, the potentials of vending were enumerated. Since 1956 a number of leading food chains have sought to capture--or at least to measure--these potentials.

The food chains, however, are not the only ones who are working in this area. The vending industry--including the manufacturers, the operators, and the suppliers--is studying the retail food business carefully. In fact, as early as 1954, the editor of Vend (the magazine of the vending industry) spelled out in detail the ways in which vending can serve the "take-home" market.[1]

In the light of the expressed interest of the vending industry in retail food distribution,[2] food retailers would

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[1] Schreiber, op. cit., Chapter 13, pp. 137-155.

[2] For a glimpse of the opinions and ideas of the vending industry on this subject, the reader is referred to: Schreiber, op. cit., Chapters 13 and 16; 1958 Directory of Automatic Merchandising, op. cit., passim; "Vend 1958 Annual Market Data and Directory," Vend, Vol. 12 (March 15, 1958), 25-56; Bertrand R. Canfield, "Will Retail Robots Revolutionize Marketing?," Advertising and Selling, Vol. 40 (August, 1947), 33-34+; "Outdoor Vending--It's Still Up for Grabs," Vend, Vol. 11 (December, 1957), 68; "What

be well advised to familiarize themselves with at least the basic characteristics of the vending industry.

The Vending Industry

Present status. The dollar volume of sales through vending machines reached a new high of $2,052,000,000 in 1957.[3] This new record is some eight per cent above the 1956 figure of $1,900,000,000.

Total vending machine sales today run at a rate some three and one-half times the 1956 rate. In 1946, total sales of venders totaled some $600,000,000 compared with today's two billion dollars plus.[4] Annual vending machine sales for the post World War II years are presented in Figure 1.

As usual, cigarettes accounted for the largest single share of total vending sales. Cigarette sales through

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Dairies Think of Outdoor Vending," Vend, Vol. 12 (January, 1958), 78-81; "Chicago Area Firms Ready New Vendors," Supermarket News, June 16, 1958, p. 24; "Hundreds of Vendors to be Installed in Outdoor Locations Throughout U.S.," Food Topics, Vol. 11 (November 5, 1956), 2; "New Food Lines Made for Vendors Unveiled," Food Field Reporter, December 10, 1956, p. 1; "Six Apartment Buildings Get Vending Units," Supermarket News, August 5, 1957, p. 19; "Collection of Milk Vending Feature Articles," reprinted from The Milk Dealer (Milwaukee, Wisconsin: The Olsen Printing Company, 1957), passim; "Frozen Foods Firms Get Set for Era of Vending Machines--Big Expansion," Food Field Reporter, July 23, 1956, p. 32.

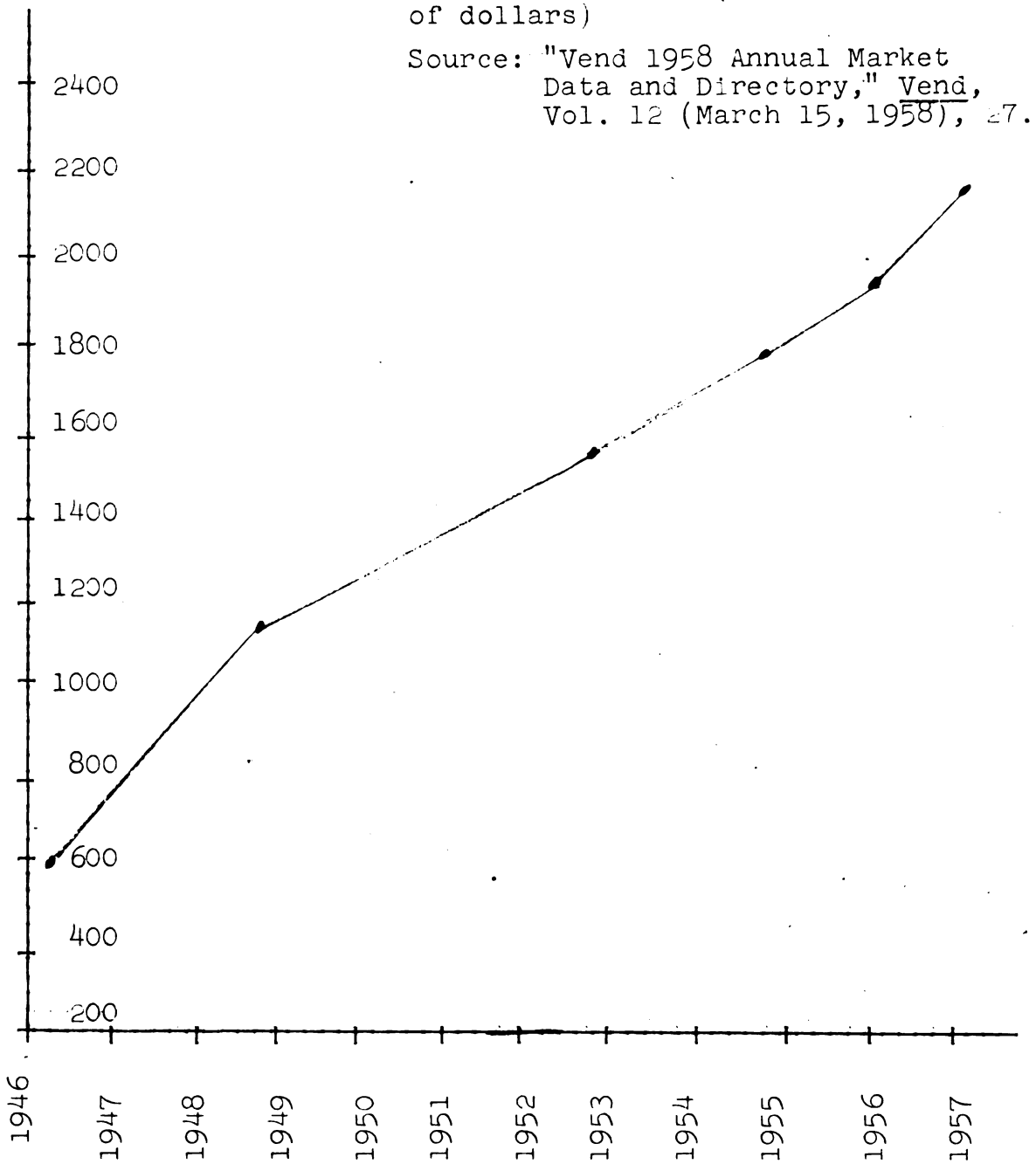
[3] "Vend 1958 Annual Market Data and Directory," op.cit., p. 28.

[4] Ibid.

Figure 1.

Annual Dollar Sales Volume of Vending Machines in the United States--1956-1957 (in millions of dollars)

Source: "Vend 1958 Annual Market Data and Directory," Vend, Vol. 12 (March 15, 1958), 27.



venders totaled $761,881,000 in 1957,[5] approximately thirty-seven per cent of total vending machine sales, and 14.2 per cent of total domestic cigarette sales.[6]

A breakdown of 1957 vending sales into eleven major segments is presented in Figure 2. This figure shows the relative importance of the various segments of the industry in 1957.

The figure given for milk sales does not include sales of outside milk venders because accurate data on this phase of vending is not available.[7]

In 1956 the National Automatic Merchandising Association estimated outside milk vender sales at $9,000,000 annually.[8]

Composition of the industry. The vending industry today is made up of three classes of businesses: manufacturers, operators, and suppliers.

Manufacturers--Most manufacturers of vending machines fall into one of two classes: (1) those who manufacture exclusively, and (2) those who manufacture and operate machines.

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[5] Ibid., p. 29. [6] Ibid., p. 27. [7] Ibid.

[8] 1957 Directory of Automatic Merchandising (Chicago: National Automatic Merchandising Association, 1956), passim.

Figure 2. Analysis of 1957 Sales Volume of Vending Machines in the United States

Packaged Confections	$244,000,000
Bulk Confections	$ 57,000,000
Cigarettes	$761,881,000
Cigars	$ 6,405,000
Soft Drinks (cups)	$101,557,000
Soft Drinks (bottled)	$258,005,000
Coffee	$ 94,745,000
Ice Cream	$ 22,756,000
Milk	$ 50,000,000
Hot canned foods	$ 14,580,000
All other mdse. and services	$438,000,000

Dollar volume of packaged confections includes nickel candy ($135,000,000) and dime candy ($70,000,000); cookies ($24,000,000) and nickel packs of gum ($15,000,000). Does not include sales of gum thru nickel chewing gum venders nor sales of cookies and crackers thru machines designed to sell only these products. These sales are under All Others. Source: Vend, 1958 Directory, p. 29.

The first class of manufacturers--those who manufacture exclusively--is by far the largest in numbers. Generally speaking, these manufacturers are small companies.

Manufacturers sell their machines for cash or on installment credit. Occasionally, the larger manufacturers lease their machines to operators.

Operators-- Vending machine operators, the backbone of automatic merchandising, are with few exceptions, small businessmen. Until very recently, "the average company operating vending machines was a one-man [or at most a one and one-half man] proposition."[9]

While there is no such thing as a "typical" operating company, many companies possess similar characteristics regarding size and nature of operations. For example:

> 41 per cent of the companies employ one to three people;
> 56 per cent of the company vend four or more products.[10]

The vending machine operator arranges with location owners for the placement of machines, services the machines on a regular schedule, provides emergency service, and pays

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[9]"Vend 1958 Annual Market Data and Directory," op. cit., p. 41. The so-called avarage operator referred to here is the independent vending machine operator. In addition to the independent operator, there are two other (less significant) classes of operators: Operating subsidiaries of vending machine manufacturers, and vending departments or subsidiaries of firms whose principal business is outside the field of automatic merchandising.

[10]Ibid., pp. 43-44; see pp. 41-49 for additional data on operating companies.

the location owner a rental fee which is quite often a flat percentage of dollar sales.

Servicing of venders is the principal function of the operating company. Servicing includes cleaning and restocking the venders; making minor adjustments; removing the receipts and replenishing the change supply.

Because so many details, so many possible areas of contention are involved in the agreement between the operating company and the location owner, the National Automatic Merchandising Association strongly recommends that these agreements be written with the assistance of legal counsel.[11]

A copy of a typical contract used by operating companies is illustrated in the Appendix.

Suppliers--The third type of business in the vending industry can be classified under the general heading of suppliers. Actually, two types of suppliers serve the vending industry: (1) suppliers of the consumer goods which the machines dispense, and (2) suppliers of parts and equipment such as coin changers, slug rejectors, et cetera.

The trade association. Since the success of both manufacturers and suppliers is of necessity highly dependent upon the success of the operating companies to whom they

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[11]A number of articles treating this topic appear in Vend from time to time. For example, see "Contracts are Good Business," Vend, Vol. 12 (May, 1958), 54-55+.

sell their products, a high degree of cooperation exists among the various members of the vending industry.

As early as 1935, vending machine manufacturers, operators, and suppliers realized the interdependence of their businesses. In that year when allegedly discriminatory taxes threatened to drive the vending industry from the American scene, the industry banded together to form the National Automatic Merchandising Association (NAMA).[12]

In November 1957 the membership rolls of the NAMA included some 1400 operating companies and more than 175 manufacturers and suppliers.[13]

The initial purpose of the NAMA was unified opposition to the state and local taxes which placed heavy burdens on the industry. Essentially, the NAMA sought (and largely won) relief from so-called "per machine" taxes which assessed the owners and/or operators of vending machines a flat fee for each machine under the jurisdiction of the taxing authority. In the twenty-three years since the founding of the NAMA, the tide has turned in the tax battle.[14]

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[12] Brief historical sketches of the NAMA are published annually in the Directory of Automatic Merchandising.

[13] 1958 Directory of Automatic Merchandising, op. cit., p. 173.

[14] See Chapter VI of this thesis for a more detailed study of the tax situation.

"Educational" work in the legislative field is still one of the major functions of the NAMA. However, the activities and objectives of the NAMA have been immensely widened during the past twenty-two years. A partial listing of the twenty-five standing committees maintained by the NAMA provides a key to its operations. Among the standing committees are the following: Court of Inquiry, Government Liasion, Labor Relations, Legislative, Management Education, Operator Accounting, Operator Insurance, Public Health, Public Relations, Personnel Employment and Training, NAMA Group Insurance Trust.[15]

The NAMA states its objectives as follows:

> 1. To serve the public by promoting the highest possible standards within the automatic merchandising industry in matters of merchandise, equipment, service, and business ethics, and by promoting the distribution of products through automatic merchandising wherever practicable and whenever in the public interest.
>
> 2. To serve its members by bringing about a better understanding and a greater acceptance of automatic merchandising on the part of the public (thus reducing the incidence of unfair legislation), by providing necessary leadership in legislative and other industry matters, and by developing ways and means for furthering the progress of automatic merchandising.[16]

Over the years, NAMA has worked hard on public relations which it considers to be one of the principal problems

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[15] A complete listing of the standing committees and short notes on the activities of a number of these committees appears in the 1958 Directory of Automatic Merchandising, op. cit., pp. 174ff.

[16] Ibid., p. 173.

facing the industry. In this area, the association stresses two points:

1. The code of ethics which the Association adopted in 1945 and which all members are pledged to uphold. (A copy of the code appears in the Appendix of this thesis.)

2. Vending machine operators regard themselves as retailers. Membership in the NAMA is restricted to those engaged in merchandise and service vending; the manufacture or operation of machines for amusement or gaming excludes a company from membership in the Association.

The trade journal. Vend magazine is the official organ of the vending industry.[17] Subtitled "the magazine of automatic merchandising" Vend publishes the latest industry news once a month. Each March a special market data and directory edition is published featuring an annual census of the industry.

The Form of Potential Competition

In the preceding section, the organization of the vending industry was explained. Although a fairly young industry, the vending industry appears to be quite well organized and capable of at least commencing the vast expansion program which its members envisage.

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[17] Vend, published monthly, semi-monthly in March, by the Billboard Publishing Company, Cincinnati, Ohio.

Execution of this expansion program will bring the vending industry into direct competition with food retailers. By placing silent salesmen capable of vending milk, bread, butter, coffee, et cetera, in apartment house lobbies, along the roadside, near gasoline stations, and in factories, the vending industry will provide a convenient shopping place for "fill in" food items. Each of these possibilities will be discussed in turn.

Apartment houses. Apartment house vending began in August 1949 when the City Milk Vending Company of Maspeth, New York, installed a milk vender in a New York City apartment house.[18] The Dairy Lane Company introduced milk venders to Milwaukee apartment house dwellers in 1954.[19] In 1957 venders dispensing eggs, butter, cheese, soft drinks, jello, and potato salad, in addition to milk were installed in six large Chicago apartment houses.[20]

The City Milk Company with its long experience in apartment house vending is probably best able to assess this type of operation. After a long study of its operations, the City Milk Company concluded that:

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[18]Schreiber, op. cit., p. 148.

[19]"Collection of Milk Vending Feature Articles," op. cit., p. 1.

[20]"Six Apartment Buildings Get Vending Units," Supermarket News, August 5, 1957, p. 19.

1. Its machines do best in large, vertical apartment buildings (eighty or more apartments) where the child population is high.

2. New installations encounter a considerable amount of consumer resistance.

3. The biggest hurdle is to convince the potential customers that the product is fresh and properly refrigerated.

4. Generally it takes a full year for a machine to reach its peak sales potential.[21]

Despite the long experience of the City Milk Company, apartment house vending must still be regarded as experimental in nature. Some tentative conclusions can be drawn, but more time and experience are needed before these conclusions can be finalized.

Mr. G. R. Schreiber appears to have aptly summarized the potential of apartment house vending as follows: "The number of apartment dwellings sufficiently large to warrant such installations is small, but the number of families which might be served is impressive."[22]

Roadside venders. Roadside venders of one sort of another have been used in this country for well over twenty

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[21]Schreiber, op. cit., pp. 148-150.

[22]Ibid., p. 150.

years. Perhaps the roadside milk vender is the most common of these machines today. However, roadside ice venders preceded the milk vending machine by many years. An estimated 2,000 ice venders were in use as early as 1941.[23]

Each of the thousands of venders which dot the nation's highways today is a potential automatic store. Regardless of the product vended, the design of most roadside venders varies only slightly.[24] The vending industry hopes to capitalize on this versatility by gradually broadening the product line at each installation.

As an example of how roadside vending stations can be developed, one such station on Route 13 in Bristol, Pennsylvania, reached a sales volume of $1,000 a week within a year from the date of its opening.[25]

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[23] Ibid., p. 139.

[24] Schreiber describes a typical outdoor vending station as "a self-contained unit, actually a small building, weather-proof and as nearly vandal-proof as a structure can be made. . . . The interior of the vending station contains a refrigeration system and a conveyor belt mechanism. As many belts are built into the machine as are required for the kind of products the machine sells. The products to be sold are stored on the conveyor belts and these motor driven belts are adjusted to deliver a single package. Delivery is made down a long chute thus preventing vandals from reaching inside for a free package. The coin mechanism is usually mounted outside the cabinet and is weather-proofed. Each conveyor belt has its separate coin mechanism and control. . . .

"The stations are usually shipped fully assembled from the factory and installation is simple. A concrete platform must be provided and electricity run to the mechanism." Schreiber, op. cit., pp. 139-140.

[25] "He Keeps on Adding Vending Machines with an Eye to Completely Automatic Stores," Supermarket News, September 16, 1957, p. 35.

Admittedly, the above example is in no way typical of the vending industry today. However, roadside vending installations, such as this which dispense milk, bread, eggs, cold cuts, et cetera, are prominent in the vending industry's expansion plans.

Gasoline stations. Gasoline stations are a favorite location for milk venders today because of their heavy traffic and the presence of change making facilities during most of the day. Because of these inherent advantages, gasoline stations appear to possess tremendous potential for growth in vending.

Factories. A new model of the old time industrial store is a fourth potential competitor of the more orthodox food retailers. Silent salesmen vending, bread, butter, milk, et cetera, and located at the exits of factories may soon seek the patronage of industrial workers.

Many factories already have huge batteries of venders in their cafeterias selling food for on the premises consumption. Conceivably, these same factories could also be equipped with venders dispensing food for at home consumption.

At the present time the vending industry is not generally regarded as a competitor of the retail food industry. However, the vending industry is growing rapidly and the end does not appear in sight.

Should the vending industry win a larger share of total retail sales, some other retailers must inevitably lose part of their present share of the market. Apparently, the vending industry feels that food retailers are among the most vulnerable!

CHAPTER IV

THE SUPERMARKET'S EXPERIENCE IN VENDING

Brief History of the Supermarket's Experience

Although soft drink venders long ago won acceptance by supermarket operators and these venders are now commonly classified among the traditional features of a supermarket, outdoor vending installations at supermarkets are still a novelty.

To the knowledge of this writer the first outdoor vender employed by a supermarket was the milk vender installed in the parking lot of a Jewel Tea Company supermarket in Northlake, Illinois in 1954.[1] In 1956 The Kroger Co. became the second chain to experiment with vending machines (in the "take-home" market) when Kroger had a milk vender installed outside one of its stores in Sterling, Illinois.[2]

Grand Union breaks the ice. In spite of these pioneering efforts by Jewel and Kroger, the first real

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[1]This experiment and several later such experiments by leading food chains are discussed in "Food Chains Look at Outdoor Milk Vending," Vend, Vol. 12 (July, 1958), 94ff.

[2]Ibid., p. 94.

break-through in grocery vending was achieved by the Grand Union Company. On October 24, 1956, Grand Union initiated full-line outdoor vending with the installation of a bank of eight vending machines outside the front of the chain's newly rebuilt headquarters store at East Patterson, New Jersey.

On the first Sunday of Grand Union's vending operation, the venders sold out on most items. Some 480 quarts of milk and 180 loaves of bread were dispensed. The machines grossed $700 that day.[3]

More firms climb on the vending bandwagon. The sales and profit potentials of outdoor vending machines fired the imagination of supermarket operators from coast to coast. Approximately one month after Grand Union introduced its venders, The Great Atlantic and Pacific Tea Company (A&P) followed suit with the installation of a battery of five vendors outside one of its stores in Levittown, New York. Other firms quickly climbed aboard the vending bandwagon. Within the next ten months at least nine other firms followed the Grand Union--A&P vending leadership. Among those who have installed venders are:

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[3]Promotional literature from Vari-Vend Co., Chicago, Illinois, 1957.

Firm Name	Address	Installation Date
The Grand Union Company	E. Patterson, N.J.	Oct., 1956
The Great Atlantic and Pacific Tea Company	Levittown, N. Y.	Nov., 1956
Freeman Markets	San Leandro, Calif.	Dec., 1956
Nelson's	Richmond, Calif.	Dec., 1956
Food King Supermarket	Portland, Oregon	Jan., 1957
Colonial Stores	Durham, N. C.	March,1957
Eberhard Supermarkets	Grand Rapids, Mich.	April,1957
National Tea Company	Chicago, Illinois	April,1957
Kelley's	Bakersfield, Calif.	June, 1957
Sid's Super-Duper Market	Yakema, Washington	July, 1957
The Kroger Company	Detroit, Michigan	July, 1957

During this initial boom period, two large voluntary chains, the International Grocers' Alliance (IGA) and Red and White Stores gave further impetus to the vending boom when they announced that vending machines were being incorporated into their long range growth and development programs.[4]

Most firms abandon vending experiments. In January 1957, the A&P abruptly halted its vending experiment--less than two months after the venders were installed and only three months after Grand Union first introduced grocery venders. The A&P thus ended its vending experiment before most other such experiments were even begun.

Time proved that when the A&P removed its venders it set a precedent almost as strong as the precedent which Grand Union set when it introduced the venders. With the

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[4]"Red and White Plans to Recommend Vending Operations to Its Members," Supermarket News, February 18, 1957, p. 29; "35 IGA Units Plan Outdoor Vending Setups," Food Topics, January 7, 1957, p. 13.

exception of the Grand Union installation, the other major installations of vending machines by supermarket operators have been removed after a short trial period.

Today some twenty-one months after Grand Union's first introduced grocery venders, Grand Union is once again the only large food chain pioneering this revolutionary concept in food distribution.

Analysis of the Supermarket's Experience

Limitations of the study. In the research for this thesis the writer has been forced to rely on a combination of primary and secondary sources of information. While exclusive use of primary sources would enhance the accuracy and reliability of the data, limitations of time and money prevented such an approach.

The accuracy of the data gathered from secondary sources has been tested by comparing it with the data gathered from other sources--both primary and secondary. In some cases, notably in the area of operating results, conflicting reports were discovered.

Because of this difficulty in obtaining accurate information, this analysis of the supermarket's experience in outdoor grocery vending is subject to two serious limitations:

1. Scope--The analysis is limited to a study of the vending operations of six major food chains only.

2. Detail--Many desirable and/or interesting details have been omitted because the information either was not available to the writer at all, or that information which was available was of doubtful accuracy.

The writer believes that the over-all picture presented in this section is reasonably accurate. He further believes that the results of further research in this area would not justify the cost of such research.

Characteristics of the installations. All supermarket operated vending machines were situated either adjoining or adjacent to a supermarket. In all cases the machines were made easily accessible to bypassers. Favorite locations were outside store walls or the store parking lot.

The supermarkets which tested the machines were mostly "solo" stores. Only the Kroger and the Grand Union test markets were located in shopping centers. These two stores were in locations with twenty-four hour exposure.

The size of the vending installations varied from two machines (Eberhard's) to eleven (Grand Union). All other firms used five or six machine installations.

The number of items offered for sale varied according to the number of machines. All machines, however, did not offer the same number of items. For example: Both the Colonial and the Kroger installations used six machines.

Yet, Kroger offered its customers fifty-five items while Colonial offered thirty-two.

All of the test installations were equipped with change making machines which would make change for twenty-five and fifty cent coins.

For the convenience of the reader, the "vital statistics" of the six supermarket vending machine installations are presented in Table III.

Method of operation. The actual ownership of the machines was of no apparent consequence in the experiments, since in every case, store employees serviced the machines. Conventional vending machine operating companies were not used by any of the food chains. All machines were serviced at least once daily.

Prices of the items sold through the venders were either identical to or comparable to the prices charged in the stores themselves.

The products stocked in the venders were principally those of the convenience type such as bread, milk, et cetera. A list of the most common items which the venders dispensed appears in Table IV.

Operating results. Eight months after it pioneered grocery vending, the Grand Union Company replaced its original eight machines with eleven machines of its own design. This change permitted an increase in the number

TABLE III

VITAL STATISTICS OF SIX SUPERMARKET VENDING MACHINE INSTALLATIONS[a]

Chain	Store Location	Type Location	Date	Number of Venders	Number of Items Vended	Price Policy
Grand Union	E.Patterson, N. J.	Shopping Center	10/56--	8[b]	54	Comparable to Store
Colonial	Durham, N.C.	Street	3/57-1/58	6	32	Same as store
Eberhard	Grand Rapids, Mich.	Busy Street	5/57-8/57	2	22	Same as store
National	Chicago, Ill.	Busy Street	4/57-11/57	6	*	Same as store
Kroger	Detroit,Mich.	Shopping Center	7/57-10/57	6	55	Same as store
A&P	Levittown, N.Y.	Street	12/57-1/58	5	60	Comparable to Store

*Figure not available.

[a]Compiled by the writer from various sources.

[b]This number changed eight months after installation to eleven.

TABLE IV

SOME GROCERY ITEMS WHICH ARE STOCKED IN VENDING MACHINES[1]

Apples, pre-packed
Bacon
Baked beans
Biscuits, prepared
Bread
Butter
Cake
Cheese, sliced, cottage and spreads
Coffee, vacuum and instant
Cigars
Cigarettes
Corn, canned
Cream
Eggs
Frankfurts
Gum
Handkerchiefs
Juice, canned, tomato
Juice, fresh, orange
Luncheon meats
Margarine
Milk, canned and fresh
Pancake batter
Peas, canned
Salad dressing
Salmon
Sanitary Napkins
Sausages
Soft drinks
Soup, canned
Spaghetti, canned
Sugar
Tea bags
Toilet tissue
Tuna

[1]Compiled by the writer from various sources.

of items vended from fifty-four to 160.[5] Today, thirteen months later, these machines are still in operation. Industry sources report that Grand Union will install a battery of venders at a second location sometime in the fall of 1958.[6]

The Grand Union Company itself, has maintained official silence on the subject, however. The company's only comment on vending is: "We feel a test of this kind takes more time than six months or a year. It takes time and experience. . . . We're learning a lot. . ."[7]

With the single exception of Grand Union, all chains have now abandoned their vending experiments. To the knowledge of this writer no further vending tests are contemplated by the chains at this time or in the foreseeable future. Apparently, the food chains look upon their vending experiments as failures.

When Colonial Stores ended their vending test the company announced that "mechanical failures resulted in the decision to end the experiment."[8]

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[5]"Own Vending Machines Developed by Grand Union,11 Front N. J. Store," Supermarket News, June 10, 1957, p. 1+.

[6]See "Hear Grand Union Plans 2nd Vendor," Supermarket News, July 14, 1958, p. 1+; and "Food Chains Look at Outdoor Milk Vending," loc. cit.

[7]Ibid., p. 36.

[8]"Colonial Unit Ends Vendors," Supermarket News, May 25, 1958, p. 38.

Mr. L. V. Eberhard told the writer that mechanical failures were the principal reason for his firm's discontinuance of venders.[9]

Both the National Tea Company and The Kroger Co. were dissatisfied with the sales performance of their venders. Kroger also had considerable mechanical difficulties.[10]

When the A&P discontinued its venders a mere seven weeks after their installation, the company's only comment was that "vending didn't fit in with our operations at this time."[11] However, the Vari-Vend Company, the manufacturer of the A&P's venders admitted that the A&P had been plagued by mechanical failures and this fact may have influenced the company's decision to remove the venders.[12]

In general, the supermarkets experience with vending machines has not been satisfactory. Mechanical failures of the venders and low sales volume have been cited as the two principal causes of this dissatisfaction.

Although actual sales figures have not been released by the supermarkets, Jobbers Service, Inc., the Vari-Vend

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[9]Personal interview with L. V. Eberhard, Eberhard's Foods, Grand Rapids, Michigan, November 14, 1957.

[10]"Food Chains Look at Outdoor Milk Vending," op. cit., p. 96.

[11]"Vari-Vend Explains A&P Dropping It," Supermarket News, February 4, 1957, p. 26.

[12]Ibid.

distributors for the eastern United States[13] supplied this writer with the following yardstick:

> Vari-Vend machines which vend twelve items each, cost between $1,500 and $1,800 each. These machines should gross about $30 per machine per day to earn a (before taxes) return on capital of about thirty-five per cent--based on an estimated twenty per cent gross margin.[14]

To the knowledge of this writer, none of the installations came close to producing the above figures.

Commentary on the Supermarket's Experiments

Scientists (notably physical scientists) and others who appreciate the difficulties involved in identifying cause and effect relationships have long used the technique of controlled experimentation to enable them to isolate and measure the variable elements in a given situation. These people appreciate the degree to which the results of research are dependent upon the technique employed.

This appreciation of research techniques is not universal, however. The writer believes that the vending experiments conducted by the food chains previously discussed (with the exception of Grand Union) indicate a marked disregard for careful research. If the research has been shoddy as alleged, then the results of the experiment are doubtful at best.

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[13]Vari-Vend machines were used by A&P, Eberhard, Grand Union, Kroger, and National Tea.

[14]E. Lee Feller, Jobbers Service, Inc., Coldwater, Michigan, personal letter, October, 1957.

The purpose of this section is to try to show that while the experiments which the food chains[15] conducted were not satisfactory, this does not necessarily mean that the fault lies with the machines. The fault may well lie with the experiments. Most likely it lies with them both.

Length of experiments. Not one of the experiments lasted a full year. The A&P test lasted a mere seven weeks and most of the others lasted less than six months.

The duration of the tests seems questionable in view of the experience of the City Milk Company which found that its apartment house venders required a full year on location before sales reached their peak.[16]

If apartment house venders which are seen almost daily by potential customers require a year on location before peak sales are reached, it seems logical that at least a year on location would be required to attract customers to grocery venders which they encounter rather infrequently.[17]

Vender location. The general manager of one of the leading vending machine distributors reported to this

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[15]The Grand Union Experiment is not included in the following discussion except where it is specifically identified.

[16]See Chapter III, Section "Apartment Houses," of this thesis.

[17]The problem of consumer acceptance is covered in Chapter V of this thesis.

writer that he would "recommend that installations be made only at stores that close at 6:00 P.M., rather than 9:00 P.M." He would "also prefer locations near factories that have night shifts."[18]

Site selection methods as crude as these, after almost a year's experience in the field, indicate that there is still much to be desired in site selection techniques.[19]

Since proper site selection has long been regarded as absolutely vital to the success of vending machines, more refined methods of site selection seem necessary.

Merchandise selection. In discussing the success of his company, Elmer Hinkle, president of the Automatic Canteen Company of America (one of the country's largest vending machine operators) said: "The big secret in this business is to know what not to vend."[20]

In effect, Mr. Hinkle was saying that of the millions of products on the market, relatively few can be vended successfully. The problem is to eliminate those that cannot succeed.[21]

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[18]Feller, op. cit.

[19]At least one firm, The Kroger Co., erred by placing its venders outside a store that remained open until 9:00 P.M.

[20]"The Click of Coins--Louder," Newsweek, Vol. 50 (August 5, 1957), 77.

[21]Product limitations of vending machines are discussed in Chapter VI of this thesis.

When attempting to separate the vendable products from the non-vendable products, one must consider such qualities as brands and sizes as well as the type of product involved. To the knowledge of this writer, product changes were made frequently in most installations but few changes were made in brands and sizes.

Machine servicing. Three of the five companies which abandoned their vending machines specifically mentioned mechanical failures as a principal reason for abandoning the machines. Yet, in all five cases the daily servicing of the machines was entrusted to store clerks, the vast majority of whom are completely ignorant of the complex workings of a vending machine. Regardless of any possible defects in the machines themselves, the possibility exists that the number of mechanical failures could have been reduced considerably through the use of trained servicemen.[22]

In this section the writer has attempted to show that at the conclusion of the supermarkets' vending experiments, many many questions dealing with vendor location, merchandise, sales promotion, and servicing remained to be answered. Because of this large number of unanswered questions the writer feels that the results of the supermarkets' experiments are inconclusive.

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[22]In Chapter II of this thesis, the need for properly trained servicemen was described as a prime requisite for successful vending machine operation.

CHAPTER V

OPERATING PROBLEMS

In the preceding chapters some of the most severe problems which face vending machine operators have been mentioned. In this chapter an attempt will be made to analyze those problems which the writer believes are the most important to operators of grocery vending machines.

Consumer Acceptance

Operators of grocery vending machines are confronting their customers with a revolutary method of food distribution. The success of this method of distribution is dependent upon its acceptance by consumers--that is, upon the willingness of consumers to change their established shopping habits, and to adopt new shopping habits which conform with the requirements of machine selling.

Generally speaking, consumers are extremely slow to change their shopping habits. Innovations which would change these shopping habits take time. A tremendous educational job faces vending machine operators and all others who seek to change established consumer behavior patterns.

A survey at the Kroger vending machine installation in Detroit showed that three months after the machines were placed in operation only twenty per cent of the shopping

center's customers were even aware of the venders existence. After stories and pictures describing the vendors had been published in all major Detroit papers, notice of the new vending operation had been given in a series of Kroger advertisements and 25,000 handbills were given to customers. The Kroger Co.'s attempt to change consumer shopping habits showed very limited results.

A copy of the results of the Kroger survey is presented in Table V. Admittedly, the sample is not large, but the results seem quite clear.

The writer believes that the problem of winning consumer acceptance is the one biggest problem facing the operators of grocery venders today.

Mechanical Failures

Mechanical failures are a major problem in the field of grocery vending today. Certainly the experience of the food chains which pioneered grocery vending provides ample proof of this statement. Perhaps the principal reasons for the large number of machine failures are:

1. Mechanical "bugs" in the machines.
2. Poor servicing of the machines by the stock clerks.
3. Customer abuse of the machines.

Of the three probable reasons for mechanical failure of the venders, the first reason will undoubtedly be the easiest to conquer. Flaws in the design and production of the venders which have contributed to machine failures

TABLE V

QUESTIONNAIRE*

VARI-VEND KROGER INSTALLATION SURVEY TAKEN
IN NORTHWOOD DETROIT SHOPPING CENTER

Here are the results from the survey. Many people thought you needed more advertising as they heard about the machines from friends and neighbors. Most all of the people thought the convenience was great, except two--one said she didn't purchase anything on Sunday and the other had it in for automation.

1. Are You A Kroger Customer?

Yes	18
No	16
Occasionally	16

2. Have You Seen The New 24-Hour Food Vending Machines that Kroger Has Installed?

Yes	20
No	30

3. Have You Seen the Advertisement Or the Feature Article (Story) In Any Of the Detroit Papers?

Yes	19
No	31

4. Did You Know that These Vending Machines Carry Most Of the Necessary Articles You Buy Daily? (Such as Bread, Milk, Butter, Cold Meats, etc.)

Yes	26
No	24

5. Have You Purchased Anything From These Food Vendors?

Yes	9
No	41

6. Do You Personally Feel This Is An Added Convenience For You?

Yes	48
No	2

7. How Often Do You Anticipate You Will Use Them?

Daily	0
Twice Week	31
Once Week	19

*Source: Jobbers Service, Inc., Coldwater, Michigan.

will most likely be corrected once the manufacturers gain more experience in the construction of these machines.

Specialized training will be necessary before stock clerks will be able to properly service vending machines. Unfortunately, this training will cost both time and money. Probably this personnel problem will prove to be one of the largest stumbling blocks in the path of grocery vending.

As a possible alternative solution to the vender servicing problem, suparmarket operators in the future may well experiment with professional servicemen. Instead of attempting to teach the fundamentals of vending machine design to grocery clerks, supermarket operators may employ the services of vending machine operating companies. Under such a system the supermarket operator would provide the location and the merchandise. For a fixed fee the operating company would service the machines. Of course, a natural variation of this system would be a plan whereby the operating company would operate similarly to the popular rack-jobber.

Consumer abuse of the venders, the third probable reason for machine failures, will undoubtedly be reduced to a minimum once consumers adjust to and accept the machines.[1] Vending machines can be both perplexing and

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[1]Vandalism is an entirely different problem from that being discussed here. The problem of vandalism will be covered later in this chapter.

distressing to people who have never before encountered them. As venders become more common this problem should resolve itself.

Location Problems

The problem of site selection for grocery venders is certainly not insoluable. Yet, today the problem is a long way from solution.

The crude techniques of site selection now employed include such "principles" as:

> Choose a supermarket which closes at 6:00 P.M.
> Locate near a factory with a night shift.
> Select a site on a busy street.

Fortunately, vending machines are portable and site selection mistakes are not catastrophic for the supermarket operator who can move the venders from place to place. However, sound business policy calls for more refined and hence, more reliable methods of vending machine site selection than are now being employed.

Change Making Problems

The very nature of vending machines creates a problem of formidable size for vending machine operators. The fact that venders accept coins only, limits the sales at any location to the money available in coins which are accepted by the vending machines. Supermarkets with their large batteries of vending machines are especially vulnerable to the shortage of coins.

Machines which make change for the larger coins are available at a number of locations where venders operate, but the need for a paper-money-changing mechanism increases daily.

Within the past few months, great progress has been made in the development of the long sought for paper-money-changer. Several test models have been produced. However, no such machine is yet available.

Consumers who have experienced difficulty with coin-changing devices will naturally be wary of this new machine when it appears. A thoroughly reliable machine is a must. When such a machine is perfected, vast new horizons will be open to vending.

Vandalism

Vending machines, unlike other pieces of equipment, are generally left unattended and unguarded and are, therefore, easy prey for the whims of many misguided individuals. In describing this situation, Fortune says:

> Producers of typewriters, washing machines, or comptometers, for instance, know that when their product reaches the public it will receive the respect and treatment due an expensive piece of equipment. Not so vending machines. The vending machine is considered fair game for small boys, disappointed customers, drunks, vandals, and plain thieves. Non-criminals who would scorn to pocket an unguarded dime will cheerfully spend untold energy, ingenuity, and animal cunning to beat a vending machine out of a nickel bar of candy. Whether accomplished by the use of slugs or by taking advantage of some other mechanical weakness of the machine, this particular form of petty thievery seems to top wet-fly fishing as a national pastime. The gentleman whose penny remains

> unrewarded by a bit of chewing gum feels that he has the moral right to attack his betrayer with a hammer. The drunk pours beer into the coin chute because he is drunk, small boys smash mirrors for the hell of it, thieves use torches to burn open cash boxes, chiselers pull a machine from the wall in order to claim personal injury. The only successful vending machines are largely the hardy specimens that can withstand this sort of treatment, and the only successful makers and operators of such machines are those who are equally tough.[2]

Technological improvements in the machines, increased customer acceptance, and more sturdy machines have all contributed to a lessening of this great problem.

Miscellaneous Problems

Slugs. Like vandalism, the problem of slugs once threatened the existence of vending machines. Modern slug rejectors are sufficiently sensitive to coins to allow only an occasional slug to get by.

Perhaps the advent of paper-money-changing machines will attract counterfeiters to the machines. Machines which are nearly one hundred per cent fool proof will be the operator's only defense against counterfeiters.

Public relations. Since its inception, the NAMA has hammered away at the idea that vending machines are not in the same class as slot machines. Whether its original motives were mercenary or whether they were social, the

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[2]"Machine as Salesman," Fortune, Vol. 35 (March, 1947), 16.

NAMA has largely been successful in divorcing the vending industry from the slot machine business in the eyes of the public. The NAMA has consistently pushed the idea that automatic merchandising is merely a retail sales medium.

These public relations efforts of the NAMA have not gone unrewarded. Most of the discriminatory taxes which hamper vending have been abolished.[3] Good public relations have probably also helped in the war against vandalism.

The public relations problem has not ended, however. Now as vending machines look for a larger share of the retail market, restrictive legislation could again become a problem.

Lack of statistical data. Many of the questions which were left unanswered when the supermarkets abandoned venders could be taken as symptoms of a problem that has perpetually plagued the vending industry--the lack of accurate statistical information.

The writer pointed out in Chapter II of this thesis that the best statistical data available on vending is the Annual Operating Cost Ratio Study of the NAMA. As commendable as this study is, it falls far short of the quality of the Harvard reports on Operating Results of Food Chains. There is no reason why this lack of accurate statistical

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[3]Taxes and their impact on vending are covered in Chapter VI of this thesis.

data should continue to exist. The vending machine operators can solve this problem as soon as they are willing to cooperate with one another--or with the NAMA

CHAPTER VI

FACTORS WHICH LIMIT VENDING

In the preceding chapters of this thesis, the writer outlined the general nature of vending, the potentials of grocery vending, and the results of past experiments in grocery vending. Most of this material has cast vending in a favorable light.

Vending machines, however, do not appear about to take over the field of retail food distribution. The very nature of vending imposes several serious limitations on its future growth and development. The writer has grouped these limitations under three headings which are presented below.

Product Limitations

Perhaps the most significant limitation on the growth of vending is that of the product itself. Relatively few products possess the characteristics which machine selling demands. According to Marshall, a product which possesses these characteristics is "small in size and weight, having a mass market, enjoying a high rate of frequency of purchase and truly a convenience item from the viewpoint of consumers."[1]

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[1]Marshall, op. cit., p. 215.

Products such as bread, milk, butter, and eggs readily meet these requirements. Other foods such as watermelons, dried fruits, dietetic foods, steaks, roasts, fresh fish, and the like do not possess all of the requirements for mechanical selling. If this is so, then perhaps only a limited number of food store products are truly vendable. The limited vending experience of the food chains appears to substantiate this statement.[2]

Legislation

Legislation can be either regulatory or restrictive--among other things.

Most business in the country is regulated to some extent. Sometimes, however, regulatory or revenue producing legislation tends to become restrictive in nature. Legislation affecting vending has often had the effect, if not the stated purpose, of restricting its growth.[3] The three principal types of legislation are analyzed below.

Per machine taxes. In the past, a number of states and cities, particularly in the Southeast, have levied so-called "per machine" taxes on venders. Taxes of this kind

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[2]The writer was told that in these experiments "the only items that move in any volume are milk, bread, and eggs. All other items do not pay for their space." Richard Grimes, Jobbers Service Inc., Coldwater, Michigan, personal letter, October, 1957.

[3]In his research for this thesis, the writer uncovered several instances of restrictive and even prohibitive legislature which came about as the result of pressure from established retailers who feared that the vending machines would hurt their business.

are called "per machine" taxes because the required tax payment is determined solely by the number of machines which an operator has. This type of tax legislation tends to restrict the growth of the affected industry.

In the vending industry, where sales of individual machines are small and the success of the operator is dependent upon the number of machines in operation, per machine taxes pose a strong threat to survival.

The growth and development of this type of tax legislation was the driving force which brought the NAMA into existence in 1935.[4] Since its inception, the NAMA has fought strongly against per machine taxes. These efforts have not gone unrewarded: nine of the sixteen states which had levied "per machine" taxes have since repealed them (see Table VI).

Table VI is a current summary of state per machine tax laws. Although this table was prepared in the fall of 1955, the writer knows of no changes which have occurred in these laws since that time.

Since the per machine tax laws were written long before the introduction of grocery venders, no such tax laws specifically mention grocery venders (see Table VI). To this extent, grocery venders remain free of this restrictive legislation. However, should sales of grocery venders

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[4]See Chapter III of this thesis which deals with the vending industry.

TABLE VI

CURRENT SUMMARY OF STATE PER MACHINE TAXATION OF MERCHANDISE VENDING MACHINES[1]

1. Thirty-two states never had a per machine tax on vending machines

2. Ten states have repealed per machine taxes on vending machines[2]

1939--Delaware[3]	1949--Virginia
1942--Louisiana[4]	1950--Kentucky
1946--Mississippi	1951--Georgia
1947--Arkansas	1951--Texas
1948--South Carolina	1955--South Dakota

3. These six states still require per machine taxes

	Candy-Gum-Nut 1¢	Candy-Gum-Nut 5¢	Beverage	Cigarette
Alabama[5]	$1.00	$8.00	$8.00	
Florida	.50	5.00	5.00	
Maryland	1.00	2.00	2.00	
North Carolina			15.00	
Tennessee[6]				3.00
West Virginia	2.00	5.00	5.00	5.00
	4	4	5	3

[1] 1956 Directory of Automatic Merchandising (Chicago: National Automatic Merchandising, 1955), p. 43.

[2] North Carolina repealed all per machine taxes in 1937, then reenacted them in modified form in 1939, then repealed all per machine taxes except those on soft drink machines in 1953.

TABLE VI (footnotes continued)

[3]Delaware has an optional per machine license of $1.00 per year per machine, but these fees are not required where the operator obtains a state merchants license for which he pays $5.00 per year plus 1/10 of 1% of the aggregate cost value in excess of $5,000 of goods purchased for sale.

[4]The state license in Louisiana for selling merchandise, as enforced, was in effect a location license of $5.00 per year; the 1942 amendment replaced this per location license.

[5]Alabama requires a graduated operators license ($30 to $80) in lieu of per machine taxes where the machines are in industrial plants or on private property for the benefit of employees.

[6]The 1955 Tennessee law permits the operators the option of paying 1-1/2% of his gross sales in lieu of the 3% use tax on his product cost and in liew of per machine taxes. Under this law, permanent (not annual) registration fees of $2.00 per operator and $1.00 per machine are required. The new law does not apply to cigarette vending machines.

grow to the point where they hurt established retailers, then several states have established a precedent for imposing restrictive taxation on the venders.

Zoning laws. The location of vending machines is a matter subject to the zoning laws of each community. Since venders could be considered as being either retail establishments or pieces of machinery, zoning laws appear as a potential limitation to the further growth of outdoor vending.[5]

Health ordinances. The third type of legislation which limits vending is the common health ordinance which controls sanitation and the proper protection of the merchandise.

Health laws in themselves are a necessity for the protection of the public. However, the power which these laws give to the enforcement agencies gives these agencies virtual authority to approve or to reject any and all venders.

Price

The price of a product helps to determine its vendability. As previously noted, the ideal product for vending carries a "low" price.

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[5]Although a few scattered communities have already restricted vending machines because of alleged violations of zoning laws, the decisions in these cases have been reversed many times. The writer believes that a precedent has not been set in this area.

Two factors contribute to the limitations which price places on vending:

1. The change making problem.
2. The inconvenience (and risk) involved in feeding a number of coins into a machine.

Change making machines are combating the first of these problems. For the present, the second must simply be accepted as one of vending's limitations.

CHAPTER VII

RECENT DEVELOPMENTS IN VENDING

During the past few months two major developments have occurred in vending. Although it is still too early to properly evaluate these developments, their impact will certainly be felt throughout the industry.

Paper Money Changer

The long awaited paper money changer has apparently arrived. During May and June 1958, the ABT Manufacturing Corporation of Chicago tested four pilot model dollar bill changers.

The test runs were reportedly highly successful and the ABT company plans to begin actual production of the machine in October.[1]

The published reports on the bill changer acknowledged but played down reports of mechanical failures by the machines. Since such failures cannot be tolerated in production models of the machine, the possibility exists

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[1]"How Is the Dollar Bill Changer Doing on Location?," Vend, Vol. 12 (July, 1958), 105-106.

that the machine is not yet ready for market. Whether or not this is so only time will tell. However, the fact that the machine has reached the test market, clearly indicates that a break-through is imminent.

Proposed Health Ordinance

In Chapter VI of this thesis health ordinances were listed as factors which limit machine vending. Sanitation standards are necessary. But because of a general lack of experience in determining requirements for vending machines, the possibility exists that disagreement or lack of understanding could arise between local officials and vending machine manufacturers. If and when this should happen, vending machine operators would stand to lose large sums of money.

In an attempt to avoid this potential trouble spot, the NAMA requested the United States Public Health Service to draw up a model "Public Health Service Ordinance and Code."[2] The requested model ordinance was published by the Government Printing Office in 1957.[3] This is a suggested ordinance and code for the guidance of those

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[2]David Carson, "What's Ahead in Vending," Vend, Vol. 12 (July, 1958), 72.

[3]The Vending of Foods and Beverages: A Sanitation Ordinance and Code, Public Health Service Publication No. 546 (Washington, D. C.: U. S. Department of Health, Education, and Welfare, Public Health Service, Government Printing Office, 1957).

jurisdictions which are concerned with the sanitary control of vending machine operations. The code includes the following: definitions of terms, inspection procedures, sanitation requirements, enforcement procedures, et cetera.

Should this code win widespread adoption, uniformity will replace uncertainty in the field of vending sanitation. This would remove one of the operator's biggest headaches and minimize one of the present limitations of vending.

CHAPTER VIII

SUMMARY, CONCULSIONS, AND RECOMMENDATIONS

Summary

A vending machine is a coin operated device which dispenses a good or a service.

Although the history of vending machines can be traced back before the time of Christ, the modern era of vending began with the invention of the cigarette vender in 1925. By 1946 vending machine sales in the United States had reached the half billion dollar level.

The post war period has been marked by numerous attempts both successful and unsuccessful to extend the vending market. During this period outdoor milk venders became common sights along the roadway. Supermarkets and other retailers began using vending machines to sell single packages of cigarettes and other nuisance items. Vending machines were also installed in large apartment houses to serve the convenience of the tenants. Several department stores attempted unsuccessfully to sell through venders.

The established vending industry--the vending machine manufacturers, the operating companies, and the suppliers--has expressed a definite interest in grocery vending as a

possible new market. The industry is aggressive and well organized and should be regarded as potential competition by food retailers. This competition could take the form of apartment house venders, roadside venders, or venders located at gasoline stations or in industrial plants.

While the vending industry planned for grocery vending, the food chains acted. The first real breakthrough in grocery vending was achieved by the Grand Union Company. On October 24, 1956, Grand Union initiated full line outdoor vending with the installation of a bank of eight vending machines in front of the headquarters store at East Patterson, New Jersey.

The Grand Union move into vending was quickly followed by similar moves by such leading chains as the A&P, Colonial, National Tea, and Kroger. Apparently, the food chains saw in vending a potential medium for providing convenient around the clock shopping facilities for "fill-in" items.

Soon after the grocery vending boom began, however, the chains reversed themselves and one by one they discontinued using venders. The principal reasons given for this action were machine failures and poor sales.

Today, Grand Union remains alone among the leading chains in the vending field. Although Grand Union has not revealed its sales figures, most observers feel that these figures are quite satisfactory. Reports that Grand Union will soon install a battery of venders at another location appear to substantiate this belief.

The vending experience of the food chains seems to indicate that grocery vending is not profitable. However, an analysis of the food chains' experiments reveals several major defects which leave the results open to question. In addition to the typical vending machine operating problems of consumer acceptance, mechanical failures, and change making, the experiments were conducted with the additional handicaps of questionable locations, inexperienced servicemen, and lack of knowledge about the vendability of the products vended. On this basis the result of the experiments are rather doubtful.

Conclusions

The author reached several conclusions regarding grocery vending as a result of this study. These conclusions are:

1. The rapid growth of the vending industry indicates that there is a definite potential for convenience-type distribution of products which have a mass market.

2. Vending operators contemplate eventual broadening of their market to include grocery items.

3. The challenge of the vending industry is sufficient to justify careful consideration by the food chains, of the opportunities in grocery vending.

4. Grocery vending today is still in the experimental stage. Definite conclusions can not be drawn from the experiments to date.

5. Improved machines are vital to further growth and development in vending.

6. Recent developments in the areas of change making, legislation, and industry development indicate that a new breakthrough in vending is imminent.

Recommendations

In order to fully exploit any new breakthrough, the writer recommends that:

1. Vending machine manufacturers concentrate on improving or perfecting the mechanical features of their vending machines.

2. Food chains, vending machine operating companies, and others interested in vending gather more information on the various vending problems from all possible sources including their installations. The areas of site selection, product vendability, et cetera, need more research.

3. If and when the food chains again experiment with venders, professional servicemen should be hired on a contract basis. After the machines have been proven successful the task of training servicemen should be undertaken by the food chains.

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

Brown, Paul L. and William R. Davidson. Retailing Principles and Practices. New York: The Ronald Press, 1953.

Marshall, Martin V. Automatic Merchandising. Boston: Harvard University Press, 1954.

Schreiber, G. R. Automatic Selling. New York: John Wiley and Sons, Inc., 1954.

Directories

1954 Directory of Automatic Merchandising. Chicago: National Automatic Merchandising Association, 1953.

1956 Directory of Automatic Merchandising. Chicago: National Automatic Merchandising Association, 1955.

1957 Directory of Automatic Merchandising. Chicago: National Automatic Merchandising Association, 1956.

1958 Directory of Automatic Merchandising. Chicago: National Automatic Merchandising Association, 1957.

"Vend 1957 Annual Market Data and Directory," Vend, Vol. 11 (March 15, 1957).

"Vend 1958 Annual Market Data and Directory," Vend, Vol. 12 (March 15, 1958).

Periodicals

Aman, Fred. "The Mayflower Experiment," Vend, Vol. 12 (July, 1958), 74-75.

Anon. "A Model Contract for Full Line Vending," Vend, Vol. 12 (April, 1958), 60-65.

_____. "A New Way to Market Eggs," Vend, Vol. 11 (October, 1957), 78-81.

Anon. "A Sanitarian Looks at Automatic Feeding," Vend, Vol. 12 (February, 1958), 82-84+.

_____. "A 10-Fold Increase in Automatic Feeding," Vend, Vol. 12 (May, 1958), 104-106.

_____. "Behind the News: Food," Vend, Vol. 11 (October, 1957), 174+.

_____. "Bill Changers Tested," Vend, Vol. 12 (June, 1958), 125.

_____. "Campus Milk Route," Vend, Vol. 12 (April, 1958), 90.

_____. "Change-Making Machine Handles Paper," Product Engineering, Vol. 27 (July, 1956), 208-209.

_____. "Contracts are Good Business," Vend, Vol. 12 (May, 1958), 54-55+.

_____. "Dairy Products," Vend, Vol. 12 (July, 1958), 94-96+.

_____. "Dollar Bill and Currency Changers," Vend, Vol. 12 (February, 1958), 143-144.

_____. "Dollar-in-the-Slot? Vending Machines Could Influence Marketing Strategy," Printer's Ink, Vol. 261 (November, 1957), 37-39.

_____. "Food Chains Look at Outdoor Milk Vending," Vend, Vol. 12 (July, 1958), 94ff.

_____. "From Nuts to Soup, Literally," Business Week, December 15, 1956, p. 68+.

_____. "How Good Are Your Contracts?," Vend, Vol. 12 (March, 1958), 58-61.

_____. "How is the Dollar Bill Changer Doing on Location?," Vend, Vol. 12 (July, 1958), 105-106.

_____. "How Much Do Operators Make?," Vend, Vol. 11 (October, 1957), 73-76.

_____. "How to Get Stuck With Gumballs," Business Week, October, 1956, pp. 59-60.

_____. "Illinois Town's Anti-Vending Law Revoked as Result of Dairy Suit," Vend, Vol. 12 (February, 1958), 102-104+.

Anon. "Industry News," Vend, Vol. 12 (February, 1958), 69.

_____. "Industry News," Vend, Vol. 12 (July, 1958), 76.

_____. "Keeper of the Coins," Time, Vol. 67 (June 11, 1956), 91-92+

_____. "Machine as Salesman," Fortune, Vol. 35 (March, 1947), 116-121+.

_____. "Milk Market Trends Boost Vending Potential," Vend, Vol. 11 (December, 1957), 121-122.

_____. "More Milk Venders for 1958: Five Firms Buy New Models," Vend, Vol. 11 (October, 1957), 190.

_____. "New Developments in Currency Changers," Vend, Vol. 12 (July, 1958), 119-120.

_____. "News Briefs," Vend, Vol. 11 (November, 1957), 100.

_____. "News Briefs," Vend, Vol. 11 (November, 1957), 175.

_____. "News Briefs," Vend, Vol. 11 (December, 1957), 150.

_____. "News Briefs," Vend, Vol. 12 (January, 1958), 134.

_____. "News Briefs," Vend, Vol. 12 (March, 1958), 119.

_____. "New Way to Market Eggs," Vend, Vol. 11 (October, 1957), 78-80.

_____. "New York Readies Vending Sanitation Code," Vend, Vol. 12 (March, 1958), 113-114.

_____. "Outdoor Vending--It's Still Up for Grabs," Vend, Vol. 11 (December, 1957), 68, 72.

_____. "People Who Make the News in Vending," Vend, Vol. 12 (February, 1958), 32-33.

_____. "People Who Make the News in Vending," Vend, Vol. 12 (July, 1958), 27-28.

_____. "Progress Report: The Dollar Bill Changer," Vend, Vol. 12 (January, 1958), 69-70.

_____. "Selling Through the Slot," The Economist, Vol. 174 (March 19, 1955), 1013-1014.

_____. "The Click of Coins--Louder," Newsweek, Vol. 50 (August 5, 1957), 75-77.

Anon. "The Dairy Vending Market," Vend, Vol. 12 (June, 1958), 55.

_____. "Trends," Vend, Vol. 11 (October,1957), 52.

_____. "Trends," Vend, Vol. 12 (May, 1958), 32.

_____. "Trends," Vend, Vol. 12 (June, 1958), 29-32.

_____. "Vandals Beware!" Vend, Vol. 12 (May, 1958), 57.

_____. "Vending: Automatic Here Too," Iron Age, Vol. 178 (September 6, 1956), 54-55.

_____. "Vending Machines: From Nuts to Soup," Steel, Vol. 133 (July 13, 1953), 61.

_____. "Vending Machines: Silent Selling is Booming," Steel, Vol. 135 (September 6, 1954), 60.

_____. "Vending Machines: Tests Continue," Chain Store Age, Vol. 33 (December, 1957), 48.

_____. "Vending Sanitation," Vend, Vol. 12 (May, 1958), 118, 120.

_____. "Vendo Agrees to FTC Consent Order," Vend, Vol. 11 (October, 1957), 224.

_____. "What Dairies Think of Outdoor Vending," Vend, Vol. 12 (January, 1958), 78,81.

_____. "What to Expect in 1958," Vend, Vol. 12 (January, 1958), 53-54.

Blough, Carman G. "Accounting and Auditing Problems; Checking Vending Machine Inventories," Journal of Accountancy, Vol. 102 (August, 1956), 72-74.

Canfield, Bertrand R. "Will Retail Robots Revolutionize Marketing?," Advertising and Selling, Vol. 40 (August, 1947), 33-34+.

Carson, David. "What's Ahead in Vending," Vend, Vol. 12 (July, 1958), 72-73.

England, Wilbur B. "Automatic Merchandising," Harvard Business Review, Vol. 31 (November-December, 1953), 86-94.

Fishman, William S. "A Promise and a Goal--$4 Billion Gross by 1965," Vend, Vol. 11 (December, 1957), 124.

Greene, Robert Z. "The Automatic Merchandising Era," Spot, November-December, 1955. Reprinted in George F. Frey and Raymond D. Buteux (eds). Current Readings in Marketing. New York: Printer's Ink Publishing Co., Inc., 169-171.

Heckt, Andrew. "Robots...At your Service," American Mercury, Vol. 87 (November, 1956), 51-57.

Henle, Faye. "Vending Machines," Barrons, Vol. 33 (September 14, 1953), 15-16.

_____. "Ventures in Vending," Barrons, Vol. 36 (August 27, 1956), 5-6.

Rodalph, Herman. "What's Ahead for Automatic Selling?," Women's Wear Daily, June 28, 1950. Reprinted in J. H. Westing (ed.). Readings in Marketing. New York: Prentice-Hall, Inc., 1953, 98-102.

Saperstein, Bernard. "Can You Sell Your Product Through Vending Machines?," Printer's Ink, Vol. 275 (October 1, 1948), 30-32+.

Schreiber, G. R. "What the Marketing Executive Must Know About Automatic Selling," Tide, Vol. 27 (December 5, 1953), 22-24.

Sternfield, Aaron. "The Salesman Who Never Sleeps," Dun's Review and Modern Industry, Vol. 69 (February, 1957), 54-55+.

Wheeler, Shannon. "When Milk Prices Drop," Vend, Vol. 12 (June, 1958), 56-57.

Newspapers

"A&P Installs Multiple-Unit Outside Vending Machines," Supermarket News, December 3, 1956, p. 23.

"Chain Limits Plans for Vending Units," Supermarket News, December 9, 1956, p. 1.

"Chicago Area Firms Ready New Vendors," Supermarket News, June 16, 1958, p. 24.

"Coin-Operated Vending Machines. . .," Wall Street Journal, October 2, 1957, p. 1.

"Colonial Tests Installation of Outdoors Venders in N.C.," Supermarket News, March 11, 1957, p. 24.

"Colonial Unit Ends Vendors," Supermarket News, May 25, 1958, p. 38.

"Dairy Sues to Void Local Ban on Milk Vending Machines," Supermarket News, April 1, 1957, p. 12.

"Eberhard's Sets Outside Vendor Test," Supermarket News, April 8, 1957, p. 54.

"4 Outdoor Vend Machines Feature Sid's Remodeling," Supermarket News, June 17, 1957, p. 36.

"Frozen Foods Firms Get Set for Era of Vending Machines--Big Expansion," Food Field Reporter, July 23, 1956, p. 32.

Gidlow, Elas. "One Vendor Setup Bats 1,000, Nearby Unit Strikes Out," Food Topics, Vol. 12 (April 8, 1957), 63.

Gould, Paul. "Colonial's Outdoor Battery of Vendors First in South," Food Topics, Vol. 12 (March 18, 1957), 3+.

"Grand Union Sets Outside 'Food-Mat'," Supermarket News, March 11, 1957, p. 1.

"Hear Grand Union Plans 2d Vendor," Supermarket News, July 14, 1958, p. 1+.

"He Keep on Adding Vending Machines With an Eye to Completely Automatic Store," Supermarket News, September 16, 1957, p. 35.

"Hundred of Vendors to be Installed in Outdoor Locations Throughout U. S.," Food Topics, Vol. 11 (November 5, 1956), 2.

"IGA Moves Step Closer to Vending Machines," Food Topics, Vol. 11 (November 5, 1956), 42.

"Kroger Installs Outdoor Vending Machine Battery," Food Topics, Vol. 12 (July 22, 1957),15.

"National Tea Tests Vendors, Plans to Launch Frozen Unit," Food Topics, Vol. 12 (June 17, 1957), 3.

"New Food Lines Made for Vendors Unveiled," Food Field, Reporter, December 10, 1956, p. 1.

"1-Pack Cigarette Vendors Speed Traffic, Boost Sales," Food Topics, Vol. 12 (April 22, 1957), 43.

"Outdoor Vendors Draw at Kelleys," Supermarket News, July 15, 1957, p. 26.

"Outdoor Venders Installed by Kroger," Supermarket News, July 8, 1957, p. 1+.

"Outdoors Vendor Plans Speeded Up," Food Topics, February 18, 1957, p. 10.

"Outside Vendors at Coast Unit," Supermarket News, February 11, 1957, p. 28.

"Own Vending Machines Developed by Grand Union, 11 Front N.J. Store," Supermarket News, June 10, 1957, p. 1+.

"Red and White Plans to Recommend Vending Operations to Its Members," Supermarket News, February 18, 1957, p. 29.

"Report Cardinal Weighs Vendors," Supermarket News, July 22, 1957, p. 24.

"Say Grand Union 25--Vending--Machine Unit Will Offer 1,400--2,100 Items Outside Store," Supermarket News, July 30, 1957, p. 1+.

"Several Chains Eye Outdoor Vending Setups," Supermarket News, January 7, 1957, p. 3.

"Six Apartment Buildings Get Vending Units," Supermarket News, August 5, 1957, p. 19.

"35 I.G.A. Units Plan Outdoor Vending Setups," Food Topics, January 7, 1957, p. 13.

"Vari-Vend Explains A&P Dropping It," Supermarket News, February 4, 1957, p. 26.

"Vari-Vend Sets Outside Vendors," Supermarket News, March 18, 1957, p. 44.

"Vending Machines Have A Definite Place and Important Role in Food Distribution," Food Topics, Vol. 11 (November 5, 1956), 44.

"Vending Machines Prescribed by IGA to Solve Problems of Smaller Stores," Food Topics, March 4, 1957, p. 56.

"Vending Machines Successful at Kroger's Branch," Supermarket News, July 29, 1957, p. 31.

"Vending Use Plunge Termed too Deep," Supermarket News, October 21, 1957, p. 48.

"Work on Vendor for Dollar Bills," Supermarket News, August 26, 1957, p. 1+.

Miscellaneous

Agricultural Marketing Service. Changing Patterns in Fluid Milk Distribution. Marketing Research Report No. 135. Washington, D. C.: Marketing Research Division, U. S. Department of Agriculture, 1956.

"Collection of Milk Vending Feature Articles," reprinted from The Milk Dealer. Milwaukee, Wisconsin: The Olsen Publishing Company, 1957.

Dalrymple, Dana G. Automatic Fruit Vending. Ithaca, New York: Cornell University Press, December, 1955.

England, Wilbur B. Operating Results of Food Chains in 1956. Bulletin No. 151. Boston: Harvard University Graduate School of Business Administration, September, 1957.

Jobbers Service, Inc. "Survey of Veri-Vend Kroger Installation at Northwood, Detroit Shopping Center." n.d.

Promotional literature from Vari-Vend Company, Chicago, Illinois, 1957.

Summary of Information on Automatic Merchandising. BSB-151. Washington, D. C.: Business and Defense Services Administration, U. S. Department of Commerce, 1956.

The Vending of Foods and Beverages: A Sanitation Ordinance and Code. Public Health Service Publication No. 546. Washington, D. C.: U. S. Department of Health, Education, and Welfare. Public Health Service, U. S. Government Printing Office, 1957.

Washburn, Dorothy S. "The Evolution of Automatic Merchandising in the UnitedStates," Vol. 3, No. 4, Economics and Business Bulletin (Temple University Bureau of Economics and Business Research), 22+. Reprinted in J. H. Westing (ed.). Readings in Marketing. New York: Prentice-Hall, Inc., 1953, pp. 94-98.

Personal Interviews and Correspondence

Eberhard, L. V. Eberhard's Foods, Grand Rapids, Michigan. Personal interview, East Lansing, Michigan, November, 1957.

Feller, E. Lee. Jobbers Service, Inc., Coldwater, Michigan. Personal correspondence, October, 1957.

Grimes, Don R. International Grocers Alliance, Chicago, Illinois. Personal interview, East Lansing, Michigan, February 20, 1958.

Grimes, Richard. Jobbers Service, Inc., Coldwater, Michigan. Personal interview, East Lansing, Michigan, June 5, 1957.

Grimes, Richard. Jobbers Service, Inc., Coldwater, Michigan. Personal correspondence, October, 1957.

Stagg, Amos. Eberhard's Foods, Grand Rapids, Michigan. Personal interview, East Lansing, Michigan, November 14, 1957.

APPENDIX

MODEL AUTOMATIC VENDING AGREEMENT FOR INDUSTRY[1]

The agreement, entered into this ___ day of _____, 19___, by and between the Smith Corporation, of 1234 Fifth Avenue, Chicago, Illinois (hereinafter referred to as the "Proprietor"), and the Jones Automatic Merchandising Company, of 5432 First Avenue, Chicago, Illinois (hereinafter referred to as the "Operator").

In consideration of the mutual covenants hereinafter set forth, it is agreed between the parties hereto as follows:

1. Operator is hereby granted the exclusive right and privilege to sell _____ through automatic merchandising machines upon the premises occupied and controlled by Proprietor at 9659-63 West 59th Street, Chicago, Illinois.

2. A list of the locations upon said premises where such machines shall be placed, maintained, and serviced by the Operator is attached hereto and by this reference made a part hereof. Additions to and change in the said list of locations shall be made as operating experience warrants, but only by mutual agreement by the parties hereto.

3. Operator will furnish such service as to insure that all machines placed shall be kept in good working order on all working shifts. Machines will be kept clean and sanitary throughout.

4. Operator's service personnel will at all times be cleanly dressed and will observe all regulations in effect upon plant premises.

5. Proprietor will furnish Operator's service personnel with all necessary identification passes as may be required for entrance to or exit from plant premises.

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[1]Adapted from Fred L. Brandstrader, "Pick the Right Contract," Vend, June, 1949, pp. 20-21, cited by Dana G. Dalrymple in Automatic Fruit Vending (Ithaca, New York: Cornell University, 1955), pp. 41-42.

6. Operator will comply with all State, County,and city regulations pertaining to the sanitary handling of _____ and will hold Proprietor harmless from any fines or penalties resulting from alleged failure of compliance on the part of Operator. All license fees required will be paid by Operator.

7. Operator will obtain and maintain in force at all times insurance in such amount as Properitor will approve to indemnify Proprietor for any and all claims arising in any manner of operation of said automatic merchandising machine upon plant premises.

8. Operator will at all times maintain an accurate and true record of all merchandise, collections, sales and inventories necessary in connection with proper operation of said machines and Proprietor is hereby authorized to inspect such records for the purpose of verifying accounts at all reasonable times.

9. Operator will render to Proprietor within ten days following the end of each month a complete statement of all sales made during that month, together with a check for the ten per cent commission.

10. It is understood and agreed that the above commission structure is based upon federal, state, and city sales and excise taxes existing at the date of execution thereof. In the event of a change in any such tax rates, the above commission schedule shall be adjusted to reflect such a change upon a mutually agreeable basis and effective for the period in which the tax rate change is effective; provided that state and city retail sales taxes shall be deducted from total gross receipts before commissions are computed.

11. This agreement shall not be assignable by either party without written consent of the other party.

12. This agreement shall remain in force for a period of one year from date hereof and shall thereafter renew itself automatically for periods of one year unless notice of termination be given by either party to the other by registered mail at least 30 days prior to the expiration of the then current yearly period.

In witness whereof, the parties hereto [illegible] their hands and seals the day and year first above written.

Operator	Proprietor
Jones Automatic Merchandising Co.	The Smith Corporation
[illegible] First Avenue	[illegible] Fifth Avenue
Chicago, Illinois	Chicago, Illinois
By: George Adams (L.S.)	By: Andrew Brown (L.S.)
Authorized Representative	Authorized Representative

CODE OF ETHICS

As a member of the National Automatic Merchandising Association, I recognize my obligation to serve the public: my customers, my community, and my country. I am aware of my responsibility to the industry, and in my business dealings shall use my best endeavors to elevate its standards.

AS A MEMBER OF THE ASSOCIATION

1. I consider Automatic Merchandising a worthy vocation, as it affords me a distinct opportunity to serve the public. I will, therefore, always keep the public's welfare and well-being first in mind.

2. I hold that the sale of my goods and my services for profit is proper and ethical, provided that all parties in the transaction are benefited thereby.

3. I will offer only high quality merchandise and service to the public at all times.

4. I will see that my merchandising or service machines are always clean, attractive and in good working order. I will have them serviced by competent personnel as frequently as the type of merchandise or service may require.

5. I will operate only those merchandising or service machines that clearly show when they are empty or those that will provide for the return of the patron's money if no merchandise is delivered or service rendered.

6. I will see that all merchandising or service machines are plainly marked with clear and simple instructions for their operation.

7. I will participate in civic programs of my community, and support worthy welfare activities.

8. I will improve myself, increase my efficiency and will constantly strive to better my services to the public.

9. I recognize the Automatic Merchandising Industry as a modern and effective means of creating increased distribution of the products of American farms and industries to the public.