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Abstract approved
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The broiler industry in the United States has undergone tremendous change since the end of World War II. Several structural changes in the industry facilitated the widespread adoption of new technology. Improvements in feeding, breeding, and managing made production more efficient. Extensive use of contract growing and production financing accompanied the increase in broiler production. The largest expansion of production took place in the South Atlantic States and the South Central States. Rapid transportation, combined with lower production costs, enabled southern fryers to compete favorably with Oregon-grown fryers. To meet competition from broiler growers in other states, the Oregon Fryer Commission has undertaken a modest promotion program. It would be desirable for the Oregon Fryer Commission to know the most advantageous uses for its limited amount of promotion dollars.

This study was undertaken to determine production costs of a few selected broiler enterprises in Oregon, and the effectiveness of four types of in-store promotional material in increasing fryer sales.

The growers selected for the cost of production study appeared to operate three of the better broiler enterprises in Oregon. Average costs for each grower were calculated from data of the last four broods marketed in 1963. Total cost per pound of broiler marketed by these growers was 17.94 cents, 18.64 cents, and 16.90 cents. Assuming each grower received the average Oregon price of 17 cents per pound in 1963, the first two growers would have lost $830 and $4,110 per brood, while the third grower would have made a profit of $100 per brood.

In the promotion study, two posters, a banner, and a gondola were employed as in-store promotional material. The sample stores were selected from two food chains in the Portland metropolitan area and one food chain in the Salem area. The sample size of Chain A was 12 stores, while the sample size of both Chain B and Chain C was six stores. Store selections were based on large volume of fryer sales and the location of stores with respect to different socio-economic groups.

The study was divided into three periods: two weeks of pre-promotion, four weeks of promotion, and two weeks of postpromotion. The purpose was to determine the number of pounds of fryers sold

weekly in each store during the three periods. Increases or decreases of fryer sales for each store were determined by comparing fryer sales during the promotion and postpromotion periods to fryer sales during the prepromotion period. To determine promotion effectiveness, changes of fryer sales in stores with promotional material were compared to changes of fryer sales in check stores with no promotional material.

It appeared that promotion by Fryer Commission poster and revised Fryer Commission poster during one, two, and four-week intervals was similarly effective. At the same time, promotion effectiveness of banners was considerably less. An elaborate, colored, pictorial poster appeared more effective in promotion than a simple, low-cost banner. Emphasizing the word "Oregon" seemed to have little effect in increasing fryer sales. Enlarging fryer display space by the use of gondolas increased fryer sales during short time periods. Carry-over effects of promotion seemed to be slight.

Featuring fryers at reduced prices during a week increased sales volume significantly. Sales volume following a week of small price reductions returned to its approximate prepromotion level. However, sales volume following weeks of large price reductions was slightly below its prepromotion level. This presents a question of the effect of price specials on total volume of fryer sales and on profits over a longer period of time for retailers, processors, and broiler growers.

PRODUCTION COSTS OF FRYERS AND EFFECTIVENESS OF IN-STORE PROMOTIONAL TECHNIQUES ON INCREASING FRYER SALES

by

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PRODUCTION COSTS OF FRYERS AND EFFECTIVENESS OF IN-STORE PROMOTIONAL TECHNIQUES ON INCREASING FRYER SALES

CHAPTER I

INTRODUCTION

Objectives

The broad objectives were to determine the production costs of three broiler enterprises in Oregon and the effectiveness of four types of in-store promotional material in increasing fryer sales.

Description of Broiler Industry

United States

General

Since World War II, the broiler industry in the United States has undergone tremendous changes. Few, if any, agricultural or other enterprises matched the broiler industry in growth and efficiency (9, vol. 91, p. 9). Improvements in breeding, feeding, and managing made production more efficient. New methods of assembling, processing, packaging, and distributing reduced costs, improved quality, and made large-scale operations feasible. Several changes in the structure of the industry facilitated the widespread adoption of new technology. Extensive use of contract growing and

production financing accompanied the rise of new broiler production areas and the expansion of some older production areas. As competition became more intensified, many firms sought further cost reductions through integration and marketing under common management. A few others sought closer coordination of these functions through less formal means (23, p. 1).

Consumption and Exports

The per capita consumption of broilers in the United States increased from 8.7 pounds in 1950 to 25.6 pounds in 1962, an increase of 194 percent (Appendix Table 8). By 1968, per capita consumption of broilers is expected to reach approximately 28.2 pounds which would be 88 percent of all chicken consumed (21, p. 21).

The United States in 1962 exported approximately 173 million pounds of broilers to foreign countries, of which 113 million pounds were shipped to the European Common Market (Appendix Table 1). However, it is very likely that the volume exported in the future will be smaller due to trade restrictions imposed on broilers by the European Common Market and the increase in broiler production by these countries. This may have some effect on total demand for broilers in the United States. But a lower volume of exports could be offset by continued increases in the domestic consumption of broilers and increased exports to other foreign countries outside the European

Common Market.

Production, Price, Value, and Live Weight

The broiler industry in the United States has grown at a rapid rate during the past few years. The number of broilers produced in 1950 was 631 million as compared to 2,026 million in 1962 (Appendix Table 2). Pounds of broilers produced during the same period of time increased from 1,945 million to 6,919 million. Even though average price per pound received by producers decreased from 27.4 cents in 1950 to 15.2 cents in 1962, the value of production increased from 533 million dollars to 1,051 million dollars. Also, the average live weight per bird when marketed increased from 3.1 pounds to 3.4 pounds.

Regions

Production

All regions of the United States have some production of broilers. In 1962, the greatest concentration of production was centered in the South Atlantic States and the South Central States with 869 million and 804 million broilers respectively (Appendix Table 3). Other regions of the United States with the number of broilers they produced were as follows: North Atlantic States, 138 million; Western States, 92 million; East North Central States, 67 million; and West North Central States, 55 million.

Price Per Pound

The average price per pound in 1962 varied from a high of 17.4 cents in the North Atlantic States to a low of 14.6 cents in the South Central States (Appendix Table 4). Average prices per pound in other regions of the United States were as follows: Western States, 17.2 cents; East North Central States, 15.5 cents; West North Central States, 15.3 cents; and South Atlantic States, 15.0 cents.

Value of Production

The dollar value of broilers produced in 1962 was greatest in the South Atlantic States and the South Central States with 447 million and 384 million dollars respectively (Appendix Table 5). Value of production in other regions of the United States was as follows: North Atlantic States, 95 million; Western States, 57 million; East North Central States, 37 million; and West North Central States, 29 million (Appendix Table 6).

Areas

Production

Production of broilers in the United States can be grouped into 49 defined areas (Figure 1). In 1959 these areas contained 87 percent of all farms growing broilers. The Northern Georgia area (No. 18)

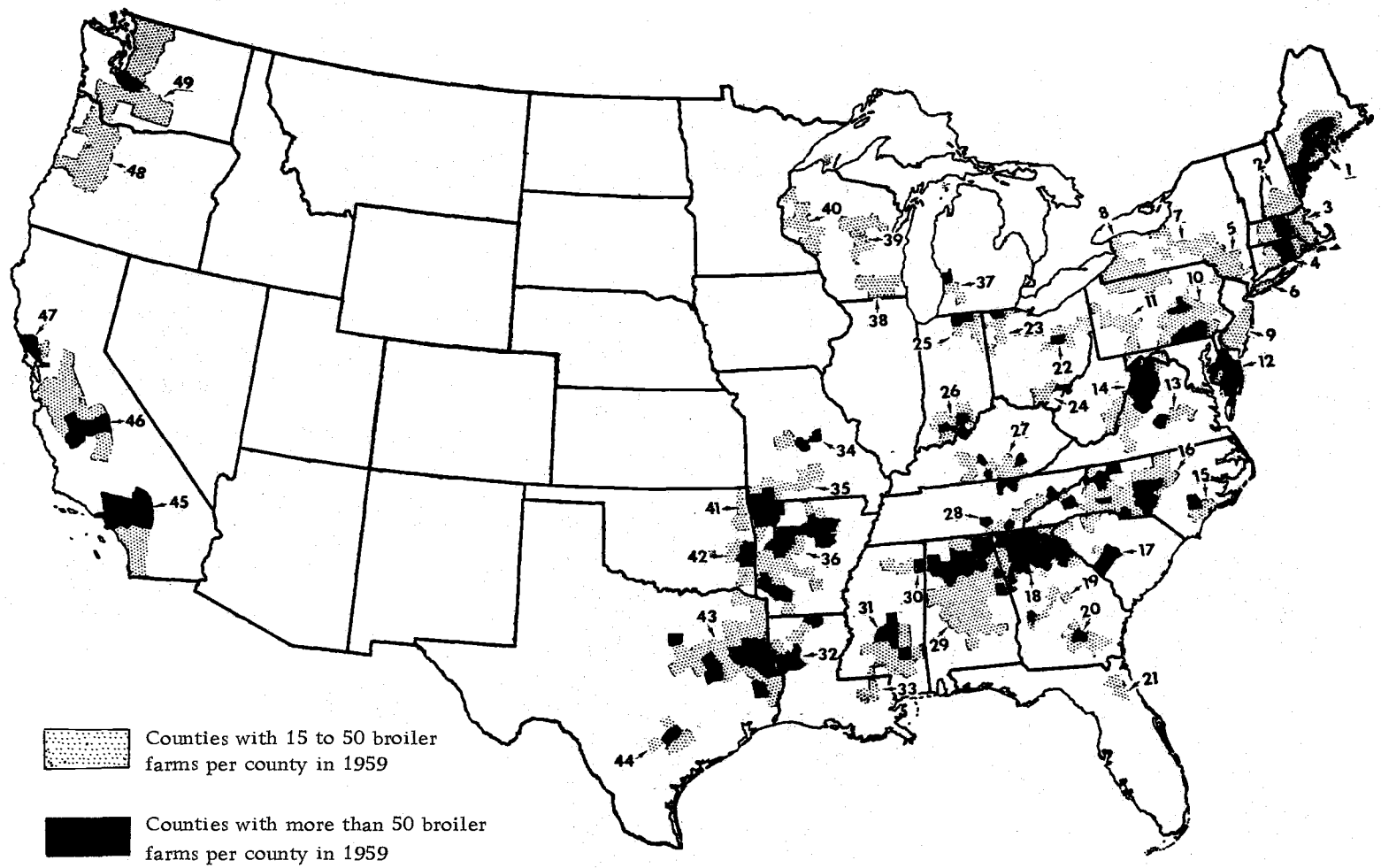

Figure 1. The 49 primary broiler production areas in the United States.

Source: (15, Chart 1).

raised the largest number of broilers, 199 million (Appendix Table 6). The Delmarva area (No. 12) and the Alabama area (No. 29) sold the next greatest number of broilers, 155 million and 131 million respectively.

States

Production

In 1962 the leading state in the number of broilers produced was Georgia with 354 million (Appendix Table 7). Arkansas was the next largest broiler producing state with 243 million, followed by Alabama with 215 million, North Carolina with 203 million, and Mississippi with 140 million.

Oregon

Production, Price, and Value

Broiler production in Oregon has been increasing for a number of years. From 1950 to 1962, the number of broilers increased from 4,336 thousand to 9,661 thousand (Appendix Table 8). In addition, the average price paid to producers decreased from 30.0 cents to 17.5 cents, while value of production increased from 4,162 thousand to 5,917 thousand dollars.

Consumption Compared with Pounds Produced

Fryers grown outside the state of Oregon were found in many of Oregon's grocery stores. One reason is that Oregon growers do not produce enough fryers to meet the needs of the retail outlets in Oregon. At the present time, there are no available data concerning the per capita consumption of fryers in Oregon. However, assuming the per capita consumption of fryers in Oregon is approximately the same as the average of the United States, the number of pounds of fryers consumed in Oregon can be estimated for various years (Appendix Table 9). When comparing these figures with the estimated pounds of broilers produced, dressed weight, since 1950, consumption is greater than production of Oregon-grown fryers (Appendix Table 9). This difference has been steadily increasing from approximately three million pounds in 1950 to approximately 23 million pounds in 1962. Although these figures are estimated and rest heavily on the assumption that per capita consumption of broilers in Oregon is equal to the average of the United States, it appears that consumption is greater than production of Oregon-grown fryers.

Problems in Oregon's Broiler Industry

Broiler production costs such as feed, chicks, and labor are higher in Oregon than in Arkansas (Appendix Tables 10 and 11;

16, p. 5). Also, the price the growers receive for their broilers is higher in Oregon. But with lower production costs, plus improved transportation, Arkansas producers ship broilers into Oregon and compete favorably with Oregon growers.

The Oregon Uniform Labeling Law, passed in 1959, makes it mandatory for retailers to identify by label all fryers being offered for sale in Oregon as to where they were grown and the chemical preservative they contain (7, p. 585-587). With passage of this law, it is now possible for Oregon broiler growers to differentiate their product from broilers produced in other states.

Promotion of Agricultural Products

United States

Substantial amounts of money are being invested by farm groups throughout the United States in the promotion of their products. It was estimated in 1962 that approximately 1, 200 farm groups had spent about 100 million dollars on some form of promotional activity (3, p. 2). These groups were represented in the form of commissions, councils, boards, and cooperatives. Their membership ranged from less than one hundred to over one million. Some groups draw their membership from a single state while others are regional and national in scope (2, p. 1).

Commodity commissions engaged in promotion frequently have

unique problems not common to individual firms which own the products they sell. The major activities of commodity commissions and consequent areas of decision making are basically limited to advertising, dealer-service work, distribution of point-of-sales materials, public relations, and consumer education. Unlike individual firms, commodity commissions do not control the pricing of the products, packaging design, quality, quantity, and other factors which may directly affect the salability of the product. Generally, commodity commissions have limited financial resources to employ specialized personnel and to formulate sound policies and procedures for promotional programs (1, vol. 41, p. 183-184).

Oregon

The Oregon Commodity Act was enacted by the 1953 Oregon Legislature. Under the provisions of the Act, producers of any agricultural commodity in Oregon may organize for the purpose of conducting a program to help the commodity industry. Each commission or council is a state agency, operating on funds collected from Oregon producers, plus any gifts or grants it may receive. The operating funds are to be expended for research, promotion, and protection of that commodity produced in Oregon (8, p. 9).

Presently, there are eight commodity groups organized under the Oregon Commodity Act. They are as follows: Beef Council, Dairy Products Commission, Fescue Commission, Filbert

Commission, Fryer Commission, Highland Bentgrass Commission, Potato Commission, and Wheat Commission. Their total expenditure for promotion in 1962 was estimated to be about 325, 000 dollars (6).

The Oregon Fryer Commission was activated January 17, 1958 with the appointment, by the Governor, of nine Commissioners who were recommended by the Oregon Broiler Growers Association to represent Oregon producers. One of the primary objectives of the Oregon Fryer Commission was to get Oregon consumers to demand Oregon labeled fryers. To accomplish this end, a modest advertising program was undertaken. Results of this promotional program are not known.

CHAPTER II

COST OF PRODUCTION STUDY

Objectives

The broad objective was to determine the costs of producing broilers. Records of three Oregon growers whose enterprises appeared to be above average were used for this purpose. Other more specific objectives were to determine the physical and economic production efficiencies of the three growers.

Research Methodology

The Sample

Selection of the growers was done by the author, Charles W. Fischer, Extension Poultry Marketing Specialist, and other persons closely associated with the Oregon broiler industry. Their selection was based upon the expected efficiency of their broiler enterprises, the size of their operations, the proportion of total farm income from their broiler enterprises, and the completeness of their records. These three growers were not considered to be a representative sample of the Oregon broiler industry.

The selected growers appeared to operate three of the better

broiler enterprises in Oregon. Different sizes of broiler operations were selected in order to compare various cost items among the three growers. Growers received virtually all farm income from their broiler operations. Farm records of each operator were complete showing the various cost items for the broiler enterprise.

The Study

A study of three farms was conducted to determine the input-output relationships. Costs of inputs were obtained in order to compare production costs among the growers. These data were collected by the author in a personal interview with each grower.

Method of Analysis

General

Production costs varied throughout the year for each producer. The cost of feed fluctuated in response to changes in feed grain prices. Seasonal changes in weather caused variation in the cost of heating. Other costs fluctuated because of external conditions which were uncontrollable. Because of variations in costs, data were collected from each grower for the last four broods marketed in 1963. The cost items of the four broods on each farm were added and divided by four to obtain average costs.

Cash Costs

Each broiler grower's enterprise was vertically integrated. In general, contracts with the integrators specified that the integrator retained title to the birds. Furthermore, the integrator furnished the feed and chicks and paid the medical and veterinary expenses, financing charges, Oregon Fryer Commission assessments, and insurance fees. The other cash costs incurred were paid by the operator.

The costs of feed and chicks charged by the integrator against each broiler enterprise were used as the costs of feed and chicks in the analysis. Feed costs were comparable to costs of other commercial brands of broiler feed sold in Oregon. The price of chicks charged by the integrator was the same as other commercial hatcheries in Oregon.

Other cash expenses were obtained directly from farm account records. Hired labor was charged at cost and varied among growers. The labor charge included all labor used in preparing the broiler house, feeding and caring for the birds, and extra labor at market time. The number of business trips was estimated by each grower and valued at $10 per day. The remaining cash expenses are self-explanatory and presented in Tables 1, 2, and 3.

Table 1. Average broiler production costs for the last four broods marketed in 1963 for Grower One.[1]

Item	Average Production Costs for the Last Four Broods Marketed in 1963
	Dollars
Cash Costs:	
Chicks purchased..... No. 24,975 @ $ .12-1/2..	$ 3,122
Feed ..... total pounds 197,595	9,658
Litter.....	142
Veterinary and medicine.....	---
Heat, other than electricity (propane, natural gas, or oil)	239
Electricity (heat, lights, ventilation fans, motors, augers, etc.).....	81
Insurance and financing charges.....	112
Other insurance (buildings, equipment, personal liability, etc.).....	69
Hired labor.....	243
Oregon Fryer Commission assessment.....	123
Miscellaneous supplies (light bulbs, brooder paper, thermometers, wafers, brooms, brushes, disinfectants, etc.)	30
Repairs on buildings and equipment used for broilers	232
Interest paid on mortgage debt and short term loans.....	152
Taxes	64
Social security.....	55
Business trips	64
Postage, magazines, telephone, membership dues, etc.[2]	---
TOTAL CASH COST.....	14,386
Noncash Costs:	
Interest on grower's equity @ 6 percent (land, buildings, and equipment)	200
Depreciation on broiler buildings and equipment.....	267
Value of grower's labor and management.....	660
Value of unpaid family labor	310
TOTAL NONCASH COST.....	1,437
TOTAL COST.....	$ 15,823

[1]Data from the four broods were totaled and divided by four to obtain average costs.

[2]Included in miscellaneous supplies.

Table 2. Average broiler production costs for the last four broods marketed in 1963 for Grower Two.[1]

Item	Average Production Costs for the Last Four Broods Marketed in 1963
	Dollars
Cash Costs:	
Chicks purchased..... No. 36,794 @ $.12-1/2.....	$ 4,599
Feed ..... total pounds 296,630	14,163
Litter.....	85
Veterinary and medicine.....	556
Heat, other than electricity (propane, natural gas, or oil)	---
Electricity (heat, lights, ventilation fans, motors, augers, etc.).....	456
Insurance and financing charges.....	158
Other insurance (buildings, equipment, personal liability, etc.).....	100
Hired labor.....	914
Oregon Fryer Commission assessment.....	176
Miscellaneous supplies (light bulbs, brooder paper, thermometers, wafers, brooms, brushes, disinfectants, etc.).....	72
Repairs on buildings and equipment used for broilers	124
Interest paid on mortgage debt and short term loans.....	102
Taxes	100
Social security.....	48
Business trips	16
Postage, magazines, telephone, membership dues, etc.	24
TOTAL CASH COST.....	21,669
Noncash Costs:	
Interest on grower's equity @ 6 percent (land, buildings, and equipment)	600
Depreciation on broiler buildings and equipment.....	222
Value of grower's labor and management.....	825
Value of unpaid family labor	---
TOTAL NONCASH COST.....	1,647
TOTAL COST.....	$ 23,316

[1]Data from the four broods were totaled and divided by four to obtain average costs.

Table 3. Average broiler production costs for the last four broods marketed in 1963 for Grower Three.[1]

Item	Average Production Costs for the Last Four Broods Marketed in 1963
	Dollars
Cash Costs:	
Chicks purchased.....No. 41,945 @ $ .12-1/2.....	$ 5,243
Feed.....total pounds 348,110	16,418
Litter.....	240
Veterinary and medicine.....	32
Heat, other than electricity (propane, natural gas, or oil).....	462
Electricity (heat, lights, ventilation fans, motors, augers, etc.).....	124
Insurance and financing charges.....	185
Other insurance (buildings, equipment, personal liability, etc.).....	95
Hired labor.....	650
Oregon Fryer Commission assessment.....	212
Miscellaneous supplies (light bulbs, brooder paper, thermometers, wafers, brooms, brushes, disinfectants, etc.).....	75
Repairs on buildings and equipment used for broilers.....	129
Interest paid on mortgage debt and short term loans.....	175
Taxes.....	120
Social security.....	49
Business trips.....	26
Postage, magazines, telephone, membership dues, etc.....	12
TOTAL CASH COST.....	24,235
Noncash Costs:	
Interest on grower's equity @ 6 percent (land, buildings, and equipment).....	156
Depreciation on broiler buildings and equipment.....	444
Value of grower's labor and management.....	588
Value of unpaid family labor.....	20
TOTAL NONCASH COST.....	1,208
TOTAL COST.....	$ 25,438

[1]Data from the four broods were totaled and divided by four to obtain average costs.

Noncash Costs

Interest on grower's equity was charged at a rate of six percent. Mortgage loans on land, buildings, and equipment were not considered a part of grower's equity. Interest paid on mortgage loans was included in cash costs.

Depreciation on buildings and equipment was calculated by the straight line method based on the original cost and the grower's expected useful life of the item.

The value of grower's labor and management was estimated on the basis of the amount of time the grower spent with his broiler enterprise and the wage rate which the grower would have had to pay a person to do the work. The wage rate was valued at $1.50 per hour for each grower.[1]

The value of unpaid family labor was estimated by each grower and valued at $1.00 per hour.

Results

Physical Production Efficiencies

The feed conversion ratio[2] was the lowest for Grower One with

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[1]A $1.50 per hour was agreed to be a satisfactory wage rate by each operator and by Oregon State University Extension Farm Management Specialists.

[2]The number of pounds of feed per pound of gain.

2. 24 (Table 4). Feed conversion ratios for Growers Two and Three were 2. 36 and 2. 31 respectively.

The mortality rate was also the lowest for Grower One with 1. 65 percent (Table 4). Grower Two had the highest mortality rate with 5. 01 percent, while Grower Three had one of 3. 45 percent.

Each grower had a little less than one square foot per bird, the area ranging from a low of . 72 square feet to a high of . 91 square feet (Table 4).

The average weight per broiler at market time was approximately 3. 60 pounds for Growers One and Two and 3. 72 pounds for Grower Three (Table 4).

Grower One marketed his broilers during the latter part of the seventh week of the growing period (Table 4). However, Growers Two and Three did not market their broilers until the middle of the eighth week.

Economic Production Efficiencies

Data in Tables 1, 2, and 3 show the average production costs of each grower for the last four broods marketed in 1963. The total of these costs and the average number of broilers marketed were as follows: Grower One, $15, 823 for 24, 564 birds; Grower Two, $23, 316 for 34, 951 birds; and Grower Three, $25, 438 for 40, 498 birds.

Table 4. Efficiency factors influencing broiler production by selected growers.

Growers	Feed Per Pound of Gain	Mortality Rate	Square Feet Per Broiler	Average Weight Per Broiler Marketed	Average Age of Broilers Marketed
	pounds	percent	square feet	pounds	weeks
One	2.24	1.65	.82	3.59	7.8
Two	2.36	5.01	.91	3.60	8.6
Three	2.31	3.45	.72	3.72	8.4

The cost of feed and chicks represented a large portion of total cost for each grower. Feed cost ranged from 60. 7 percent to 64. 5 percent of total cost, while chick cost represented approximately 20 percent (Table 5).

The total cost in cents per broiler marketed by Growers One, Two, and Three was 64. 4, 66. 7, and 62. 8 respectively (Table 6). Of this, chick and feed costs represented approximately 13 cents and 40 cents respectively for each grower.

The total cost per pound of broiler marketed ranged from a low of 16. 90 cents to a high of 18. 54 cents (Table 7). Chick and feed costs were approximately 3. 5 cents and 11 cents respectively. Assuming each grower received the average Oregon price per pound of 17 cents in 1963 (22, p. 25), Growers One and Two lost $830 and $4, 110 per brood respectively, while Grower Three had a profit of $100.

Table 5. Production costs per broiler as a percentage of total cost for each of three growers.

Items	Growers		
	One	Two	Three
	percent	percent	percent
Chicks	19.7	19.7	20.6
Feed	61.0	60.7	64.5
Veterinary and Medical	----	2.4	.1
Heat and Electricity	2.0	2.0	2.3
Hired Labor	1.5	4.0	2.6
Other Cash Costs	6.6	4.3	5.2
Total Cash Cost	90.9	92.9	95.2
Noncash Cost	9.1	7.1	4.8
Total Cost[1]	100.0	100.0	100.0

[1] Due to rounding total cost does not necessarily equal the sum of the cost items.

Table 6. Production costs in cents per broiler for each of three growers.

Items	Growers		
	One	Two	Three
	cents	cents	cents
Chicks	12.7	13.2	12.9
Feed	39.3	40.5	40.5
Veterinary and Medical	----	1.6	----
Heat and Electricity	1.3	1.3	1.4
Hired Labor	1.0	2.6	1.6
Other Cash Costs	4.2	2.9	3.3
Total Cash Cost	58.6	62.0	59.8
Noncash Cost	5.9	4.7	3.0
Total Cost[1]	64.4	66.7	62.8

[1] Due to rounding total cost does not necessarily equal the sum of the cost items.

Table 7. Production costs in cents per pound for each of three growers.

Items	Growers		
	One	Two	Three
	cents	cents	cents
Chicks	3.54	3.66	3.48
Feed	10.95	11.27	10.91
Veterinary and Medical	----	.44	----[1]
Heat and Electricity	.36	.36	.39
Hired Labor	.28	.73	.43
Other Cash Costs	1.18	.80	.88
Total Cash Cost	16.31	17.24	16.10
Noncash Cost	1.63	1.31	.80
Total Cost[2]	17.94	18.54	16.90

[1] Less than .01.

[2] Due to rounding total cost does not necessarily equal the sum of the cost items.

CHAPTER III

PROMOTION STUDY

Objectives

The broad objective of this section of the study was to determine the effectiveness of in-store promotional material in increasing fryer[1] sales. Other more specific objectives were:

1. To determine the effects of using two different kinds of posters and a banner in increasing fryer sales.
2. To determine the effects of using a gondola[2] along with the other regular merchandising practices in increasing fryer sales.
3. To determine the carry-over effect of promotion.

Types of Promotional Material

Four types of in-store promotional material, two colored pictorial posters, a colored banner, and a gondola, were used as the promotional stimuli in the sample grocery stores. The Fryer Commission poster was one of the two posters. Originally, it had been used by the Oregon Fryer Commission as one of its promotional

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[1]The promotion study was concerned only with Oregon fresh fryers whether they were whole, cut-up, or parts. Frozen fryers were not a part of the study. Any reference made to "fryer" refers to "Oregon fresh fryer."

[2]A gondola is a movable, rectangular display case.

activities in its summer advertising campaign. This elaborately designed poster had as its theme, "barbecuing an Oregon fryer" which was centered on the left half on the poster. A colored picture with four fryers being barbecued over a grill was used on the other half. The poster's dimensions were 24 inches by 48 inches (Appendix Figure 1).

The revised Fryer Commission poster was a revision of the original Fryer Commission poster. The theme was changed to "buy Oregon fresh fryers" instead of "barbecuing an Oregon fryer." Also, changes in the size of printing were made in order to give more emphasis to the word "Oregon." The same picture used on the Fryer Commission poster was also used on the revised Fryer Commission poster. The dimensions were 24 inches by 31 inches (Appendix Figure 2).

The banner was the third type of promotional material employed. Its dimensions were 18 inches by 40 inches and, it was chartreuse in color. No pictures were used. Only large black lettering which read, "Buy. . . Oregon fresh fryers" was used (Appendix Figure 3).

The fourth type of promotion activity was the gondola. Its dimensions were approximately 3 feet by 5 feet. A small poster, 7 inches by 11 inches, which read, "Oregon fresh fryers" was placed directly above the gondola.

Research Methodology

The Sample

Three different grocery store chains in the Portland metropolitan area and the Salem area were used to conduct the study. The Portland metropolitan areas included incorporated suburbs of Beaverton, Tigard, and Milwaukie while the Salem area included nearby cities of Woodburn and McMinnville.

The two grocery store chains used in the Portland metropolitan area were designated Chain A and Chain B with 12 and 6 stores respectively in the sample. Chain C had 6 stores in the sample and was located in the Salem area.

The selection of stores was based on the location and the volume of fryer sales. Sotres within each chain served customers who represented several different socio-economic groups. Also, stores which sold large volume of fryers were selected[1/]. The sales were approximately the same for stores within each chain. Therefore, equal percentage changes in fryer sales represented approximately equal changes in the volume sold.

The selection of the sample stores based on the preceding characteristics was done by the head meat manager of each chain. His knowledge of each store, its personnel, and its customers

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1/ Weekly sales in Chain A and Chain B ranged roughly from 200 to 400 birds, and in Chain C they ranged from 400 to 800 birds.

qualified him to make the selections.

Collection of Data

Information for the study was collected through personal interviews with the meat managers of the stores or their personnel in the meat department. All of the interviews were conducted by the author with assistance from Dr. Harold F. Hollands, Professor of Agricultural Economics. The interviews for the collection of data started July 29 and ended September 30.

For the purpose of this study, each week started on Monday and continued through Sunday. The data from each of the 24 stores were collected every Monday for the preceding week.

During each week of the study the meat department of each of the 24 stores kept a record of the number of pounds of fryers received. In addition, an inventory was taken every Monday morning to determine the number of pounds of fryers that were on hand from the preceding week. With these two figures from each of the 24 stores each week, the calculation of the number of pounds of fryers sold in each store was done in the following manner:

	Pounds of fryers on hand the preceding Monday (beginning inventory)	_____
+	Pounds of fryers received during the week	_____
	Total pounds of fryers available for sale	_____
-	Pounds of fryers on hand this Monday (ending inventory)	_____
	Total pounds of fryers actually sold during the week	_____

Experimental Design

General

The technique used to measure the quantitative effects of in-store promotion of fryers involved the auditing of sales in the sample stores during each week of the prepromotion, promotion, and post-promotion periods. The objective was to determine the number of pounds of fryers sold in each store before promotion, during promotion, and after promotion. The starting and ending dates for each of the test periods were as follows: prepromotion period - July 29 to August 11, [1] promotion period - August 19 to September 15, and

[1]The prepromotion period was originally planned to be three weeks in length, July 29 to August 18. However, two of the chains reduced their prices on fryers in all stores during the third week; consequently, fryer sales increased. The experimental design required stores to sell their fryers at regular prices in order to obtain representative fryer sales during the prepromotion period. Thus, the third week was omitted.

postpromotion period - September 16 to September 29.

All forms of in-store promotion[1] for fryers other than what were used in the study were discontinued during the prepromotion, promotion, and postpromotion periods. However, newspaper, radio, and television advertising of fryers by grocery stores and the Oregon Fryer Commission still continued. These and other motivating factors such as weather, season, price, and competition were assumed to affect the demand for fryers approximately the same for all stores. Therefore, from the standpoint of selling fryers, in-store fryer promotion was considered to be the factor differentiating sales in one store from sales in another.

The Fryer Commission poster, revised Fryer Commission poster, banner, and gondola treatments were the only forms of in-store fryer promotion used during the promotion period. Posters and banners were placed directly above the fryers in the stores' meat display cases.

The gondola, filled with fryers, was placed in the aisle in front of the meat display case. Customers near the meat display case could easily see the gondola and could read the small poster above the gondola advertising Oregon fresh fryers. No other in-store fryer promotion was employed.

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[1]The regular means of displaying the price of fryers were left in all of the sample stores during the entire length of the study.

The gondola was treated differently in this study from the other promotional material. It is generally recognized by food merchants that promotion with a gondola is beneficial during only short time intervals. Therefore, the gondola was employed alternate weeks during the promotion period.

One other treatment was used and was designated as the check treatment. Stores with this treatment had no in-store fryer promotion. The purpose of the treatment was to find out the volume of fryer sales in the sample stores within each chain without any form of in-store fryer promotion.

The preceding treatments were not assigned randomly to the sample stores. Instead, treatments were employed in stores according to the availability of promotion space above the meat display cases. In addition, when a treatment was assigned to more than one store within a chain, an attempt was made to select stores which served different socio-economic groups.

Difficulties in the Study

It was recognized at the beginning of the study that it was impossible to hold constant all relevant factors affecting the sale of fryers. One of these factors was price. The head meat manager of each chain indicated that he would try to keep the price of fryers the same for all test stores. However, no attempt was made to control

the fryer price level in each chian because of the prevailing competition that exists among chains.

Several times during the study one or more stores received more fryers than they were able to sell at regular prices. The stores then reduced their price in order to sell the extra quantity of fryers. However, the experimental design of the study did not permit effective measurement of promotion unless all stores within a chain had the same price. Therefore, these stores were omitted during the particular week in which they reduced their price.

Each chain was expected to keep only Oregon-grown fryers in its meat display cases. Nevertheless, one week several stores in one of the chains received a portion of their fryers grown in another state. The out-of-state fryers were offered for sale in the same display case as the Oregon-grown fryers. The effect of promoting Oregon-grown fryers could not be measured effectively as long as other than Oregon-grown fryers were offered for sale. Therefore, these stores were omitted during this particular week of the study.

Several grocery stores used in the study were located close to other grocery stores. One or more competing stores often featured fryers at a reduced price. It was assumed when any competing grocery store reduced its price on fryers, its fryer sales would increase; and fryer sales of any grocery store located close to it would also be affected. In order to measure accurately the effectiveness of

promotion of Oregon-grown fryers, any sample store located close to a competing store which decreased its price on fryers was omitted from the study during that particular week.

Chain A

Twelve stores were used in Chain A throughout the prepromotion, promotion, and postpromotion periods. Four of these stores were used as checks and had no fryer in-store promotion, while two stores had the Fryer Commission poster; two had the revised Fryer Commission poster; and two others had the banner (Appendix Table 12). The gondola was used only the second and fourth weeks of the promotion period in two stores.

The numbers of stores in the analysis for each treatment during the prepromotion, promotion, and postpromotion periods are presented in Tables 8, 9, and 10. Some stores were omitted in each period because of uncontrollable factors affecting the sale of fryers.

Chain B and Chain C

Six stores were used in Chain B and six in Chain C throughout the prepromotion, promotion, and postpromotion periods (Appendix Table 12). The experimental design for stores in Chain B and Chain C during the three periods was similar to that in Chain A except one-half as many stores were used for each treatment.

Table 8. Number of stores in the analysis for Chain A, Chain B, and Chain C during each week of the prepromotion period.

Week	Chain A	Chain B	Chain C
First	6	6	6
Second	12	6	6

Table 9. Number of stores in the analysis for Chain A, Chain B, and Chain C, by treatments, during each week of the promotion period.

	TREATMENTS														
	Check			Fryer Commission Poster			Revised Fryer Commission Poster			Banner			Gondola		
Week	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C
First	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0
Second	2	0	2	2	0	1	1	0	1	1	0	1	2	0	1
Third	3	2	2	2	1	1	2	1	1	1	1	1	0	0	0
Fourth	3	2	2	2	1	1	2	1	1	2	1	1	1	0	0

Table 10. Number of stores in the analysis for Chain A, Chain B, and Chain C, by treatments, during each week of the postpromotion period.

	TREATMENTS														
	Check			Fryer Commission Poster			Revised Fryer Commission Poster			Banner			Gondola		
Week	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C
First	2	2	2	2	1	1	0	1	1	1	1	1	0	0	0
Second	4	2	2	2	1	1	2	1	1	0	1	1	0	0	0

The numbers of stores in the analysis for each treatment during the three periods are shown in Tables 8, 9, and 10. Sales data in some stores were affected by uncontrollable factors and were omitted from the study. Also, mechanical difficulties limited the use of the gondola to one week in Chain C.

Chain A, Chain B, and Chain C Combined

Data from stores in Chain A, Chain B, and Chain C were combined and were used in the analysis. The number of stores in each treatment was the total number employed in the three chains (Tables 8, 9, and 10). Due to limited use, the gondola treatment was not including in the analysis.

Method of Analysis

Tabulation of all data collected from the 24 stores was the first step. Total fryer sales were computed each week for all stores during the three test periods. Weekly sale figures were calculated for each of the 24 stores during the prepromotion period. These sales figures were used as the base for comparing fryer sales of each store during the promotion and postpromotion periods.

The stores within each chain were grouped by treatments. The fryer sales of one or more stores in each treatment were compared to their corresponding sales during the prepromotion period to

determine the percentage change. Only one percent figure was shown for each treatment even though more than one store may have employed the treatment.

Analysis of the promotion period was done for: (1) the entire four-week interval, (2) the two, two-week intervals, and (3) the four, one-week intervals. Fryer sales in stores with the various treatments were compared to the stores' corresponding sales during the prepromotion period at the end of each promotion interval, whether one, two, or four weeks in length. One exception to this was the stores with gondolas. They were not used in the analysis during the two and four-week intervals.

Sales in check stores with no promotion functioned as a base for comparison of fryer sales in stores having promotion. The percentage change in sales of the check stores was compared with the percentage changes in fryer sales in stores with Fryer Commission poster, revised Fryer Commission poster, banner, and gondola. When the percentage change in sales in stores with one of the promotional treatments increased more or decreased less than the percentage change in the check stores, in-store promotion was assumed to cause the difference. This positive difference was called the promotion effect. However, if the percentage change in sales in stores with any one of the promotional treatments increased less or decreased more than the percentage change in the check stores,

promotion was assumed to be ineffective. This percentage difference was zero or negative.

The same method of analysis was used for the postpromotion period. All treatments were examined except the gondola. A positive difference indicated a carry-over effect of promotion. If the difference was zero or negative, no carry-over effect was present.

Statistical tests for significance were not calculated on any of the data presented in the analysis. A sample selected at random[1] is usually necessary for satisfactory employment of methods in determining statistical significance. If the sample is deliberately selected, the objectivity and therefore the validity of tests is destroyed (4, p. 54).

Results of Promotion

Chain A - Promotion Period

Percentage Change in Sales and Promotion Effect

One-week intervals: During the week immediately preceding the promotion period, all stores in Chain A lowered their price from their normal level of 45 and 49 cents to 29 and 35 cents on whole and cut-up

[1]A random sample is a sample drawn from the population so that every observation in the population has an equal chance of being selected. Costs of an adequate randomly drawn sample were prohibitive for this study.

fryers respectively.[1] Consequently, fryer sales in all stores more than doubled compared with the previous two weeks-prepromotion period. When fryer prices were increased to their normal level the following week, sales decreased and were below the weekly sales of the prepromotion period. The percent decreases for each treatment were as follows: check, 21; Fryer Commission poster, 14; revised Fryer Commission poster, 12; and banner, 7 (Table 11). Each of these percentage changes in sales is indicated in Figure 2.

Differences in the percentage change of sales between each promotional treatment and the check treatment are also presented in Table 11. All differences were positive for each promotional treatment during the first week of promotion. The Fryer Commission poster, revised Fryer Commission poster, and banner had promotion effects of 7, 9, and 14 percent respectively. These promotion effects are also indicated on Figure 3 and were above the zero percent line. The differences below the zero percent line indicated that promotion was ineffective.

For the second week of the promotion period, all stores in Chain A lowered their prices from 45 and 49 cents to 29 and 35 cents on whole and cut-up fryers respectively. Fryer sales in check stores and those with Fryer Commission posters, revised Fryer Commission

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[1]The week preceding the promotion period was not included in the prepromotion period. See footnote 1 on page 27.

Table 11. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain A, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment. [1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola	
Weekly Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	-21	-14	7	-12	9	-7	14	-	-
Second	73	60	-13	35	-38	58	-15	80	7
Third	-14	-27	-13	17	31	-9	5	-	-
Fourth	2	-37	-39	-12	-14	-5	-7	19	17

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

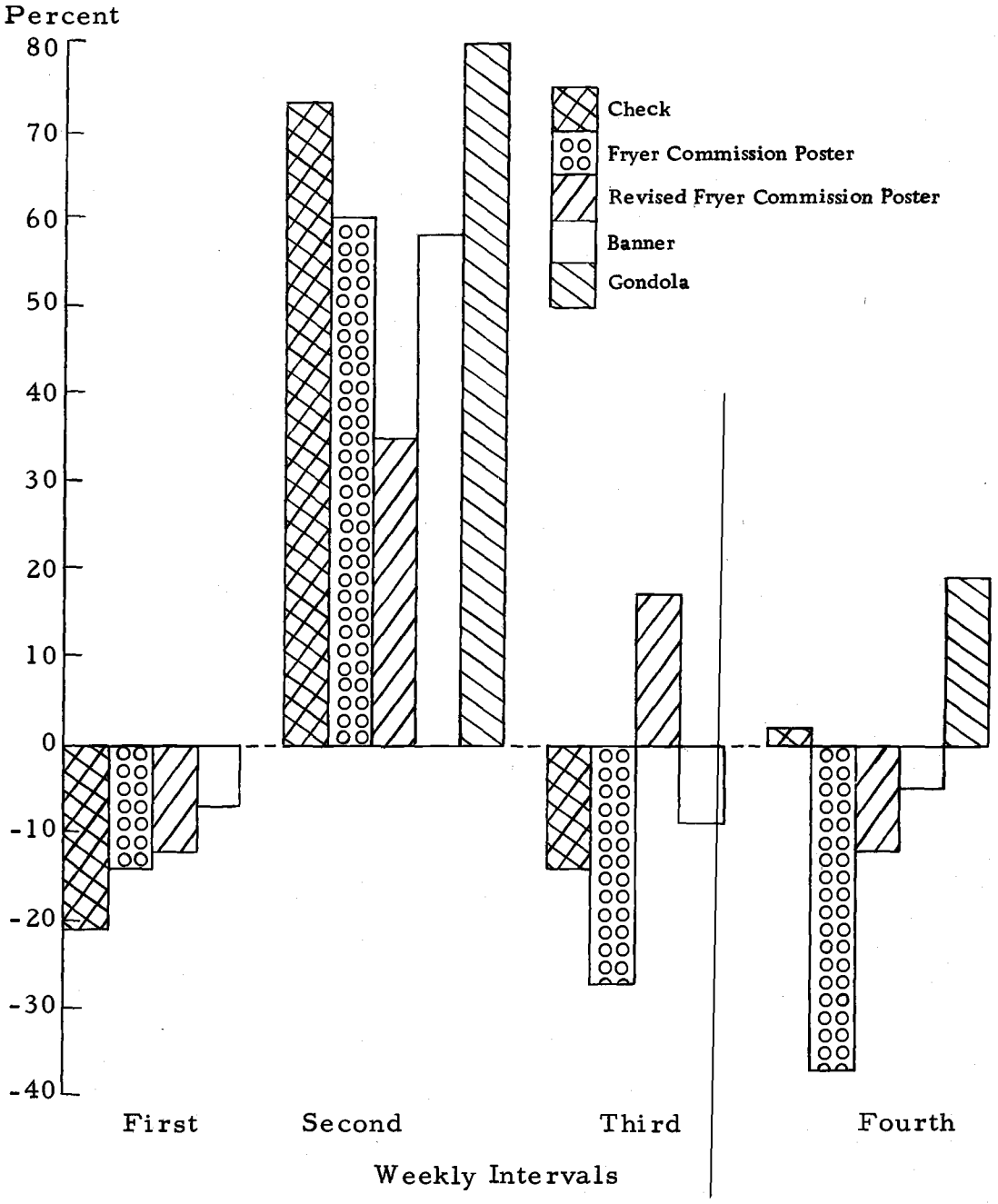

Figure 2. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain A, by one-week intervals.

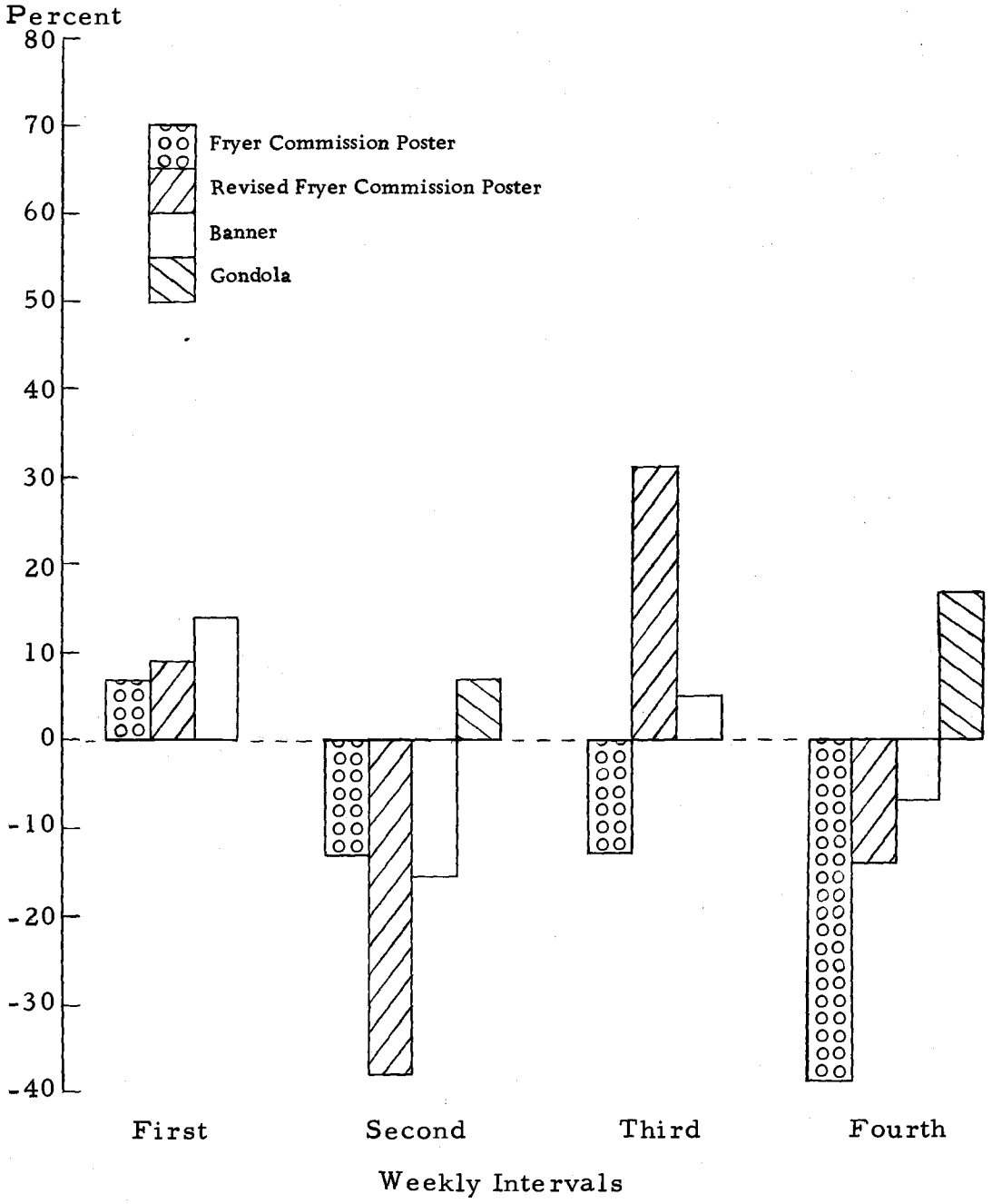

Figure 3. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain A, by one-week intervals.[1]

[1]"Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as measurement of promotion effect.

posters, banners, and gondolas increased 73, 60, 35, 58, and 80 percent respectively (Table 11 and Figure 2). The only positive difference between the percentage change of each promotional treatment and the average percentage change of the check stores was for the gondola. Its promotion effect was seven percent (Table 11 and Figure 3). The other promotional treatments had negative percentage differences and indicated that promotion was ineffective during the second week.

Fryer prices went back to their normal level of 45 and 49 cents during the third week of promotion. Fryer sales decreased 14, 27, and 9 percent respectively in check stores and those with Fryer Commission posters and banners (Table 11 and Figure 2). However, fryer sales increased 17 percent in stores with revised Fryer Commission posters. The promotion effects computed from the above percentage changes were 31 and 5 percent respectively for the revised Fryer Commission poster and banner (Table 11 and Figure 3). Since the difference in percentage change in sales was negative for the Fryer Commission poster, promotion appeared to be ineffective during the third week.

Fryer sales in the fourth week decreased 37, 12 and 5 percent respectively in stores with Fryer Commission posters, revised Fryer Commission posters, and banners (Table 11 and Figure 2). At the same time, sales increased 2 and 19 percent respectively in check

stores and those with gondolas. From the preceding percentage changes, a 17 percent promotion effect was computed for the gondola (Table 11 and Figure 3). The other three promotional treatments failed to indicate any promotion effect.

Two-week intervals[1]: Fryer sales increased with each treatment during the first two-week interval of the promotion period. This was primarily due to the lowering of fryer prices which occurred during the second week of the two-week interval. Percentage sales increases in stores with the following treatments were: check, 26; Fryer Commission poster, 42; revised Fryer Commission poster, 15; and banner, 31 (Figure 4). From this, promotion effects of 16 and 5 percent respectively were calculated for the Fryer Commission poster and banner (Figure 5). Promotion was seemingly ineffective for the revised Fryer Commission poster.

During the second two-week interval, fryer sales decreased 7, 32, and 7 percent respectively in check stores and those with Fryer Commission posters and banners (Figure 4). However, fryer sales increased three percent in stores with the revised Fryer Commission poster. These percentage changes resulted in the revised Fryer Commission poster having a promotion effect of ten percent

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[1]Hereafter, tables referring to percentage changes in sales and differences between each promotional treatment and the check treatment are presented in the appendix.

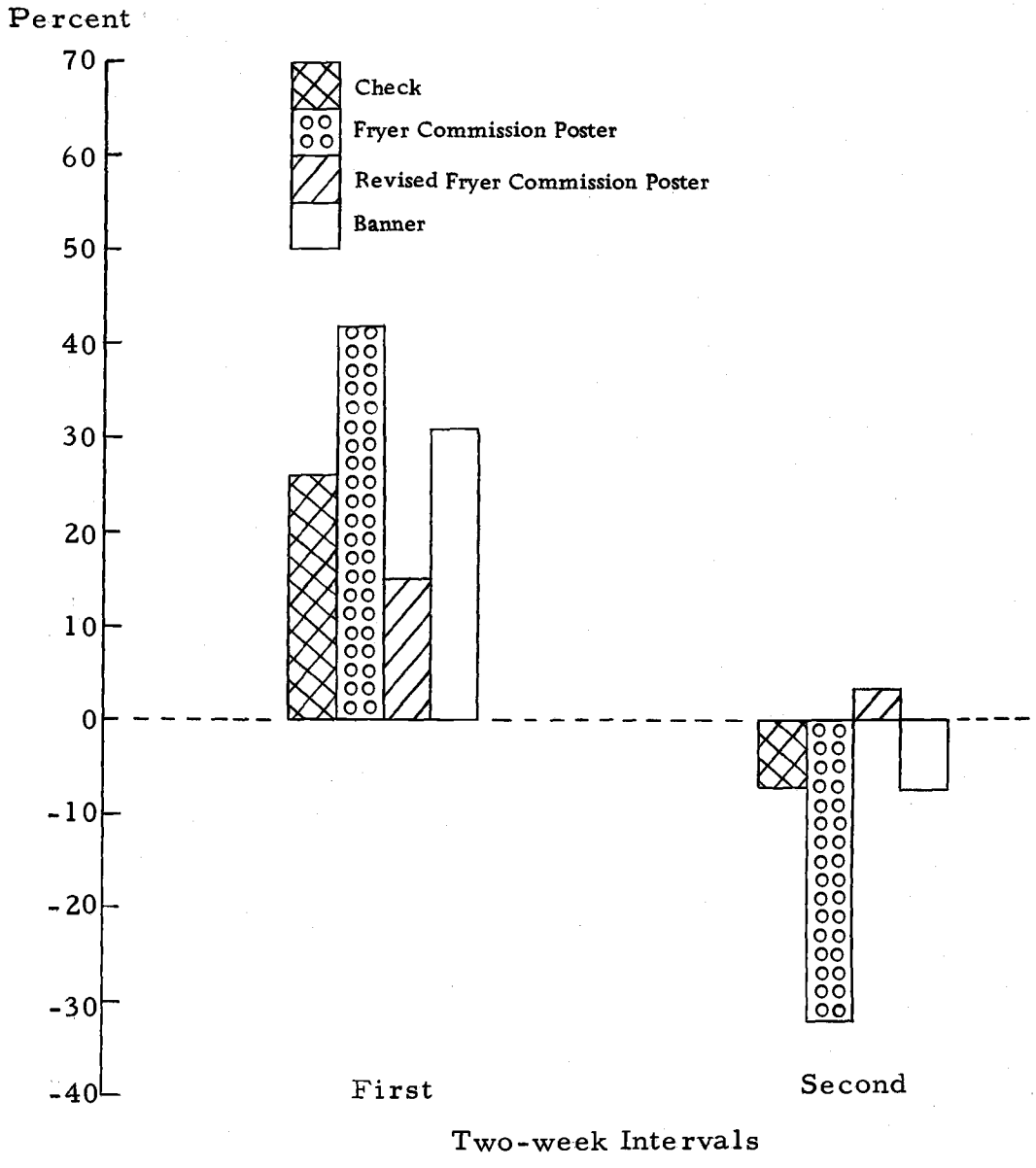

Figure 4. Percentage change in fryer sales between the promotion period and the prepromotion period, by treatments, for Chain A, by two-week intervals.

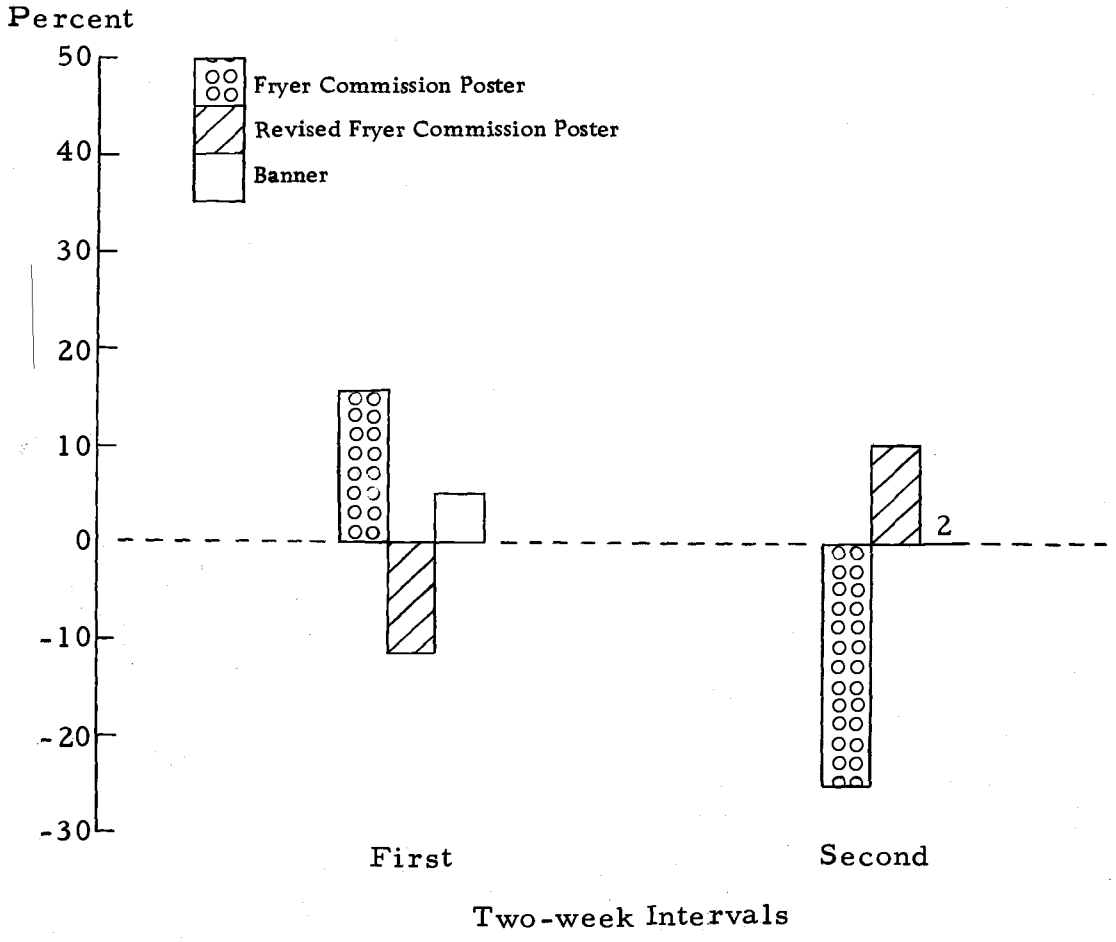

Figure 5. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain A, by two-week intervals. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The promotion effect for the banner was zero.

(Figure 5). Negative or no percent differences for the other treatments indicated that promotion was ineffective.

Four-week interval: Fryer sales increased 9, 7, and 8 percent respectively in check stores and those with revised Fryer Commison posters and banners (Figure 6). But sales decreased three percent in stores with Fryer Commission posters. However, percent differences between each promotional treatment and the check stores were negative and indicated that promotion was ineffective (Figure 7).

Chain A - Postpromotion Period

Percentage Change in Sales and Carry-over Effect

One-week intervals: Fryer sales decreased in all stores during the two week postpromotion period. During the first week, check stores and those with Fryer Commission posters and banners experienced a decrease in fryer sales of 15, 25, and 47 percent respectively (Figure 8). No data for the first week were available for the stores with revised Fryer Commission posters. Fryer sales also decreased 26, 42, and 26 percent respectively in check stores and those with Fryer Commission posters and revised Fryer Commission posters during the second week. Data for stores with the banner were not usable.

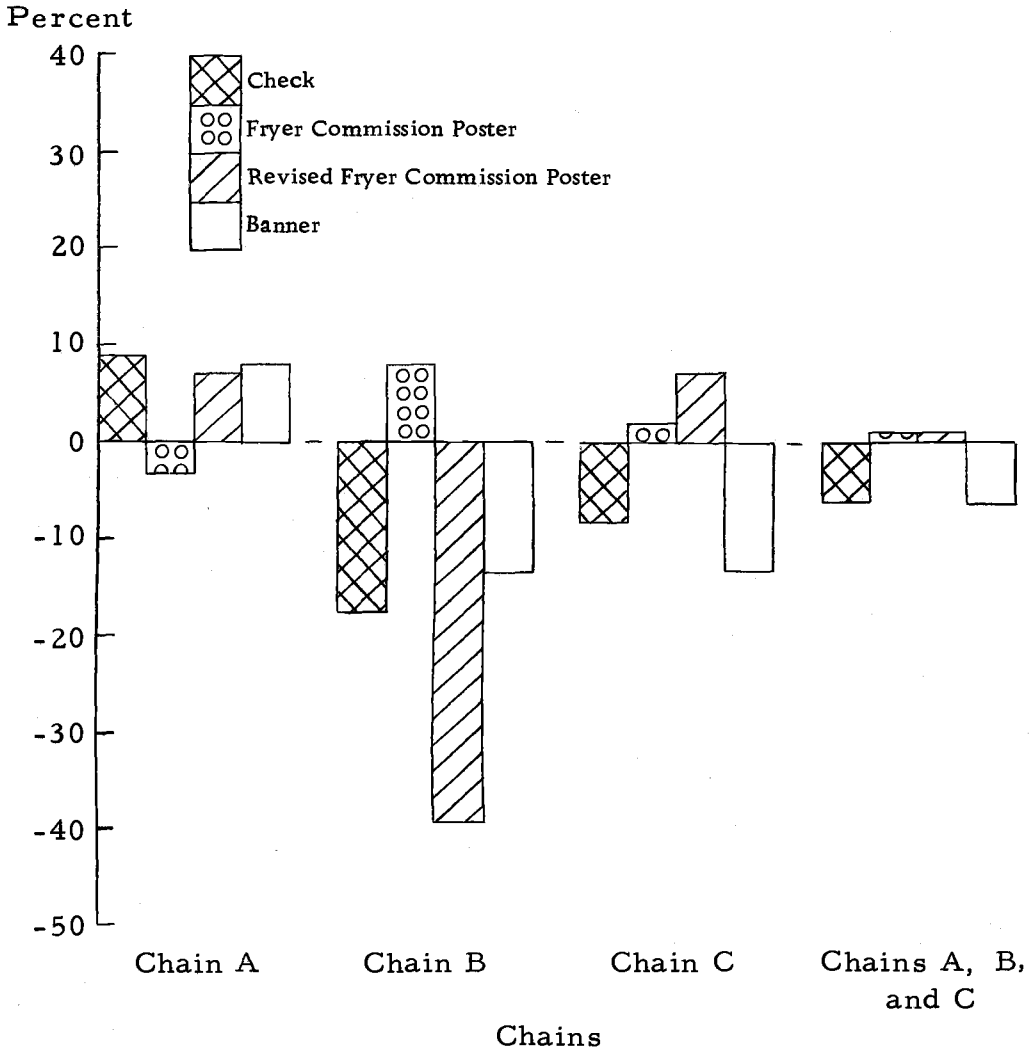

Figure 6. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, by four-week interval, for Chain A, Chain B, Chain C, and when data were combined for Chains A, B, and C.

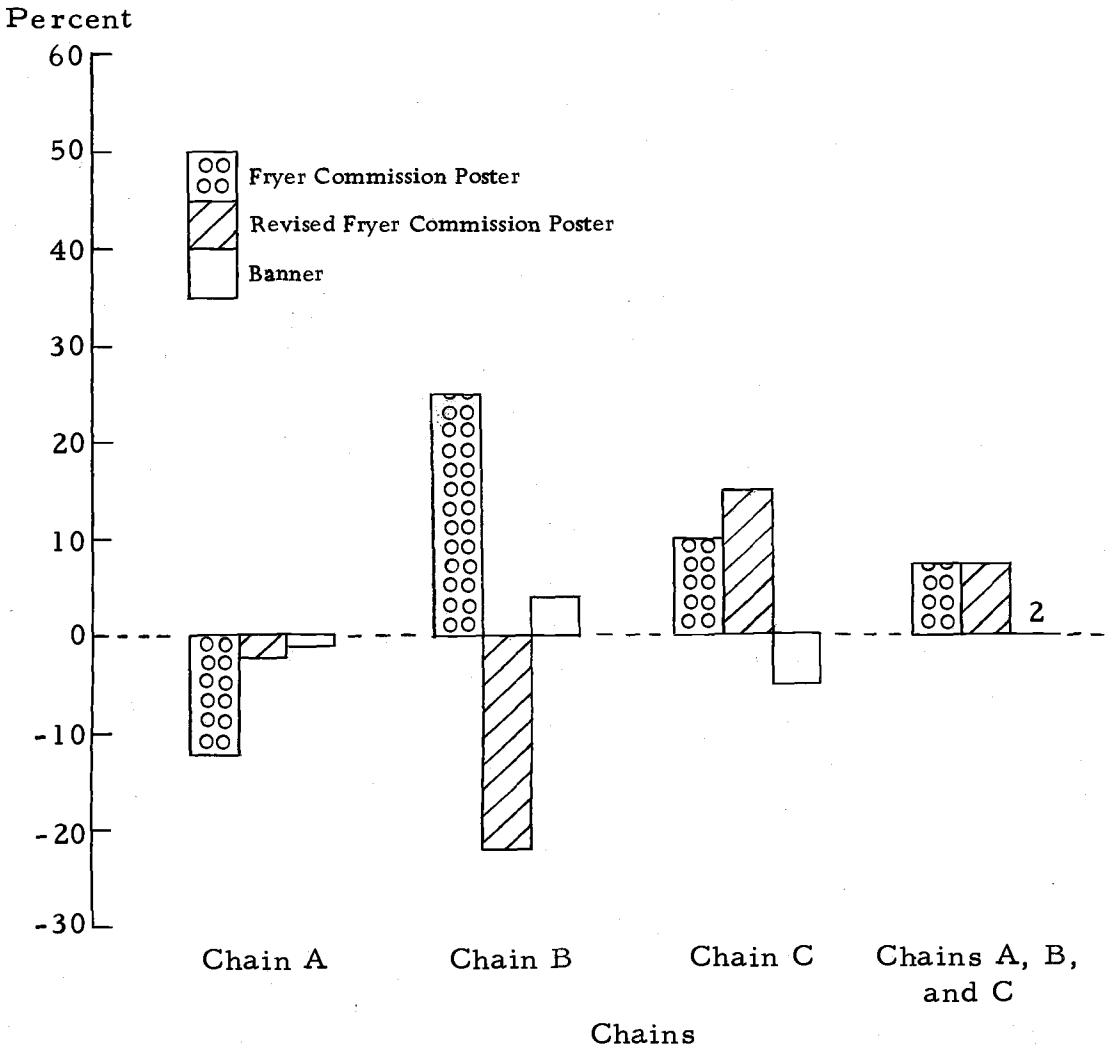

Figure 7. Differences between percentage change in sales for each promotional treatment and the check treatment, by four-week interval, for Chain A, Chain B, Chain C, and when data were combined for Chains A, B, and C. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The promotion effect for the banner was zero.

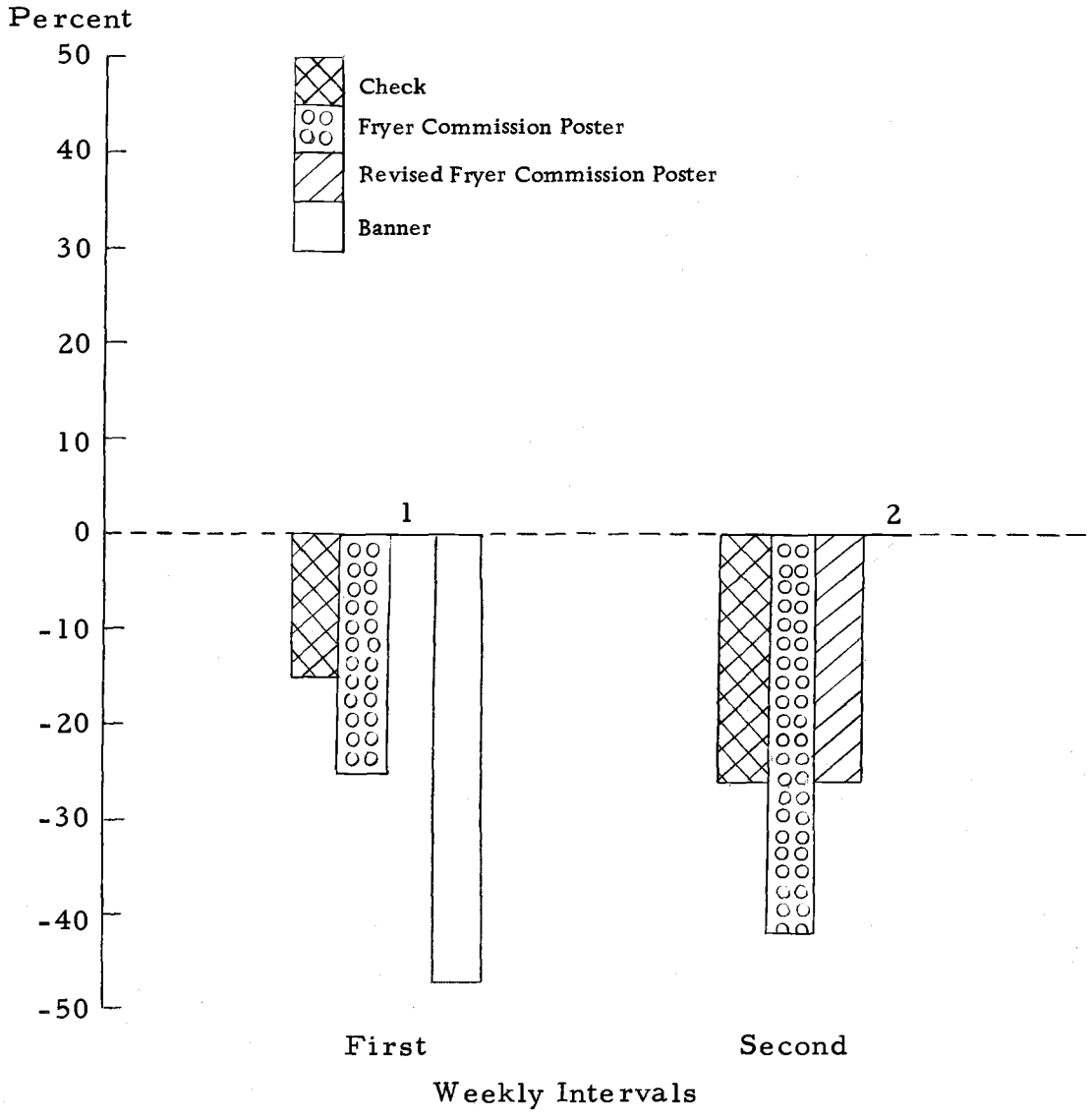

Figure 8. Percentage change in fryer sales between the prepromotion period and the postpromotion period, by treatments, for Chain A, by one-week intervals.

[1]The revised Fryer Commission poster was not used in the analysis.

[2]The banner was not used in the analysis.

The carry-over effect was calculated in the same manner as the promotion effect. However, no apparent carry-over effect was evident for any of the treatments during the two week postpromotion period in Chain A (Figure 9).

Chain B - Promotion Period

Promotion Effect

General: A discussion of the differences between percentage changes in sales for each promotional treatment and the check stores is presented hereafter for Chain B, Chain C, and for Chains A, B, and C combined. Percentage changes in sales are not shown in the text but are presented in the appendix.

One-week intervals: The Fryer Commission poster had a ten percent promotion effect during the first week of promotion (Figure 10). The other two treatments had negative percentage differences and indicated that promotion was ineffective.

The second week of fryer sales was influenced by uncontrollable factors which limited the use of the data. Thus, the second week of promotion was eliminated in Chain B.

During the third week, promotion effects of 22 and 7 percent respectively were computed for the Fryer Commission poster and banner (Figure 10). Negative percentage difference for the revised

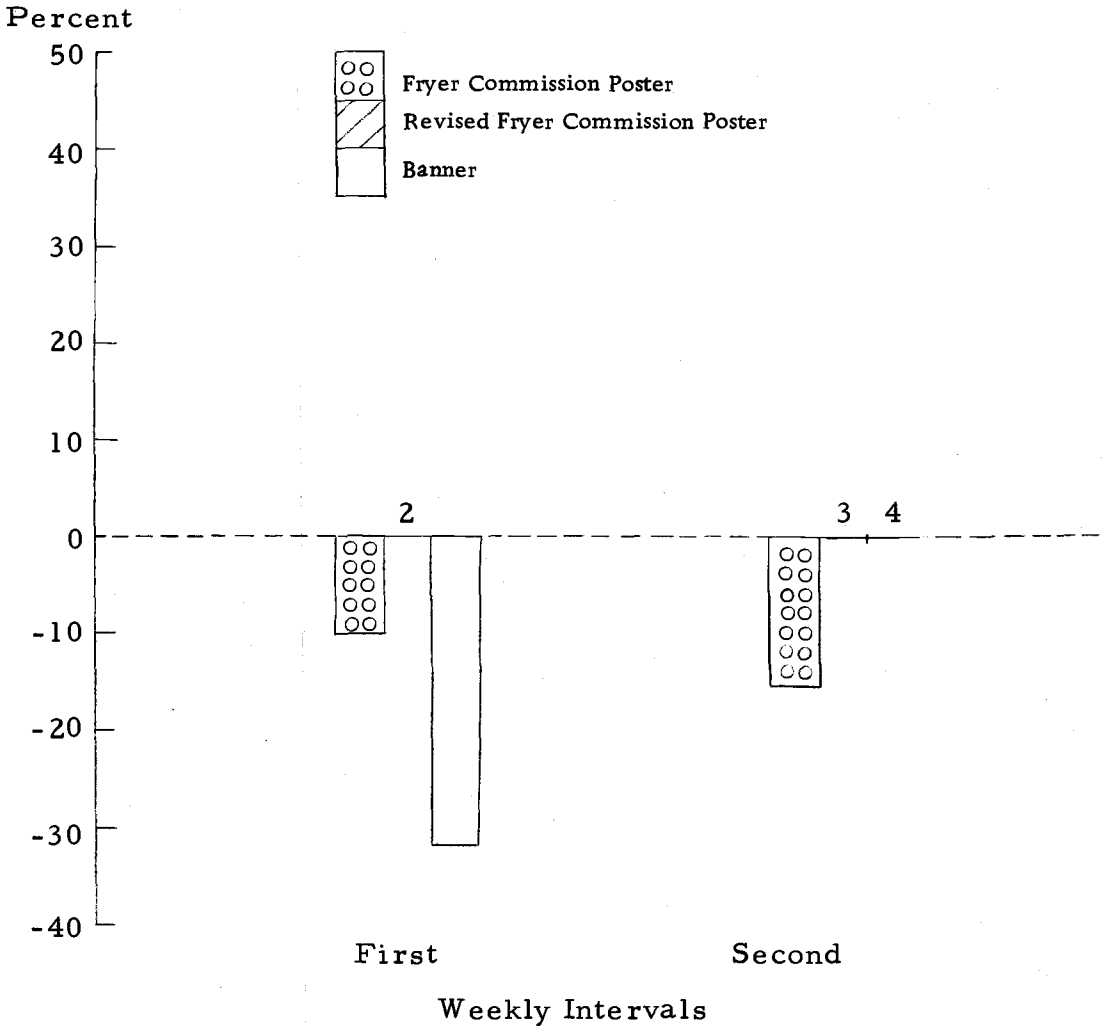

Figure 9. Differences between percentage change in sale for each promotional treatment and the check treatment, for Chain A, by one-week intervals. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2] The revised Fryer Commission poster was not used in the analysis.

[3] The carry-over effect of the revised Fryer Commission poster was zero.

[4] The banner was not used in the analysis.

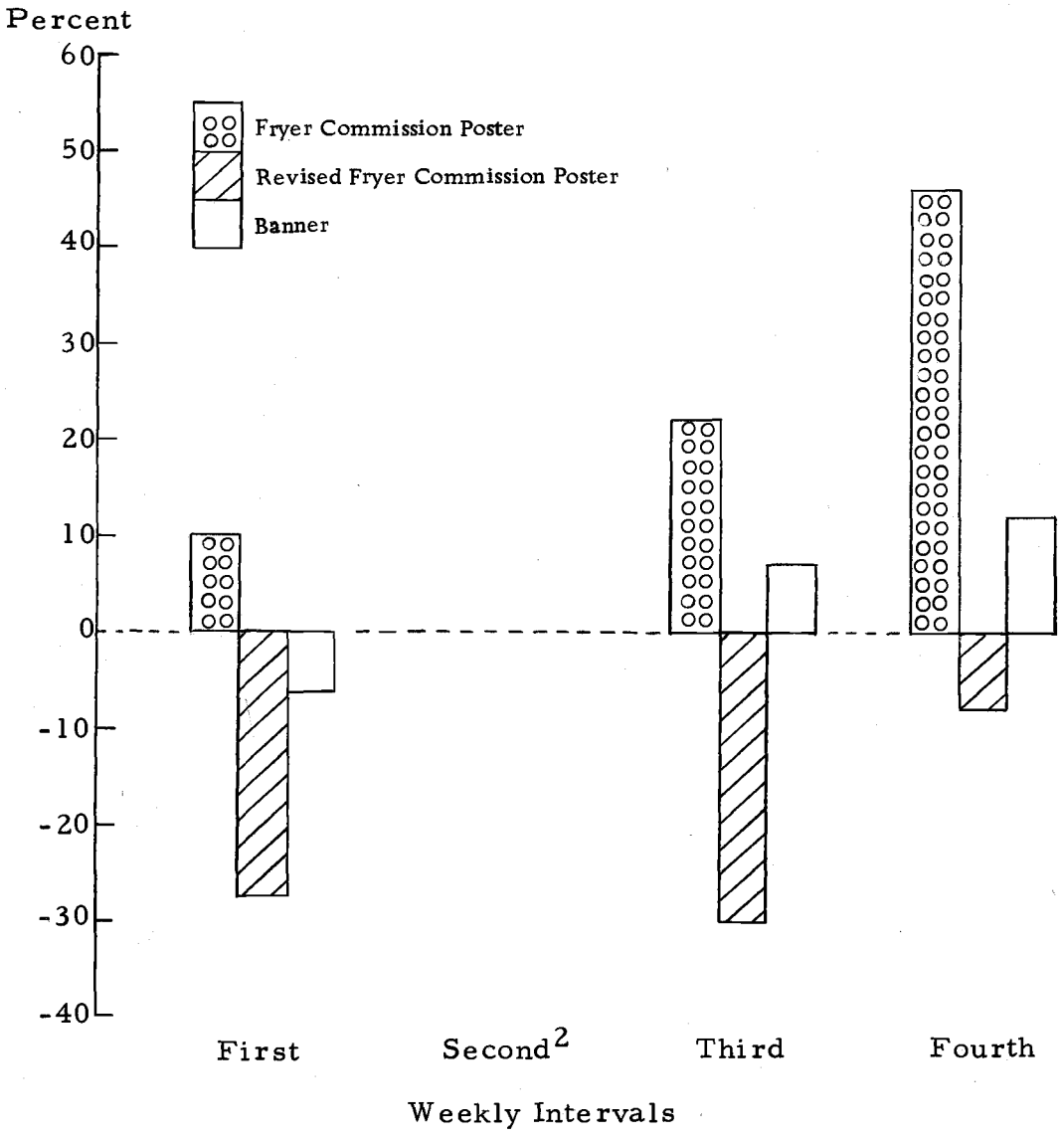

Figure 10. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain B, by one-week intervals.[1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The second week data for Chain B were omitted.

Fryer Commission poster indicated that promotion was ineffective.

The Fryer Commission poster and banner during the fourth week had promotion effects of 46 and 12 percent respectively (Figure 10). Again, promotion by the revised Fryer Commission poster appeared to be ineffective.

Two-week intervals: Stores with the Fryer Commission poster had a promotion effect of ten percent during the first two-week interval (Figure 11). The other two treatments had negative percent differences and indicated no promotion effect.

The promotion effects of the Fryer Commission poster and banner were 34 and 9 percent respectively during the second two-week interval (Figure 11). Again, promotion with the revised Fryer Commission poster was seemingly ineffective.

Four-week interval: Promotion effects of 25 and 4 percent respectively were computed for the Fryer Commission poster and banner (Figure 7). Negative percent differences indicated that promotion by the revised Fryer Commission poster was ineffective.

Chain B - Postpromotion Period

Carry-over Effect

One-week intervals: The Fryer Commission poster and banner had carry-over effects of 32 and 37 percent respectively during

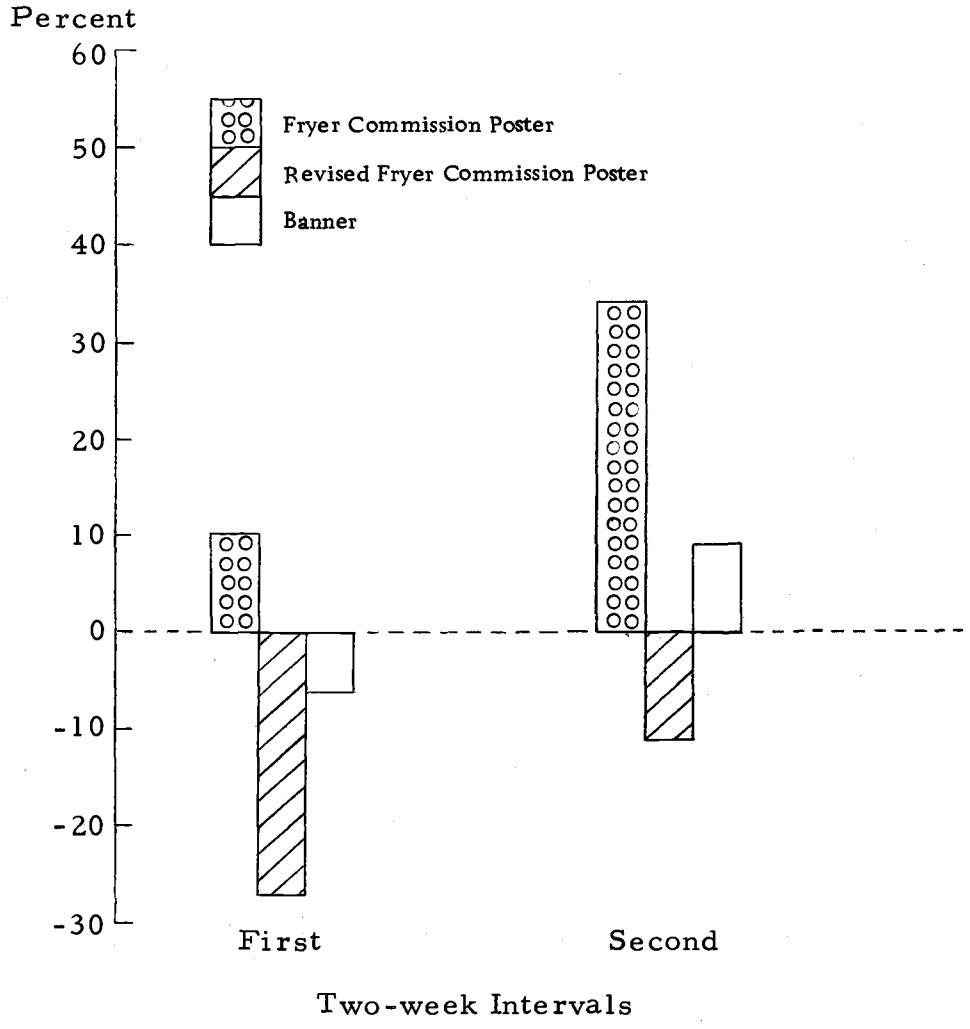

Figure 11. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain B, by two-week intervals.[1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

the first week (Figure 12). The revised Fryer Commission poster apparently had no carry-over effect.

No carry-over effects were computed for any of the promotional treatments during the second week of the postpromotion period (Figure 12).

Chain C - Promotion Period

Promotion Effect

One-week intervals: All treatments during the first week had promotion effects. The treatments with their promotion effects were: Fryer Commission poster, 22 percent; revised Fryer Commission poster, 35 percent; and banner, 4 percent (Figure 13).

During the second week, the gondola had a 11 percent promotion effect (Figure 13). Promotion by the other treatments was seemingly ineffective.

Promotion effects of 7 and 23 percent respectively were computed for the Fryer Commission poster and revised Fryer Commission poster during the third week (Figure 13). A negative percentage difference indicated that promotion by the banner was ineffective.

The fourth week was similar to the first week in that all treatments had promotion effects. Each treatment with its promotion effect was as follows: Fryer Commission poster, 22 percent; revised

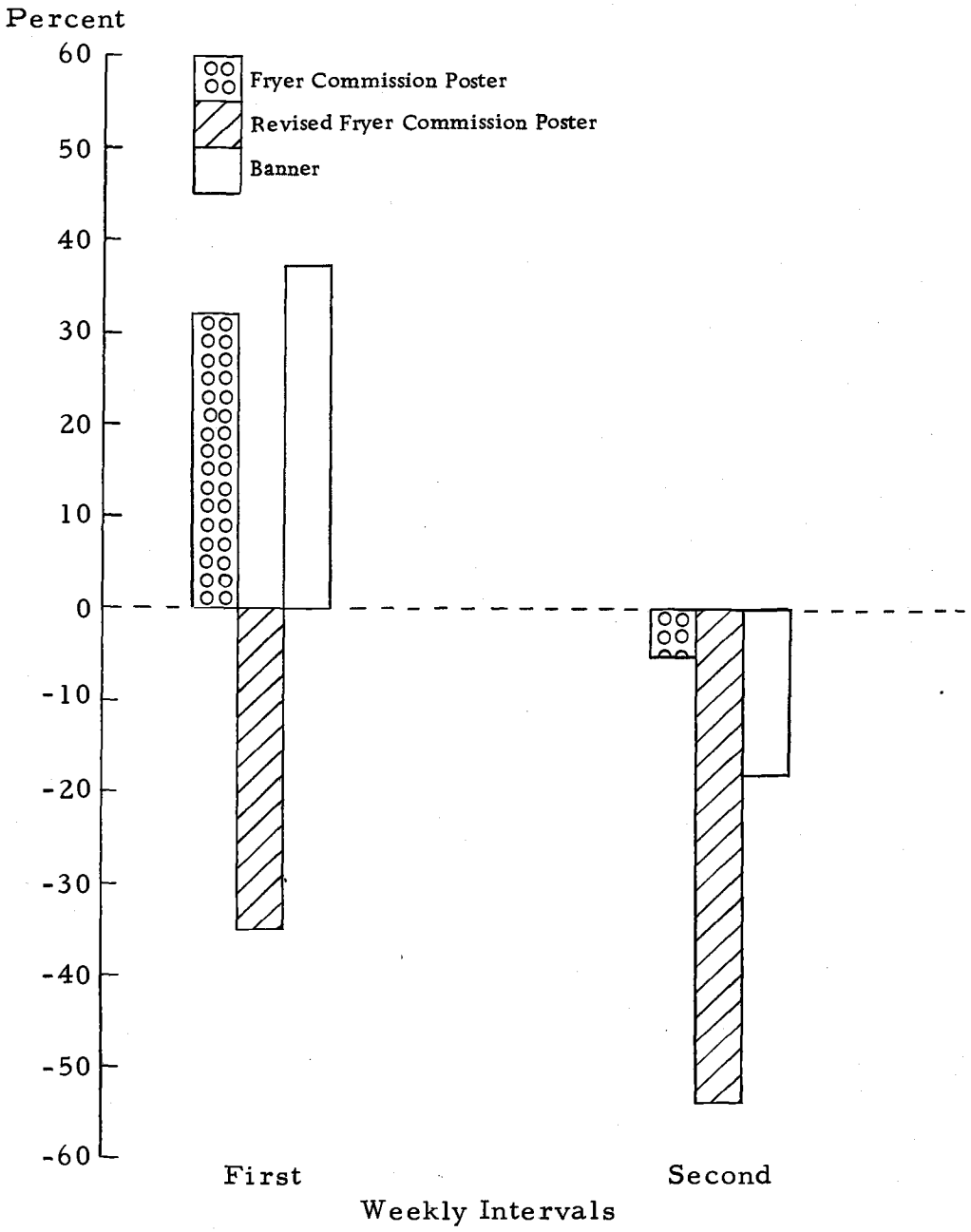

Figure 12. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain B, by one-week intervals. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period. "Differences" are used as the measurement of carry-over effect.

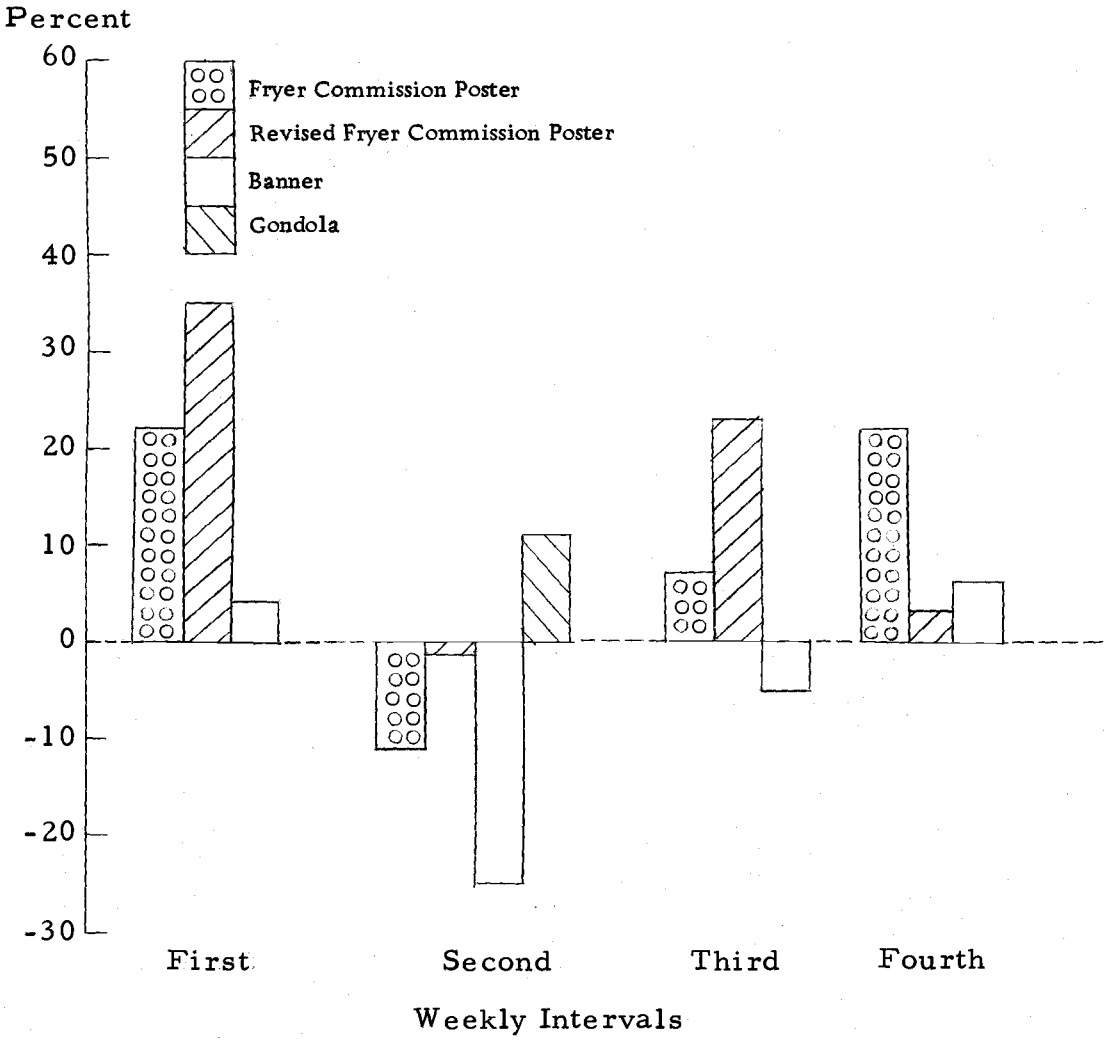

Figure 13. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain C, by one-week intervals.[1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

Fryer Commission poster, 3 percent; and banner, 6 percent (Figure 13).

Two-week intervals: During the first two-week interval, promotion effects of 6 and 17 percent respectively were calculated for the Fryer Commission poster and revised Fryer Commission poster (Figure 14). Promotion was seemingly ineffective with the banner.

During the second two-week interval, promotion effects were calculated for all treatments. The Fryer Commission poster, revised Fryer Commission poster, and banner had promotion effects of 14, 13, and 1 percent respectively (Figure 14).

Four-week interval: Promotion effects of 10 and 15 percent respectively were calculated for the Fryer Commission poster and revised Fryer Commission poster (Figure 7). Promotion by the banner appeared to be ineffective.

Chain C - Postpromotion Period

Carry-over Effect

One-week intervals: Each treatment during both weeks of the postpromotion period had a carry-over effect. During the first week, the Fryer Commission poster, revised Fryer Commission poster, and banner had carry-over effects of 12, 7, and 11 percent respectively (Figure 15). During the second week, the Fryer Commission

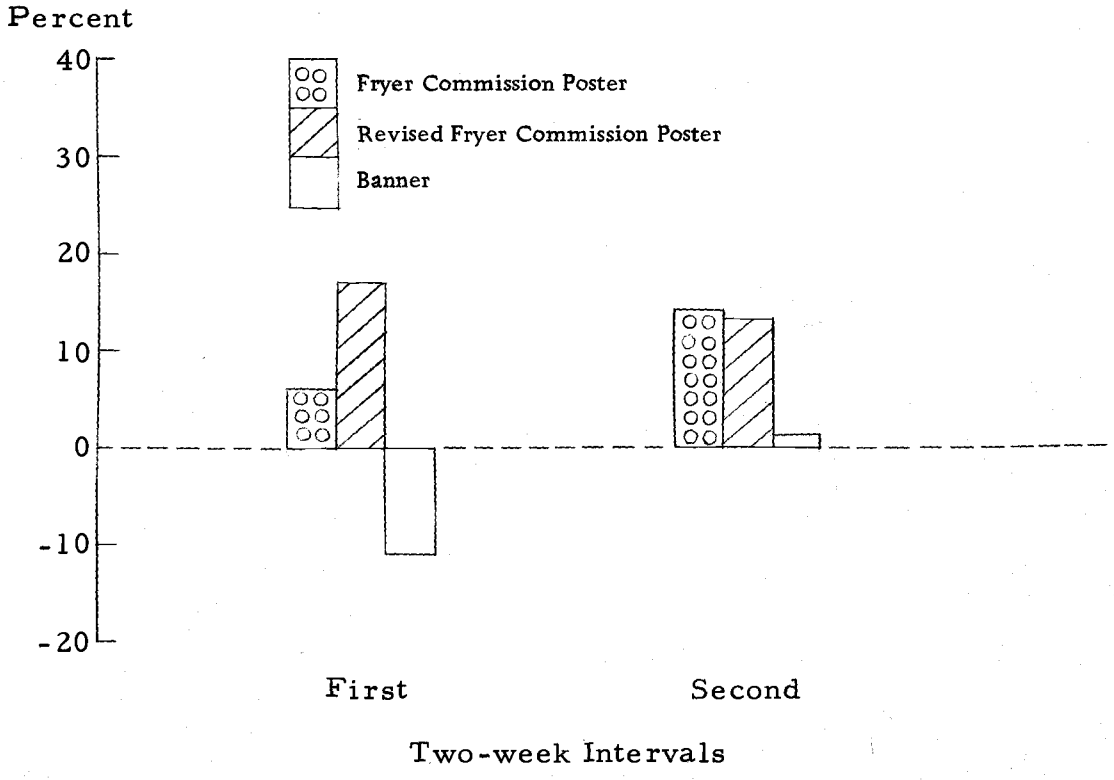

Figure 14. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain C, by two-week intervals.[1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

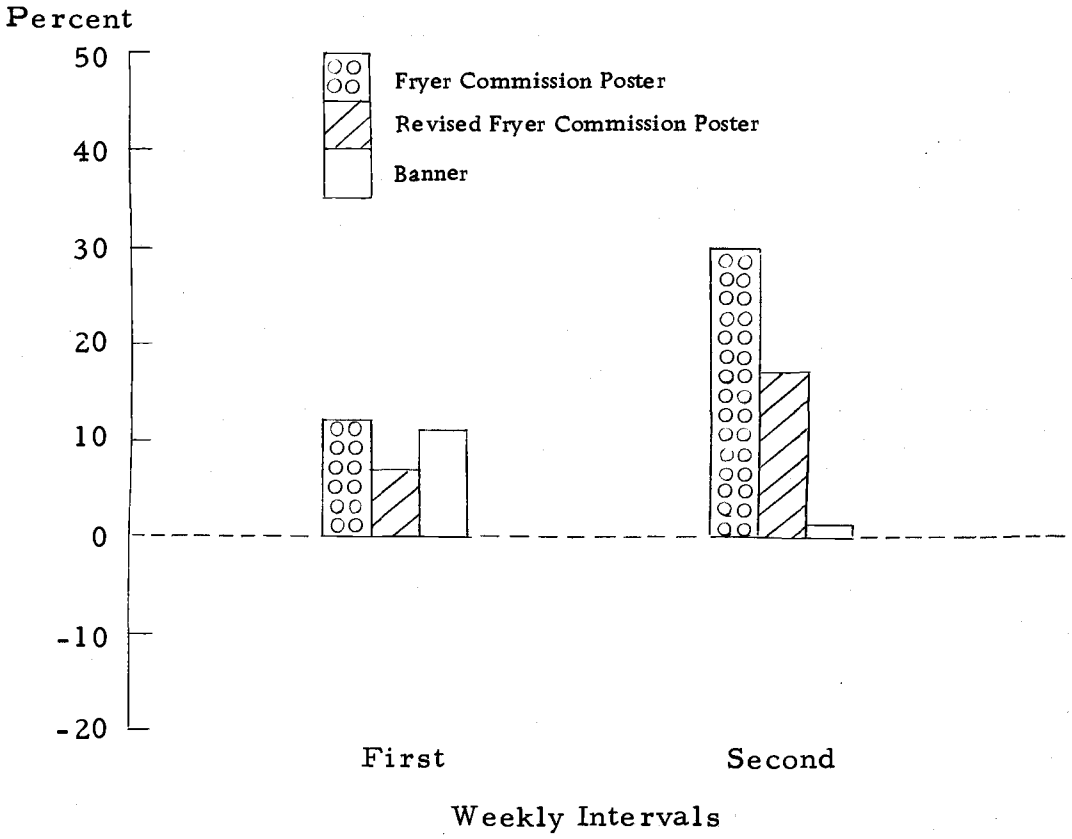

Figure 15. Differences between percentage change in sales for each promotional treatment and the check treatment, for Chain C, by one-week intervals.[1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

poster and revised Fryer Commission poster increased their carry-over effects to 30 and 17 percent respectively. However, the carry-over effect for the banner treatment decreased to one percent.

Chain A, Chain B, and Chain C Combined - Promotion Period

Promotion Effect

One-week intervals: During the first week, promotion effects of 19 and 21 percent respectively were determined for the Fryer Commission poster and revised Fryer Commission poster (Figure 16). Promotion in stores with banners was seemingly ineffective.

During the second week, promotion by all treatments appeared to be ineffective (Figure 16).

All treatments during the third week had promotion effects. These promotion effects were 4, 20, and 2 percent respectively for the Fryer Commission poster, revised Fryer Commission poster, and banner (Figure 16).

The Fryer Commission poster and banner during the fourth week had promotion effects of five and nine percent respectively (Figure 16). Promotion by the revised Fryer Commission poster was ineffective.

Two-week intervals: Two of the three treatments, Fryer Commission poster and revised Fryer Commission poster, had

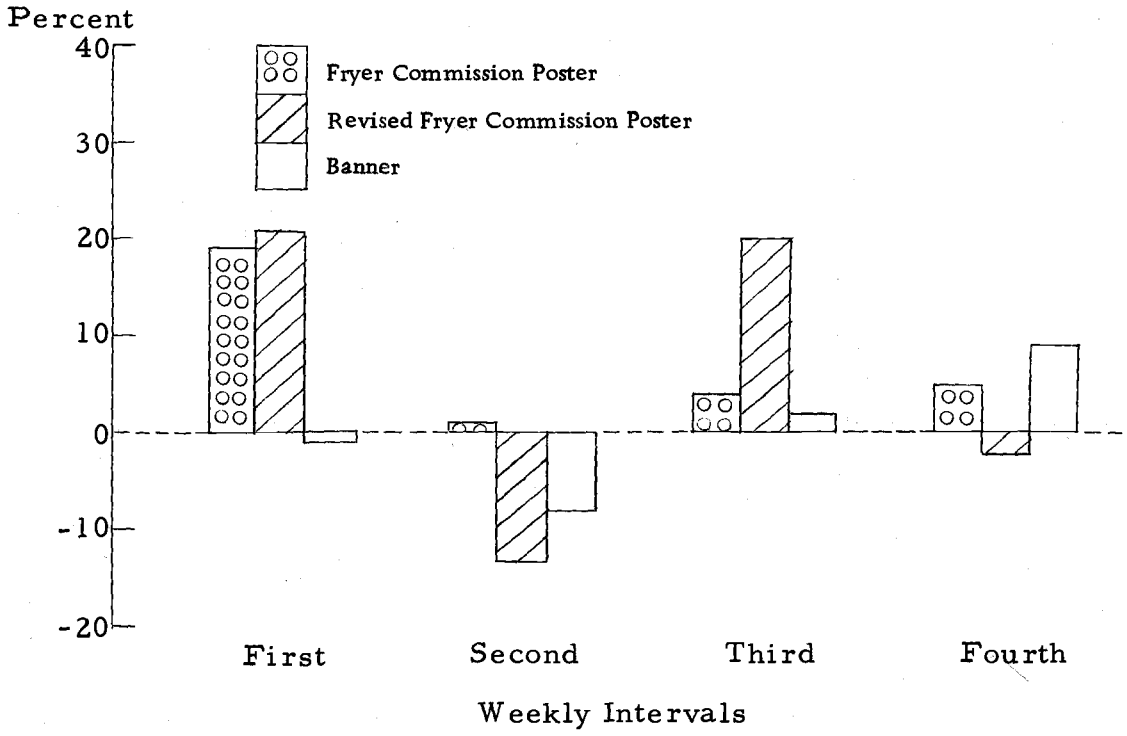

Figure 16. Differences between percentage change in sales for each promotional treatment and the check treatment, by one-week intervals, when data were combined for Chains A, B, and C. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

promotion effects of 13 and 7 percent respectively during the first two-week interval (Figure 17). A negative percentage difference for the banner indicated that promotion was ineffective.

Each treatment during the second two-week interval had a promotion effect. The promotion effects were four, eight, and six percent respectively for the Fryer Commission poster, revised Fryer Commission poster, and banner (Figure 17).

Four-week interval: A promotion effect of seven percent was calculated for both the Fryer Commission poster and the revised Fryer Commission poster (Figure 7). Promotion was apparently ineffective for the banner.

Chain A, Chain B, and Chain C Combined - Postpromotion Period

Carry-over Effect

One-week intervals: During the first week, the banner had a carry-over effect of 25 percent (Figure 18). Percentage differences in the other two treatments were negative which indicated no carry-over effects.

In the second week, a small carry-over effect of two percent was computed for the revised Fryer Commission poster (Figure 18). No carry-over effects were determined for the other two treatments.

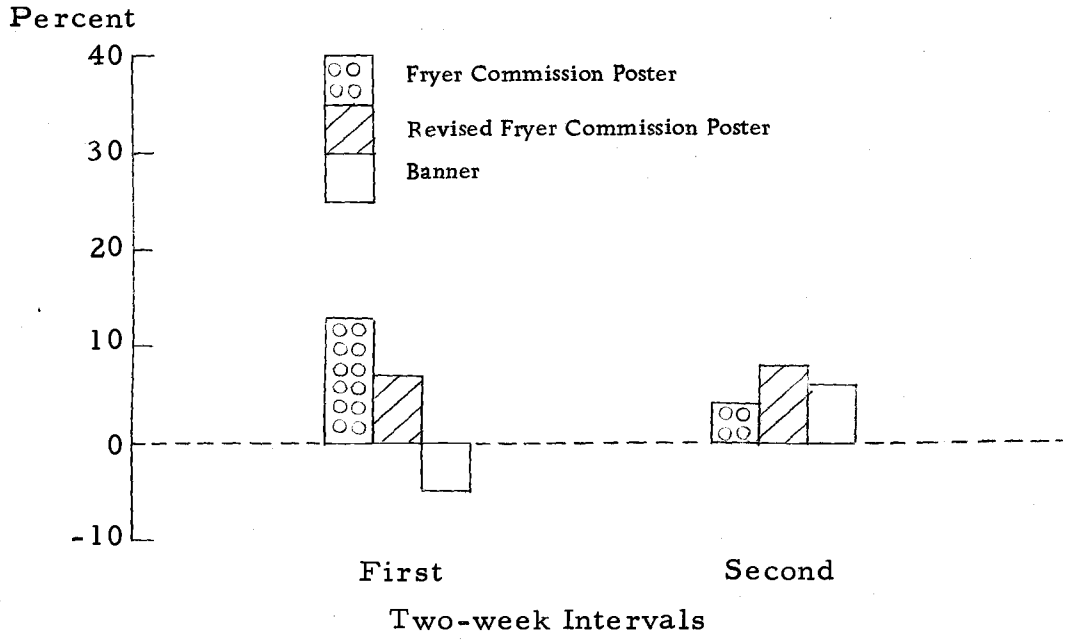

Figure 17. Differences between percentage change in sales for each promotional treatment and the check treatment, by two-week intervals, when data were combined for Chains A, B, and C.[1]

[1]"Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

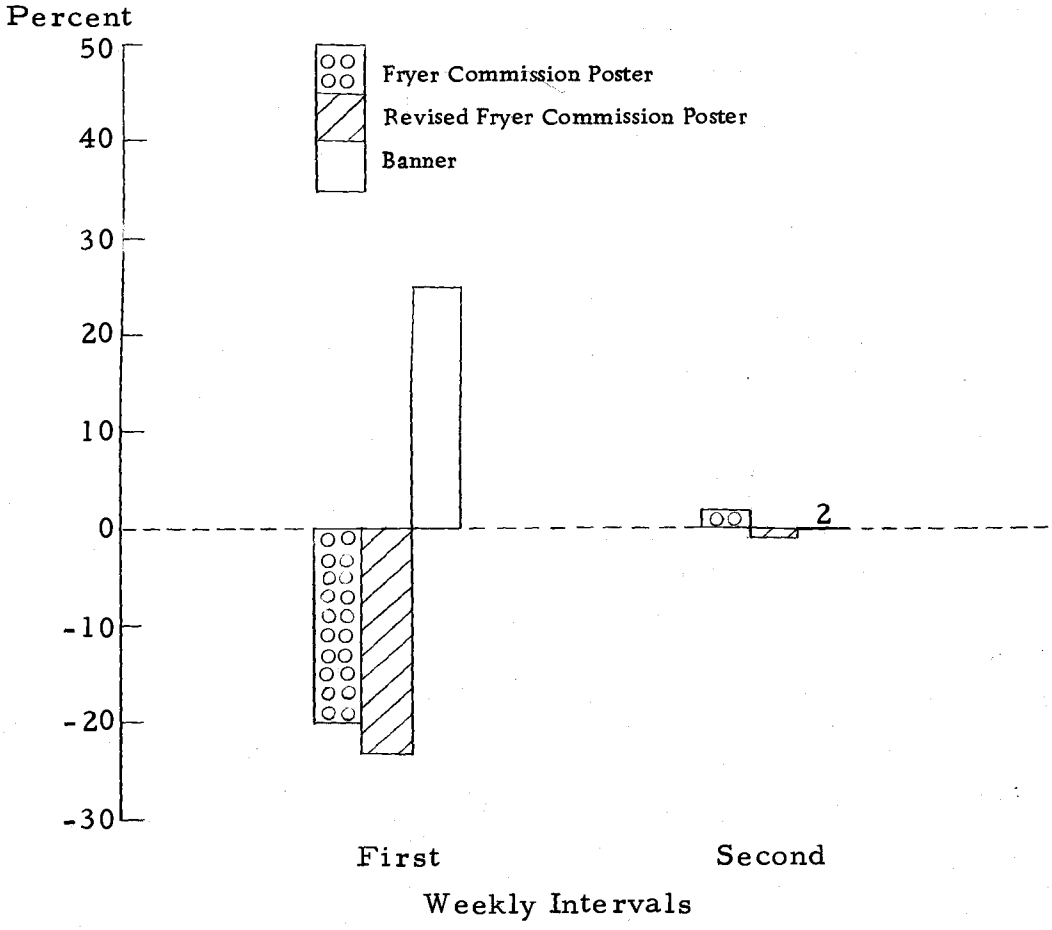

Figure 18. Differences between percentage change in sales for each promotional treatment and the check treatment, by one-week intervals, when data were combined for Chains A, B, and C. [1]

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2] The carry-over effect of the banner was zero.

Effectiveness of Colored, Pictorial Poster as Compared with Colored Banner

Promotion effectiveness was greater with the colored, pictorial poster (Fryer Commission poster) than with the low-cost banner. In Chain A, their promotion effectiveness was similar. Each had some promotion effect during the one and two-week intervals, while neither had any promotion effect during the four-week interval.

In Chain B, the number of times that promotion was effective was essentially the same for both the Fryer Commission poster and the banner during the one, two, and four-week intervals. However, the magnitude of these promotion effects was usually greater for the Fryer Commission poster.

In Chain C, promotion effectiveness of the Fryer Commission poster and of the banner was similar during the one-week intervals. However, during the two and four-week intervals, promotion was effective in the store with the Fryer Commission poster and was ineffective in the store with the banner.

When the data for the three chains were combined, promotion effectiveness was greater in stores with Fryer Commission posters during the one, two, and four-week intervals.

Effectiveness of Gondola

Gondolas appeared quite effective in increasing fryer sales during short time intervals. Promotion effects were evident each week gondolas were used.

Effectiveness of Fryer Commission Poster as Compared with Revised Fryer Commission Poster

Promotion effects in stores with Fryer Commission posters and revised Fryer Commission posters were similar in each time interval for Chain A, Chain C, and when data for Chain A, Chain B, and Chain C were combined. But in Chain B the situation was completely different. During each time interval, the store with the revised Fryer Commission poster had no promotion effect, while the store with the Fryer Commission poster did have a promotion effect. Thus the Fryer Commission poster's over-all promotion effectiveness appeared to be slightly greater than that of the revised Fryer Commission poster.

Effects of Price Specials on Volume Sold

The retail price of fryers frequently changed in the sample stores during the time of the study. Prices in Chain A and Chain B were reduced from their normal level of 45 and 49 cents to 29 and 35

cents on whole and cut-up fryers respectively during the week preceding the promotion period. Fryer sales increased 498 and 568 percent in Chain A's and Chain B's test stores respectively when compared to their total average sales during the two week prepromotion period. However, fryer sales decreased 16 and 14 percent below the prepromotion level in Chain A and Chain B respectively the following week when prices were increased to their normal level.

The price of fryers was reduced from its normal level to 35 and 39 cents on whole and cut-up fryers respectively during the second week of promotion in Chain A, and during the first week of postpromotion in Chain B. Fryer sales increased 72 percent in Chain A and 137 percent in Chain B when compared to their total average sales during the prepromotion period. Fryer prices were increased in both chains to their normal level the following week and sales returned to their approximate prepromotion level.

CHAPTER IV

SUMMARY AND CONCLUSIONS

The production, processing, and marketing of broilers have undergone sweeping changes since the end of World War II. Improvements in breeding, feeding, and managing made production more efficient. New methods of assembling, processing, packaging, and distributing reduced costs, improved quality, and made large-scale operations feasible. Extensive use of contract growing and production financing increased broiler production throughout the United States. Presently, production is concentrated in the South Atlantic States and the South Central States. Lower production costs combined with improved transportation enabled southern fryers to compete favorably with Oregon-grown fryers. With the passage of the Oregon Uniform Labeling Law in 1959, it is now possible for Oregon broiler growers to differentiate their product from broilers produced in other states. In addition, a modest promotion program, based largely on the freshness of Oregon-grown fryers, has been undertaken by the Oregon Fryer Commission. This promotion campaign is being continued in order to meet competition from broiler growers in other states. With limited funds, it would be desirable for the Oregon Fryer Commission to know the most advantageous uses for its

promotional dollars.

The purpose of the broiler production study was to determine the costs of producing broilers in Oregon. Selection of the growers was done by the author and persons closely associated with the Oregon broiler industry. The selected growers appeared to operate three of the better broiler enterprises in Oregon. Different sizes of broiler enterprises were selected in order to compare various cost items among growers. Broiler records for each operator were complete. Each grower received virtually all farm income from his broiler operation.

Because of variation in production costs during the year, data were collected from each grower for the last four broods marketed in 1963. The cost items of the four broods on each farm were added and divided by four to obtain average costs.

The costs of feed and chicks charged by the integrator against each broiler enterprise were used as the costs of feed and chicks in the analysis. Hired labor was charged at cost. Business trips were valued at $10 per day. Other cash costs were obtained directly from farm account records.

Interest on grower's equity was charged at six percent. Building and equipment depreciation was calculated by the straight line method. Grower's labor and management was valued at $1.50 per hour, while unpaid family labor was valued at $1.00 per hour.

The feed conversion ratios for Growers One, Two, and Three were 2.24, 2.36, and 2.31 respectively. The mortality rate ranged from a low of 1.65 to 5.01 percent. The average weight per broiler ranged from a low of 3.59 to 3.72 pounds. Grower One marketed his birds during the latter part of the seventh week, while Growers Two and Three did not market their broilers until the middle of the eighth week.

The total production cost per brood and the average number of broilers marketed from the last four broods in 1963 were: Grower One, $15,823 for 24,564 birds; Grower Two, $23,316 for 34,951 birds; Grower Three, $25,483 for 40,498 birds. Chick and feed cost ranged from 80.4 percent to 85.2 percent of total cost.

The total cost per pound of broiler marketed for Growers One, Two, and Three was 17.94 cents, 18.64 cents, and 16.90 cents respectively. Assuming each grower received the average Oregon price of 17 cents per pound in 1963, Growers One and Two would have lost $830 and $4,110 per brood, while Grower Three would have made a profit of $100 per brood.

Grower Two had a higher cost per pound than Grower Three due to higher costs of feed, chicks, veterinary and medical, hired labor, and noncash costs. These differences between Growers Two and Three seem very small. For example, the difference in veterinary and medical expenses amounted to only .44 cents per pound of

broiler. But on a yearly basis, it would have amounted to approximately $2,500. Moreover, Grower Two would have decreased his 1963 total cost by approximately $9,000 if his cost per pound were the same as the cost per pound of Grower Three.

The purpose of the promotion study was to determine the effectiveness of in-store promotion in increasing fryer sales. Two posters, a banner, and a gondola were employed as promotional material.

The sample stores were selected from two food chains in the Portland metropolitan area and one food chain in the Salem area. The sample size of Chain A was 12 stores, while the sample size of both Chain B and Chain C was six stores. Store selections were based on a large volume of fryer sales and the location of stores with respect to different socio-economic groups. Data were collected through personal interviews with the personnel of each sample store.

All forms of in-store promotion for fryers other than what were used in the study were discontinued during the prepromotion, promotion, and postpromotion periods. However, newspaper, radio, and television advertising of fryers by grocery stores and the Oregon Fryer Commission still continued. These and other motivating factors such as weather, season, price, and competition were assumed to affect the demand for fryers approximately the same for all stores. When there was reason to believe that the preceding

assumptions were not true in one or more stores, data from these stores were omitted for the week. Therefore, from the standpoint of the sale of fryers, in-store promotion was considered to be the factor differentiating sales in one store from sales in another.

Fryer Commission poster, revised Fryer Commission poster, banner, and gondola treatments were assigned to sample stores within each chain. One other treatment was used and was designated as the check treatment. Stores with this treatment had no in-store fryer promotion.

Measuring the quantitative effects of in-store promotion of fryers involved the auditing of weekly sales in the sample stores during the prepromotion, promotion, and postpromotion periods. Fryer sales of stores grouped by treatments during the promotion and postpromotion periods were compared to their corresponding sales during the prepromotion period to determine percentage change in sales. The time periods for comparison of fryer sales were one, two, and four weeks during the promotion period, and one week during the postpromotion period.

Sales in check stores with no promotion functioned as a base for comparison of fryer sales in stores having promotion. The percentage change in sales of the check stores was compared with the percentage changes in fryer sales in stores with Fryer Commission poster, revised Fryer Commission poster, banner, and gondola.

When the percentage change in sales in stores with one of the promotional treatments increased more or decreased less than the percentage change in the check stores, in-store promotion was assumed to be the principal factor causing the difference. This positive difference was called the promotion effect during the promotion period, and the carry-over effect during the postpromotion period. However, if the percentage change in sales in stores with any one of the promotional treatments increased less or decreased more than the percentage change in sales in check stores, promotion was assumed to be ineffective.

Data from stores of Chain A, Chain B, and Chain C were combined to form a larger sample. A sample which includes stores from different chains permits application of the results of the total population of grocery stores in the three chains for the Portland and Salem areas. Also, a larger sample increases the accuracy of the results.

Promotion by Fryer Commission posters was effective during each week of promotion when data for Chains A, B, and C were combined. Revised Fryer Commission posters had promotion effects during the first and third weeks, while banners had slight promotion effects during the third and fourth weeks.

When data for Chains A, B, and C were combined, promotion by Fryer Commission posters and revised Fryer Commission posters

was effective during both two-week intervals. However, promotion by banners was effective during only the second two-week interval.

Promotion by Fryer Commission posters and revised Fryer Commission posters was effective during the four-week interval when data for Chains A, B, and C were combined. At the same time, banners appeared to have no promotion effect.

It appeared that promotion by Fryer Commission posters and by revised Fryer Commission posters was effective and quite similar during the one, two, and four-week intervals. Promotion effectiveness of the banner was considerably less during the same three time periods. Emphasizing the word "Oregon" in the revised Fryer Commission poster appeared to have no effect in increasing fryer sales during the promotion period when compared to the Fryer Commission poster which had less emphasis on the word "Oregon." Also, a colored, pictorial poster (Fryer Commission poster) appeared more effective in promotion than a simple, low-cost banner.

Gondolas appeared quite effective in increasing fryer sales during short time intervals. Promotion effects were evident each week gondolas were used.

Carry-over effects of promotion appeared to be slight when data for Chains A, B, and C were combined.

During the week of price specials and the week following price specials, total fryer sales in the stores of Chain A and Chain B were

compared to fryer sales during the prepromotion period. When fryer prices were reduced from their normal level of 45 and 49 cents to 35 and 39 cents on whole and cut-up fryers, total sales of Chain A and Chain B increased 72 and 137 percent respectively compared with sales during the prepromotion period. Fryer prices in both chains were increased to their normal level the following week and sales returned to their approximate prepromotion level. At one time during the study, fryer prices were reduced to 29 and 35 cents on whole and cut-up fryers. Total sales of Chain A and Chain B increased 498 and 568 percent respectively. When prices were increased to their normal level the following week, fryer sales in both chains decreased, but still were approximately only 15 percent below their prepromotion level. The decrease can be attributed to such factors as consumer stockpiling and eating more fryers during the week of the large price reduction. Also, the increase in volume of sales during weeks of price specials was much greater than the decrease in volume of sales following two weeks of price specials. This presents a question of the effect of price specials on total volume of fryer sales over a longer time period. Although an increase in the volume of fryer sales might be profitable for processors and retailers, it might not be profitable for broiler growers.

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APPENDIX

Appendix Table 1. Total United States broiler exports, exports to the European Common Market, and West Germany, 1958-1962; and percent of total production exported, 1958-1962.

Year	Total	European Common Market	West Germany	Portion of United States Production Exported
	1,000 pounds	1,000 pounds	1,000 pounds	percent
1958	23,735	4,615	3,243	.4
1959	70,371	28,008	23,929	1.2
1960	93,014	47,820	40,814	1.5
1961	149,313	91,632	76,505	2.2
1962	172,576	112,897	93,290	2.5

Source: (17, p. 48; 19, p. 31).

Appendix Table 2. Number, pounds, average live weight, average price, and value of production of commercial broilers for the United States, 1950-1962.

Year	Number	Pounds (Live)	Average Live Weight Per Bird	Average Price Received by Producers, Per Pound, Live Weight	Value of Production
48 states	millions	millions	pounds	cents	million dollars
1950	631	1,945	3.1	27.4	533
1951	789	2,415	3.1	28.5	689
1952	861	2,624	3.0	28.8	756
1953	947	2,904	3.1	27.1	786
1954	1,048	3,236	3.1	23.1	747
1955	1,092	3,350	3.1	25.2	844
1956	1,344	4,270	3.2	19.6	838
1957	1,448	4,683	3.2	18.9	886
1958	1,660	5,431	3.3	18.5	1,002
1959	1,737	5,763	3.3	16.1	925
1960	1,795	6,017	3.3	16.9	1,014
1961	1,992	6,836	3.4	13.9	947
1962	2,025	6,913	3.4	15.2	1,049
50 states					
1961	1,993	6,841	3.4	13.9	949
1962	2,026	6,919	3.4	15.2	1,051

Source: (20, p. 51).

Appendix Table 3. Number of commercial broilers produced in the United States by regions and by years, 1950, 1955, 1959, and 1962.

Region	1950	1955	1959	1962
	1,000	1,000	1,000	1,000
North Atlantic States	79,119	139,083	162,925	138,364
East North Central States	52,637	76,297	85,862	66,807
West North Central States	25,649	38,281	52,142	55,024
South Atlantic States	298,129	475,259	727,752	868,578
South Central States	123,337	292,758	624,432	803,811
Western States	52,587	70,006	83,809	92,429
Total[1]	631,458	1,091,684	1,736,922	2,025,013

[1] Does not include Alaska and Hawaii.

Source: (11, 12, 13, and 14, for selected years).

Appendix Table 4. Average price per pound received by producers of commercial broilers in the United States by regions and by years, 1950, 1955, 1959, and 1962.

Region	1950	1955	1959	1962
	cents	cents	cents	cents
North Atlantic States	28.1	26.1	18.4	17.4
East North Central States	28.9	25.3	16.5	15.5
West North Central States	27.2	24.6	15.5	15.3
South Atlantic States	26.1	24.8	16.1	15.0
South Central States	27.6	24.8	15.2	14.6
Western States	30.8	27.6	18.7	17.2
Average[1]	27.4	25.2	16.1	15.2

[1] Does not include Alaska and Hawaii.

Source: (11, 12, 13, and 14, for selected years).

Appendix Table 5. Value of production of commercial broilers in the United States by regions and by years, 1950, 1955, 1959, and 1962.

Region	1950	1955	1959	1962
	$1,000	$1,000	$1,000	$1,000
North Atlantic States	86,532	127,934	112,158	94,637
East North Central States	47,426	61,945	48,717	36,668
West North Central States	21,114	28,501	26,659	29,198
South Atlantic States	229,782	354,495	384,625	446,811
South Central States	94,027	211,251	300,291	384,323
Western States	53,771	59,827	52,958	57,122
Total[1]	532,652	843,953	925,408	1,048,759

[1] Does not include Alaska and Hawaii.

Source: (11, 12, 13, and 14, for selected years).

Appendix Table 6. Number of commercial broilers sold in 49 United States broiler producing areas, 1959.

Area Number	Area	Number of Broilers 1959
		1,000
1	Southern Maine	49,863
2	Southern New Hampshire	4,074
3	Massachusetts	7,398
4	Connecticut and Rhode Island	18,169
5	Southern New York	4,834
6	Long Island, New York	562
7	Central New York	2,616
8	Western New York and Northern Pennsylvania	4,631
9	Southern New Jersey	2,952
10	Eastern Pennsylvania	22,185
11	Central and Western Pennsylvania	2,810
12	Delmarva	154,726
13	Central Virginia	6,813
14	Shenandoah Valley	41,031
15	Southern North Carolina	11,834
16	Central and Western North Carolina	86,516
17	South Carolina	7,487
18	Northern Georgia	198,687
19	Central Georgia	6,333
20	Southern Georgia	10,667
21	Northeastern Florida	3,476
22	Eastern Ohio	3,172
23	Western Ohio	2,338
24	Southern Ohio	2,717
25	Northern Indiana	9,413
26	Southern Indiana	16,871
27	Southern Kentucky and Northern Tennessee	15,838
28	Southeastern Tennessee	10,590
29	Alabama	130,588
30	Northern Mississippi	5,862
31	Central and Southern Mississippi	81,527
32	Western Louisiana	8,871
33	Eastern Louisiana	2,992
34	Central Missouri	4,895
35	Missouri-Arkansas	98,219

Appendix Table 6. (continued)

Area Number	Area	Number of Broilers 1959
		1,000
36	Arkansas	62,059
37	Western Michigan	1,133
38	Southern Wisconsin	1,797
39	Central Wisconsin	2,359
40	Western Wisconsin	6,499
41	Northeastern Oklahoma	2,581
42	Southeastern Oklahoma	3,446
43	Eastern Texas	58,882
44	Southern Texas	13,944
45	Southern California	11,464
46	Central California	17,194
47	Northern California	6,026
48	Oregon	7,586
49	Washington	13,365
	Total	1,249,892

Source: (15, Table 2).

Appendix Table 7. Number of commercial broilers produced, price per pound, [1] and value of production in 1962, by states.

State	Number Produced	Price Per Pound	Value of Production
	1,000	cents	$1,000
Georgia	353,600	14.4	168,031
Arkansas	242,850	14.5	112,682
Alabama	214,933	14.5	102,845
North Carolina	203,126	14.3	98,760
Mississippi	139,605	14.5	66,322
Texas	125,706	15.1	62,639
Maryland	118,686	16.3	73,514
Delaware	91,306	16.3	56,555
Maine	61,989	17.0	41,099
California	60,400	17.0	36,965
Virginia	48,688	15.9	23,215
Pennsylvania	37,795	17.5	25,795
Missouri	37,100	14.9	18,795
Tennessee	33,337	14.4	16,322
Indiana	32,499	15.1	16,194
Louisiana	24,029	14.6	11,577
South Carolina	20,755	14.6	10,000
West Virginia	20,582	16.0	11,197
Wisconsin	17,390	15.7	10,375
Kentucky	15,670	14.7	7,832
Washington	15,426	17.5	9,988
Connecticut	13,976	16.6	8,352
Minnesota	12,414	16.6	7,213
Florida	11,855	14.6	5,539
Ohio	10,764	15.9	6,161
Oregon	9,661	17.5	5,917
Oklahoma	7,681	14.3	3,625
Massachusetts	7,106	16.2	4,605
New York	6,606	18.9	5,493
New Hampshire	5,616	16.0	3,504
Idaho	4,441	18.0	2,718
New Jersey	3,500	25.8	4,696
Illinois	3,204	15.1	1,693
Iowa	2,975	15.5	1,937
Michigan	2,950	17.7	2,245
Utah	1,809	17.5	1,140

Appendix Table 7. (continued)

State	Number Produced	Price Per Pound	Value of Production
	1,000	cents	$1,000
Kansas	1,532	15.3	774
Hawaii	1,335	38.2	5,474
Rhode Island	1,251	16.3	755
Nebraska	1,003	15.4	479
Vermont	525	16.5	338
Colorado and Arizona[2]	692	18.2	394
Other[3]	--	--	--

[1]Price paid to grower, live weight.

[2]Colorado and Arizona combined to avoid disclosing individual operations.

[3]Alaska, Montana, New Mexico, Nevada, North Dakota, South Dakota, and Wyoming reported no broiler production.

Source: (14, p. 14).

Appendix Table 8. Number, pounds, price per pound, and value of production of commercial broilers in Oregon, 1950-1962.

Year	Number	Pounds (Live)	Average Price Received by Producers, Per Pound, Live Weight	Value of Production
	1,000	1,000	cents	$1,000
1950	4,336	13,875	30.0	4,162
1951	5,854	17,562	30.0	5,269
1952	5,093	15,788	30.6	4,831
1953	4,889	14,178	28.5	4,041
1954	5,525	16,575	25.2	4,177
1955	6,133	19,012	26.3	5,000
1956	8,382	26,822	22.5	6,035
1957	7,697	24,630	21.7	5,345
1958	8,340	26,688	19.6	5,231
1959	10,723	35,386	17.8	6,299
1960	11,738	39,909	18.6	7,423
1961	11,619	39,505	16.6	6,558
1962	9,661	33,814	17.5	5,917

Source: (11, 12, 13, and 14, for selected years).

Appendix Table 9. Estimated difference between the number of pounds of broilers consumed in Oregon and the estimated number of pounds of Oregon broilers produced, dressed weight, 1950-1962.

Year	Population of Oregon	Per Capita Consumption of Broilers in United States	Estimated Total Consumption of Broilers in Oregon	Estimated Pounds Produced, Dress Weight, in Oregon[1]	Estimated Difference
	1,000	pounds	1,000 pounds	1,000 pounds	1,000 pounds
1950	1,532	8.7	13,328	10,129	3,199
1951	1,564	10.4	16,266	12,820	3,446
1952	1,595	11.7	18,662	11,525	7,137
1953	1,623	12.3	19,963	10,350	9,613
1954	1,652	13.7	22,632	12,100	10,532
1955	1,690	13.8	23,322	13,879	9,443
1956	1,726	17.3	29,860	19,580	10,280
1957	1,735	19.1	33,139	17,980	15,159
1958	1,735	22.0	38,170	19,482	18,688
1959	1,756	22.8	40,037	25,832	14,205
1960	1,773	23.4	41,488	29,134	12,354
1961	1,835	25.9	47,527	28,839	18,688
1962	1,864	25.6	47,718	24,684	23,034

[1]Conversion from live weight to dress weight is 73 percent of live weight.

Source: (24, for selected years; 18, p. 21).

Appendix Table 10. Average price for broiler mash per 100 pounds in Oregon and Arkansas, 1953-1962.

Year	Oregon	Arkansas
	dollars	dollars
1953	5.52	5.05
1954	5.65	4.90
1955	5.42	4.79
1956	5.23	4.67
1957	5.18	4.71
1958	5.23	4.65
1959	5.16	4.65
1960	4.99	4.42
1961	5.05	4.31
1962	4.95	4.34

Source: (10, for selected years).

Appendix Table 11. Average price for baby chicks, broiler breeds, straight run, per 100, in Oregon and Arkansas, 1957-1962.

Year	Oregon	Arkansas
	dollars	dollars
1957	16.5	12.6
1958	16.0	13.1
1959	15.0	9.8
1960	14.7	10.6
1961	14.5	9.2
1962	14.4	9.3

Source: (10, for selected years).

Appendix Table 12. Number of stores that were planned to be used in each treatment during the promotion period,[1] by weeks, for Chain A, Chain B, and Chain C.

	TREATMENTS														
	Check			Fryer Commission Poster			Revised Fryer Commission Poster			Banner			Gondola		
Week	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C	Chain A	Chain B	Chain C
First	4	2	2	2	1	1	2	1	1	2	1	1	0	0	0
Second	4	2	2	2	1	1	2	1	1	2	1	1	2	1	1
Third	4	2	2	2	1	1	2	1	1	2	1	1	0	0	0
Fourth	4	2	2	2	1	1	2	1	1	2	1	1	2	1	1

[1] During the postpromotion period, the same number of stores was used except none used gondolas.

Appendix Table 13. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain A, by two-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment. [1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Two-week Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	26	42	16	15	-11	31	5	-	-
Second	-7	-32	-25	3	10	-7	0	-	-

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The gondola treatment was not used in the analysis.

Appendix Table 14. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, by four-week interval, for Chain A, Chain B, Chain C, and when data were combined for Chains A, B, and C; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Chains	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
Chain A	9	-3	-12	7	-2	8	-1	-	-
Chain B[3]	-17	8	25	-39	-22	-13	4	-	-
Chain C	-8	2	10	7	15	-13	-5	-	-
Chains A, B, and C combined	-6	1	7	1	7	-6	0	-	-

[1] "Percentage change in fryer sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The gondola treatment was not used in the analysis.

[3] The second week data for Chain B were omitted.

Appendix Table 15. Percentage change in fryer sales between the prepromotion period and the postpromotion period, by treatments, for Chain A, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
One-week Intervals	Percent Change	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect
First	-15	-25	-10	-[3]	-[3]	-47	-32	-	-
Second	-26	-42	-16	-26	0	-[3]	-[3]	-	-

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2] The gondola treatment was not used in the analysis.

[3] Data were not considered to be reliable.

Appendix Table 16. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain B, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Weekly Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	-10	0	10	-37	-27	-16	-6	--	--
Second[3]	--	--	--	--	--	--	--	--	--
Third	-31	-9	22	-61	-30	-24	7	--	--
Fourth	-11	35	46	-19	-8	1	12	--	--

[1]"Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2]The gondola treatment was not used in the analysis.

[3]The second week data for Chain B were omitted.

Appendix Table 17. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain B, by two-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Two-week Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First[3]	-10	0	10	-37	-27	-16	-6	--	--
Second	-21	13	34	-32	-11	-12	9	--	--

[1] "Percent change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The gondola treatment was not used in the analysis.

[3] The second week data for Chain B were omitted.

Appendix Table 18. Percentage change in fryer sales between the prepromotion period and the postpromotion period, by treatments, for Chain B, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Weekly Intervals	Percent Change	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect
First	133	165	32	98	-35	170	37	--	--
Second	8	3	-5	-45	-53	-10	-18	--	--

[1]"Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2]The gondola treatment was not used in the analysis.

Appendix Table 19. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain C, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola	
Weekly Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	12	34	22	47	35	16	4	--	--
Second	6	-5	-11	5	-1	-19	-25	17	11
Third	-20	-13	7	3	23	-25	-5	--	--
Fourth	-28	-6	22	-25	3	-22	6	--	--

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

Appendix Table 20. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for Chain C, by two-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Two-week Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	9	15	6	26	17	-2	-11	--	--
Second	-24	-10	14	-11	13	-23	1	--	--

[1] "Percent change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The gondola treatment was not used in the analysis.

Appendix Table 21. Percentage change in fryer sales between the prepromotion period and the postpromotion period, by treatments, for Chain C, by one-week intervals; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Weekly Intervals	Percent Change	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect
First	-32	-20	12	-25	7	-21	11	--	--
Second	-37	-7	30	-20	17	-36	1	--	--

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2] The gondola treatment was not used in the analysis.

Appendix Table 22. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for one-week intervals, when data were combined for Chains A, B, and C; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Weekly Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First	-2	17	19	19	21	-3	-1	--	--
Second[3]	26	27	1	13	-13	18	-8	--	--
Third	-22	-18	4	-2	20	-20	2	--	--
Fourth	-17	-12	5	-19	-2	-8	9	--	--

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2] The gondola treatment was not used in the analysis.

[3] The second week data for Chain B were omitted.

Appendix Table 23. Percentage change in fryer sales between the prepromotion period and the promotion period, by treatments, for two-week intervals, when data were combined for Chains A, B, and C; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Two-week Intervals	Percent Change	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect	Percent Change	Promotion Effect
First[3]	10	23	13	17	7	5	-5	--	--
Second	-19	-15	4	-11	8	-13	6	--	--

[1]"Percentage change in sales" is the relative change in sales between the prepromotion period and the promotion period for each treatment. "Differences" are used as the measurement of promotion effect.

[2]The gondola treatment was not used in the analysis.

[3]The second week data for Chain B were omitted.

Appendix Table 24. Percentage change in fryer sales between the prepromotion period and the postpromotion period, by treatments, for one-week intervals, when data were combined for Chains A, B, and C; and differences between percentage change in sales for each promotional treatment and the check treatment.[1]

	TREATMENTS								
	Check	Fryer Commission Poster		Revised Fryer Commission Poster		Banner		Gondola[2]	
Weekly Intervals	Percent Change	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect	Percent Change	Carry-over Effect
First	28	8	-20	5	-23	53	25	--	--
Second	-22	-20	2	-23	-1	-22	0	--	--

[1] "Percentage change in sales" is the relative change in sales between the prepromotion period and the postpromotion period for each treatment. "Differences" are used as the measurement of carry-over effect.

[2] The gondola treatment was not used in the analysis.

Appendix Figure 1. Replica of Fryer Commission Poster.

Appendix Figure 2. Replica of Revised Fryer Commission Poster.

Appendix Figure 3. Replica of Banner.