

THE PROCESSOR TO CONSUMER, MARKETING CHANNELS
AND FLOWS OF RED TART CHERRIES AND CHERRY
PRODUCTS

Thesis for the Degree of M. S.
MICHIGAN STATE UNIVERSITY
Jerrold L. Nye
1963



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THE PROCESSOR TO CONSUMER MARKETING CHANNELS
AND FLOWS OF RED TART CHERRIES AND CHERRY PRODUCTS

By

Jerrold L. Nye

A THESIS

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ABSTRACT

THE PROCESSOR TO CONSUMER MARKETING CHANNELS AND FLOWS OF RED TART CHERRIES AND CHERRY PRODUCTS

by Jerrold L. Nye

This study is directed towards providing benchmark data on the marketing channels and flows of tart cherries and to discuss potential changes in these factors.

To aid in the development and discussion of these factors a flow diagram was developed which outlines the routes and the magnitude of these routes of tart cherry movement for 1961.

The size of the various marketing flows were derived from statistics gathered by the U. S. Department of Agriculture, processor organizations, and from trade publications. Further information was obtained by personal interviews and correspondence with a number of commercial pie makers and cherry processors, and from a questionnaire sent to many of the large fresh and frozen pie manufacturers across the nation. The seasonal consumption patterns and information on per capita consumption were obtained from the MSU Consumer Panel.

Single equation, least squares regression techniques were employed to give indications of the probable trends in the consumption of various cherry products.

The marketing of red tart cherries has been categorized into two primary series of flows. The first is the flow of the retail packs of canned and frozen cherries, and of fresh cherries, through retail outlets to consumers. These products reach consumers after passing through only one processing stage.

Jerrold L. Nye

The second series of flows are the flows of institutional pack canned and frozen cherries into intermediate processing or remanufacturing plants which change their form from cherries to cherry products. These cherry products, primarily cherry pie, reach consumers through supermarkets, restaurants, public supported institutions and other similar outlets.

The large number of substitute products give tart cherries a relatively elastic demand and therefore even a small change in price will have a large inverse effect on the quantity of cherries sold.

The most significant trend in the marketing of tart cherries is the consumer preference for convenience products, even at a higher price. The cherry products showing the greatest increase in consumer acceptance since 1955 have all been convenience products. These products are frozen retail cherry pies, fresh cherry pie, and canned cherry pie filling.

This study suggests several programs to help eliminate some of the problems in the tart cherry industry. They are: (1) Increased energy towards development of more convenience tart cherry products; (2) Increased promotion of selected cherry products in selected areas; (3) Standardization of product quality; and (4) Greater use of new technology in the growing and processing of cherries so that growers and processors may operate on a lower margin.

TABLE OF CONTENTS

	Page
LIST OF TABLES	iv
LIST OF ILLUSTRATIONS.	vi
Chapter	
I. INTRODUCTION.	1
Problem	
Survey of Past Literature	
Objective	
Procedure	
II. THE TART CHERRY MARKETING FLOWS	9
Introduction	
The Market Flow Diagrams	
Definition of Flow Segments	
Summary	
III. TRENDS IN RETAIL SALES OF RED TART CHERRIES	21
Introduction	
Fresh Sales	
Canned Retail Cherries	
Commercial Pie Filling	
Frozen Retail Cherries	
General Consumer Panel	
Summary	
IV. HOME BAKED CHERRY PIE CONSUMPTION	43
Introduction	
Factors Associated With Household Pie Baking	
Regional Variations in Cherry Pie	
Consumption	
Trends in Home Baking of Cherry Pie	
Summary	
V. MARKETING OF CHERRIES THROUGH FRESH BAKED COMMERCIAL PIES	53
Introduction	
Institutional Fresh Pie	
Regional Consumption Patterns of Institutional	
Cherry Pie	

TABLE OF CONTENTS - CON'T.

Chapter	Page
Fresh Retail Pie Seasonal Consumption Pattern for Fresh Retail Cherry Pie Social and Economic Factors Affecting Pie Consumption Summary	
VI. MARKETING OF CHERRIES THROUGH FROZEN COMMERCIAL PIE	78
Introduction The Trend in Retail Frozen Cherry Pie Production Regional Consumption Pattern Seasonal Consumption Pattern The Effects of Price Changes on Pie Consumption The Effects of Varying the Amount of Cherries Used in Pies Institutional Frozen Cherry Pie Summary	
VII. MISCELLANEOUS MARKETING FLOWS OF RED TART CHER- RIES.	103
Introduction Cherry Confections The Flow of Cherries to Restaurants and Institutions Government Purchases and Exports Other Uses of Institutional Pack Cherries Summary	
VIII. SUMMARY AND CONCLUSIONS	115
Summary Conclusions	
APPENDIX A	125
APPENDIX B	138
BIBLIOGRAPHY	143

LIST OF TABLES

Table	Page
1. The Estimated Index of Regional Tart Cherry Consumption	23
2. Socio-Economic Factors Affecting the Home Baking of Cherry Pie, Expressed by the Estimated Percent of Households Baking during a One Week Period . .	45
3. The Average Number of Cherry Pies Utilized per week by 132 Institutions by Size of Establishment and Source of Pies, Detroit, Michigan, 1960	59
4. The Estimated Total Pounds of Fresh Institutional Size Cherry Pie Manufactured by Region, 1950-61 .	62
5. The Estimated Pounds and Value of Retail Cherry Pie Sold by Multi-Outlet, Home Service, and Grocery Chain Bakeries in 1954 and 1958	66
6. The Estimated Consumption of Retail Frozen Cherry Pie by Region in 1961	84
7. The Seasonal Index of Families Serving Selected Flavors of Frozen Pie in 1959	86
8. The Average Index of Retail Prices Paid by Consumers for Frozen Cherry pie in Representative Cities Across the Nation, 1959-61 Average	92
9. The Percent of Restaurants Purchasing Fruits in August and November of 1955 by Form	107
10. The Percent Distribution of Restaurant Purchases of Red Tart Cherries Within Regions	108
11. The Percent of Restaurants Purchasing and the Relative Quantity of Frozen, Canned, and Fresh Tart Cherries Purchased by Size of Restaurant . .	108
12. The Estimated Total Consumption of Retail Pack Tart Cherries, 1959-61.	117

LIST OF TABLES - CON'T.

Table	Page
13. The Estimated Marketing of Institutional Pack Tart Cherries by Type of Industry, 1959-61 . . .	118
14. The Estimated Consumption of Red Tart Cherries by Type of Pack, 1950-61	126
15. The Pounds of Tart Cherries Marketing in the Form of Frozen Cherry Pie, and the Pounds of Frozen Cherry Pie Moving into Retail and Institutional Outlets, 1955-61	127
16. The Pounds of Tart Cherries Purchased by the Government and Exports, 1950-61.	127
17. The Estimated Utilization of Frozen Cherries by State and Region in 1961	128
18. The Estimated Pounds of Fresh Commercial Cherry Pie Sold in Institutions and Retail Outlets and the Amount of Tart Cherries Used	131
19. The Total and the Per Capita Sales of Commercially Prepared Fresh Cherry Pies by State and Region for 1954 and 1958.	132
20. A Conversion Table for Determining the Estimated Amount of Cherry Pie or Fruit from a Given Series of Data.	134
21. The Estimated Percent of Homemakers Baking one or More Cherry Pies During One week in April, May, or June of 1955.	135
22. Average Per Capita Expenditure of Tart Cherries and Cherry Products by Period of 1954-1958 . . .	137

LIST OF ILLUSTRATIONS

Figure	Page
1. A Flow Diagram for the Marketing of Red Tart Cherries, 1961 Data	11
2. Fresh Tart Cherry Consumption, 1950-61.	25
3. The Seasonal Per Capita Expenditure Pattern for Canned Retail Tart Cherries, 1952-58 Average. . .	28
4. The Pounds of Retail Canned Water Pack Cherries Consumed During the Period 1950-61.	30
5. The Seasonal Per Capita Expenditure Pattern for Prepared Pie Filling, 1955-57 Average	34
6. The Consumption of Retail and Institutional Pack Canned Pie Filling for the Period 1955-61. .	36
7. The Seasonal Per Capita Expenditure Patterns for Retail Frozen Cherries, 1954-58 Average	38
8. The Pounds of Retail Frozen Cherries Consumed During the Period 1950-61	40
9. The Estimated Pounds of Home Baked Cherry Pie During the Period 1950-61	51
10. The Estimated Pounds of Institutional Fresh Commercial Pie Consumed, 1950-61.	57
11. The Per Capita Consumption of Institutional Cherry Pie, 1950-61	58
12. The Seasonal Per Capita Consumption Pattern for Commercially Prepared Cherry Pie for MSU Consumer Panel Households, 1955-58 Average	68
13. A Comparison of the Average Price Per Pound for Retail Commercially Prepared Pies and for Institutional Pack Frozen Cherries by Quarter, 1953-57	72
14. The Estimated Pounds of Frozen Retail Cherry Pie Consumed During the Period 1955-61.	81
15. The Estimated Quarterly Consumption of Retail Frozen Cherry Pie, 1958-61.	82

LIST OF ILLUSTRATIONS

Figure		Page
16.	The Seasonal Index of Families Serving Fresh and Frozen Commercial Cherry Pie	88
17.	The Relationship Between the Quarterly Average Price Per Pound for Frozen Cherry Pie and the Quarterly Average Price for Institutional Frozen Cherries, 1958-61.	93
18.	The Relationship Between the Price of Institutional Pack Cherries and the Amount of Government Purchases and Exports	112
19.	The Average Monthly Index of Consumption of All Tart Cherry Products	120

CHAPTER I

INTRODUCTION

PROBLEM

The production of red tart cherries has trended upward over the last seven years. The demand for tart cherries which had been declining rapidly after World War II leveled off around 1956 with the introduction of retail size canned pie filling and frozen cherry pies. The demand, however, has not yet caught up with the rising production as indicated by the decline in tart cherry prices after taking into account changes in quantities available for sale. The grower price for tart cherries has decreased from an average of 7.94 cents during 1953-57 to an average of 7.02 cents during 1958-62. This 12 percent decline in price represents a reduction in the total revenue to growers alone of almost 2.1 million dollars a year at the 1958-62 average price, for a normal crop of 250 million pounds of tart cherries. The purchasing power of the return from a pound of tart cherries has declined even more.

According to Dr. Carleton Dennis this may be only a rather short run phenomenon.¹ His research indicates that the industry is currently in the trough of a cyclical trend in tart cherry prices. Therefore, according to Dennis, prices are due to improve in the next few years and reach a high by 1980.

¹C. C. Dennis, Tart Cherry Pricing in the Long Run, Department of Agricultural Economics, Michigan State University, 1962.

The economic position of this or any industry is dependent on many factors. One of the most important is its ability to adjust to changes in consumer demand. In order to make these adjustments, people in the industry require adequate information on the economic aspects of production and marketing.

Most of the information currently being tabulated for the tart cherry industry is concerned with the production of tart cherries and data on products produced by cherry processors. Very little information is available on the flows or marketing channels for tart cherries beyond the processor level. Since nearly 95 percent of all tart cherries produced annually in the United States are either canned or frozen, knowledge of their distribution pattern and uses is very important.

Through increased understanding of the consumption patterns and marketing channels it may be possible to significantly influence the consumption of tart cherries by adjusting present marketing methods and through selected promotion. Therefore, this thesis is directed toward furthering the understanding of the consumption pattern and marketing channels for red tart cherries. This understanding will be enhanced by determining and projecting past and present consumption patterns and by combining fragmented secondary data with newly obtained primary data.

SURVEY OF THE LITERATURE

A review of existing literature has shown that in the area of cherry consumption very little economic research work has been done

to date. Nor has there been a significant amount of research done on the distribution pattern of tart cherries beyond the processor level.

One of the best studies available on cherry consumption is Trends and Characteristics of Red Cherry Consumption by B. C. French.² While it has considerable relevance to consumption patterns in the North Central and North-eastern regions of the United States it is limited in application. First, it is limited in its analysis to only retail packs of canned and frozen cherries and to fresh cherry sales. Later in this study it will be shown that these product categories make up only a relatively small percentage of total production. Second, the primary source of data was the Michigan State University Consumer Panel. This tended to further limit its application to a specific geographical area.³ However, it appears to be quite adequate for determining seasonal consumption patterns due to the frequent reporting of purchases.

²Michigan State University Agricultural Experiment Station Special Bulletin 414, March, 1957.

³The Panel consisted of a sample of about 250 families selected to be representative of a Michigan city of about 100,000 population. Each week between 1952 and 1958 Panel families reported in an itemized diary the price, quantity, and expenditure for each item purchased for home consumption during the week. They also reported all food received as a gift or home grown which was used for home consumption. Additional information about each family was obtained weekly and annually. For further information see G. G. Quackenbush and J. D. Shaffer, Collecting Food Purchase Data by Consumer Power - A Methodological Report On The MSU Consumer Panel 1951-1958, Mich. Agr. Expt. Sta. Tech. Bul. 279 (August, 1960).

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it clearly and specifically. This involves determining the scope of the problem, its causes, and its effects. A clear definition of the problem is essential for developing an effective solution.

2. The second step in the process is to analyze the problem. This involves gathering information about the problem and its context. This information can be obtained through various methods, such as interviews, surveys, and data analysis. The goal of this step is to understand the underlying causes of the problem and to identify the factors that are contributing to it. This information is then used to develop a plan of action.

3. The third step in the process is to develop a plan of action. This involves identifying the specific steps that need to be taken to solve the problem. The plan should be realistic and achievable, and it should take into account the resources available and the time constraints. Once a plan has been developed, the next step is to implement it. This involves putting the plan into action and monitoring progress.

4. The fourth step in the process is to implement the plan. This involves putting the plan into action and monitoring progress. It is important to track the results of the plan and to make adjustments as needed. This step is often the most challenging, as it requires the organization to change its behavior and to overcome resistance to change.

5. The fifth and final step in the process is to evaluate the results. This involves comparing the actual results with the desired state and determining whether the problem has been solved. If the problem has not been solved, the process may need to be repeated. Evaluation is an important part of the process, as it allows the organization to learn from its experience and to improve its problem-solving capabilities.

In 1955 the United States Department of Agriculture conducted a survey on household consumption over the entire United States entitled Food Consumption of Households.⁴ The authors of this study were concerned with both purchased and home produced food items consumed in the week. This study contributes valuable information useful to a cherry marketing and consumption study such as reported here.

Related to the Household Survey, and possibly derived from it, is a 1956 U.S. Department of Agriculture survey on cherry pie consumption and consumption of retail canned and frozen cherries.⁵ The survey was centered in the cities of Dallas, Detroit, and Kansas City. It contains excellent data on the volume, acceptability, and rate of use of both home-baked and commercially prepared pies.

French has also published an article concerned with the consumption of commercially prepared pie, based on Consumer Panel data.⁶ It is subject to the same limitations as his previous bulletin.

⁴U.S. Department of Agriculture, Agricultural Research Service and Agricultural Marketing Service, Food Consumption of Households, Household Food Consumption Survey, 1955, Report Nos. 1, 2, 3, 4, 5, and 13, December, 1956. Based on the consumption of food in a seven day period in April, May, or June, in 1955.

⁵U.S. Department of Agriculture, Agriculture Marketing Service, Homemaker Preferences for Pies and Canned and Frozen Cherries, Marketing Research Report No. 116, April, 1956.

⁶B. C. French, "Some Economic Aspects of Pie Consumption," Quarterly Bulletin, Michigan Agricultural Experiment Station, Michigan State University, East Lansing, Mich., Vol. 41, No. 3, February, 1959.

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it more precisely. This involves determining the scope of the problem, its causes, and its effects. A clear definition of the problem is essential for developing an effective solution.

2. The second step is to analyze the problem. This involves gathering information about the problem and its context. This can be done through interviews, surveys, or data analysis. The goal is to understand the underlying causes of the problem and to identify any constraints or limitations that may affect the solution. For example, a manager might discover that a decline in sales is due to a change in market conditions or a competitor's new product.

3. The third step is to generate potential solutions. This involves brainstorming ideas and evaluating them against the problem's requirements and constraints. It is important to consider a wide range of options, even those that may seem unconventional or risky. The goal is to identify a solution that is both effective and feasible. For example, a manager might consider increasing marketing efforts, improving customer service, or developing a new product line.

4. The fourth step is to select a solution. This involves comparing the potential solutions and choosing the one that is most likely to be successful. This decision is often based on a combination of factors, including the solution's effectiveness, feasibility, and cost. It is important to consider the long-term implications of the solution and to ensure that it aligns with the organization's overall strategy.

5. The fifth step is to implement the solution. This involves putting the chosen solution into action and monitoring its progress. It is important to communicate the solution to all relevant stakeholders and to provide them with the necessary resources and support. Regular monitoring and evaluation are essential to ensure that the solution is working as intended and to make any necessary adjustments.

6. The final step is to evaluate the results. This involves comparing the actual outcomes of the solution with the desired outcomes. This can be done through data analysis, surveys, or interviews. The goal is to determine whether the solution was effective and to identify any lessons learned for future problem-solving efforts. For example, a manager might discover that a particular marketing strategy was more effective than others, or that customer service improvements led to higher customer satisfaction.

A recent series of data of particular value to this study is the 1963 Frozen Food Marketing Guide.⁷ This was the first issue in what will be an annual series, and it should add considerable knowledge in the future to the marketing of frozen cherries and cherry products. This information provided a breakdown of the total frozen cherry market on a regional, state, and selected city basis. This was done for both the retail and the institutional pack and for specialty foods, of which frozen cherry desserts are a part.

There have been a few more studies which have considered cherry marketing in an indirect manner, but they are so limited in scope that they will not be discussed in detail. However, they will be listed in the bibliography. No other recent articles or publications describing and analyzing cherry marketing channels or cherry consumption have been forthcoming, to the knowledge of this author.

Earlier studies of a general nature included L. L. Boger's, An Economic Analysis of the Red Cherry Industry in Michigan With Special Emphasis Upon Pricing.⁸ The National Canners Association developed a study titled, The Marketing of Red Cherries, An Analysis of Problems That Are of Mutual Interest, to Canner and Grower.⁹ R. E. Marshall studied, Production and Price Trends in the Pitted Cherry Industry in the 1930's.¹⁰

⁷Quick Frozen Foods, E.W. Williams Publishing Co., Inc., March, 1963.

⁸Unpublished Ph.D. Thesis, Department of Agriculture Economics, Michigan State University, East Lansing, 1950.

⁹Division of Statistics, National Canner's Association, (Washington, D. C.), January, 1940.

¹⁰Michigan State Agricultural Experiment Station Special Bulletin 258, Michigan State University, East Lansing, Mich., February, 1935.

1. The first step is to identify the problem or goal.

2. The second step is to gather information and resources.

3. The third step is to analyze the information and resources.

4. The fourth step is to develop a plan or strategy.

5. The fifth step is to implement the plan or strategy.

6. The sixth step is to evaluate the results and make adjustments.

7. The seventh step is to document the process and results.

8. The eighth step is to share the results and learn from the experience.

9. The ninth step is to reflect on the process and results.

10. The tenth step is to conclude the process and results.

11. The eleventh step is to evaluate the overall process and results.

12. The twelfth step is to share the results and learn from the experience.

13. The thirteenth step is to reflect on the process and results.

14. The fourteenth step is to conclude the process and results.

15. The fifteenth step is to evaluate the overall process and results.

16. The sixteenth step is to share the results and learn from the experience.

17. The seventeenth step is to reflect on the process and results.

18. The eighteenth step is to conclude the process and results.

19. The nineteenth step is to evaluate the overall process and results.

20. The twentieth step is to share the results and learn from the experience.

21. The twenty-first step is to reflect on the process and results.

22. The twenty-second step is to conclude the process and results.

23. The twenty-third step is to evaluate the overall process and results.

24. The twenty-fourth step is to share the results and learn from the experience.

25. The twenty-fifth step is to reflect on the process and results.

26. The twenty-sixth step is to conclude the process and results.

27. The twenty-seventh step is to evaluate the overall process and results.

28. The twenty-eighth step is to share the results and learn from the experience.

29. The twenty-ninth step is to reflect on the process and results.

30. The thirtieth step is to conclude the process and results.

OBJECTIVE

The primary objective of this study is to describe and measure the major marketing flows of processed red tart cherries from the processor to the final consumer. This area has not been studied before, hence this effort may produce benchmark data which will be useful to future tart cherry marketing researchers. Also this study will be of value to people in the cherry industry. Adjustments made by people operating firms and programs in the industry require information of this nature.

PROCEDURE

The vast majority of tart cherries are reprocessed from canned or frozen form into dessert items such as pies, confectioneries, and flavorings and consumed in these forms. Cherry pie baking requires by far the largest quantity of tart cherries. According to estimates, from 85 to 90 percent of the total cherries produced each year are consumed in this form.¹¹ With this in mind, the bulk of this study will be concerned with developing trends and relationships within the two major types of pie baking, commercially prepared pies and home baked pies. Commercially prepared pies will be broken down into two groups, the frozen commercial pie and the fresh-baked or bakery pie.

Home baked pies are the most important type of pie in relation to the total volume consumed within the home. Four of every

¹¹Based on interviews with individuals from academic, cherry processing, and pie manufacturing fields.

1. **Introduction**
The purpose of this study is to investigate the effects of a new educational program on student performance. The program is designed to improve critical thinking and problem-solving skills through a series of interactive activities and case studies. The study will evaluate the program's effectiveness by comparing the performance of students who participated in the program (the experimental group) with those who did not (the control group). The data will be analyzed using statistical methods to determine if there is a significant difference in performance between the two groups.

2. **Methodology**
The study was conducted over a period of 12 weeks. The experimental group consisted of 30 students who were randomly selected from a pool of 60 students. The control group also consisted of 30 students who were randomly selected from the same pool. Both groups were given the same pre-test at the beginning of the study to establish a baseline of performance. The experimental group then participated in the new educational program, while the control group continued with the standard curriculum. At the end of the 12-week period, both groups were given a post-test to measure their performance. The data from the pre-test and post-test were compared to determine the program's impact.

3. **Results**
The results of the study show that the experimental group performed significantly better than the control group on the post-test. The mean score for the experimental group was 85, while the mean score for the control group was 72. This difference was statistically significant, indicating that the new educational program had a positive effect on student performance. The data also showed that the experimental group showed a greater improvement in performance from the pre-test to the post-test compared to the control group. These findings suggest that the program is effective in enhancing critical thinking and problem-solving skills.

five homemakers bake pies at home, as compared to one out of every two who buy some pies in retail stores.¹²

Commercially prepared pies play a very important role in the restaurant and institutional trades with over 140 million pounds of cherry pie being consumed annually.¹³ At the retail level the volume of frozen and fresh pies sold in supermarkets has shown substantial increases over the last few years, with about 70 million pounds sold in 1961.

Due to the limited amount of data available on pie production and consumption various estimation techniques were employed to derive the data presented in the marketing flows and for the marketing analysis later in the study. These data were, for the most part, derived from industry totals obtained from government or industry sources. These totals were disaggregated by determining percentages or series of percentages of the total in the various use categories. For example, given data on total pies produced and estimated data on what percent was cherry pie yielded an estimate of pounds of cherry pie produced.

The industry relationships were obtained from data gathered through letters and a questionnaire sent to the major pie manufacturers in the United States, through personal interviews with pie bakers and cherry processors, and through letters sent to the major trade organizations and publications which have done research work in

¹²U.S.D.A., Homemaker Preferences for Pies and Canned and Frozen Cherries, loc. cit. p. 1.

¹³Average estimate of fresh cherry pie produced as reported in the annual "Yearly Production Study," Baking Industry, 1950-1962.

those areas applicable to this study.

The questionnaire was mailed to a list of the major fresh and frozen pie manufacturers in the United States. The primary purpose of the questionnaire was to learn as much as possible about the production costs, the product breakdown, and the market for cherries within the commercial pie industry on a regional basis. The response from the sample was very good, but the entire sample was not large enough to apply valid statistical testing techniques to the findings. But the findings will be discussed and be presented in a general way in the chapters dealing with commercial cherry pie manufacture as some valuable information was gained on the manufacture of commercial cherry pie. Also, the data helped to substantiate other findings and added insight into previously unanswerable questions.

The data on per capita consumption and consumption patterns were developed by applying U. S. Census figures to national, regional, and state data. The MSU Consumer Panel was also used to determine the seasonal consumption patterns and per capita consumption in areas to which it could be applied.

CHAPTER II

THE TART CHERRY MARKETING FLOWS

INTRODUCTION

After each tart cherry harvest a new stock of cherries and cherry products are available for consumption during the marketing year. This stock of cherries consists of the year's pack of processed cherries plus the carry-over inventory of the previous marketing year.¹ The movement of this stock of cherries through the marketing channels to consumers may be viewed as a flow.

A model of the tart cherry marketing channels will be developed in this chapter to aid in the determination and study of the flows of cherries. This model is not the main subject of the study, but it is a device to organize an analysis of cherry marketing. Through the use of this model the total marketing flow can be separated into its sub-parts for study.

THE MARKET FLOW DIAGRAM

→ Within the market channels for red tart cherries there are four major divisions. These divisions are determined by the type of product marketed. In short, these four divisions are the marketing

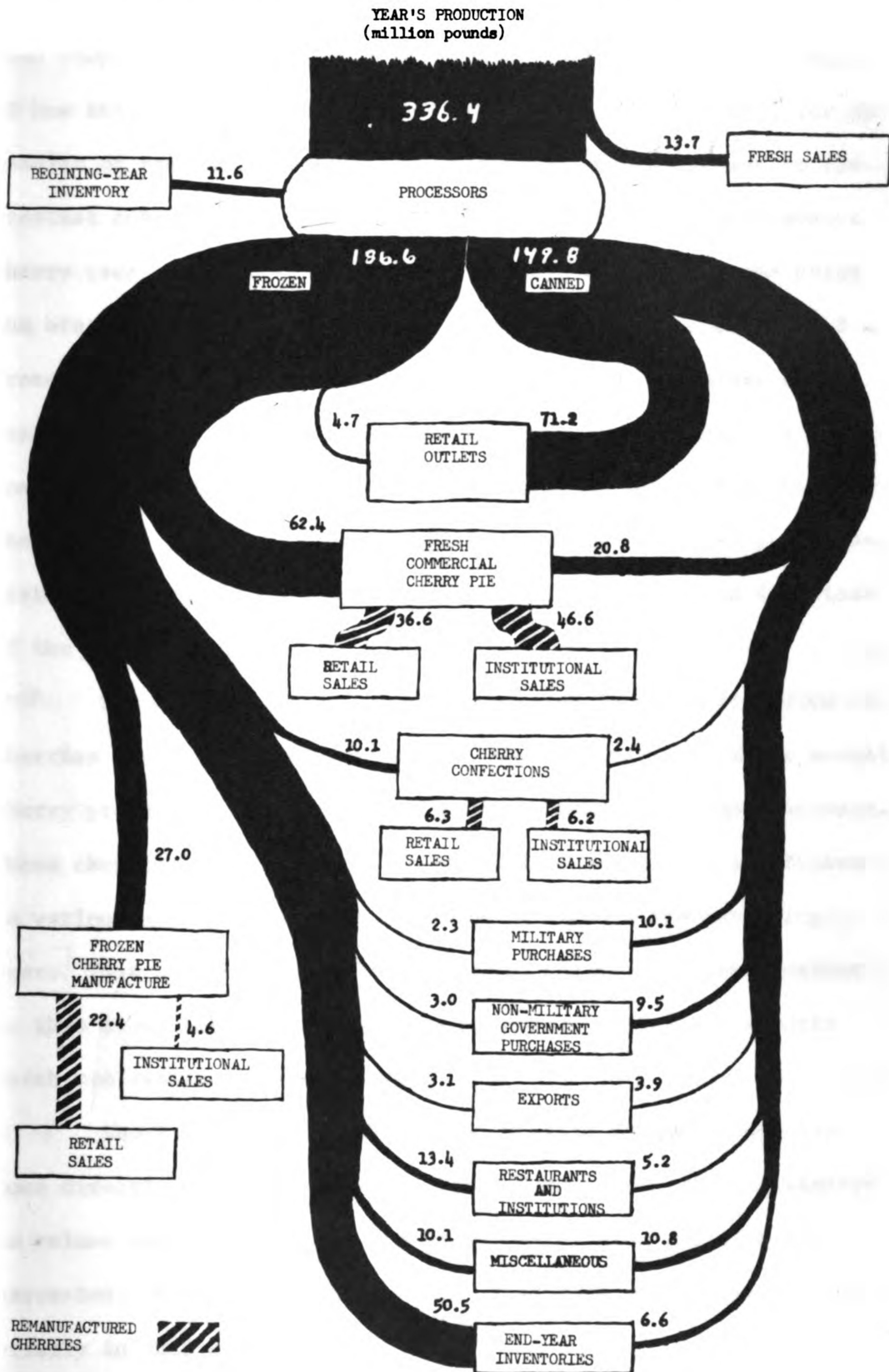
¹A marketing year begins on July 1 and ends the following year on June 30.

of fresh cherries, the marketing of processed cherries for remanufacturing, the marketing of remanufactured cherry products, and the marketing of cherries and cherry products to the consumer through retail outlets. ^{Stop} Only the last three divisions of the flow will be considered in detail in this study.

Before discussing these four divisions of the flow further the market flow diagram will be presented so the reader may readily relate the diagram to later discussions.

Figure 1 shows the relative size and importance of the various flows of red tart cherries as well as the importance of canned cherries vs. frozen pack cherries. The diagram is based on data for the 1961 marketing year rather than the average of several years' data. This procedure is probably less desirable than using average data because some of the figures change in years of short and long supply. However, new areas of cherry product reporting made more data available for 1961 than for previous years. The areas which would show the greatest changes with changes in the total supply are inventories, both beginning and end-year, military purchases, and non-military government purchases. For instance the 1961 crop of cherries was unusually large and the 1961 ending inventory rose to a record level of more than 50 million pounds of raw product equivalent tart cherries. This also means that the 1962 beginning inventory will be unusually large. This is not to say that other areas of the marketing flow are not affected by changes in the total supply of cherries, but rather to say that the other areas tend to be more stable in their consumption patterns and the change from year to year is not as dynamic.

Figure 1. A flow diagram for the marketing of red tart cherries, 1961 data.



The figures which are represented in the flow diagram have been computed in the chapters which will follow and an explanation of how they were derived can best be found there. However, for the benefit of the casual reader the figures which are subject to the greatest question are restaurants and institutions, miscellaneous cherry uses, and cherry confections in that order. In some cases the breakdown in the total pounds of cherries between canned and frozen packs could also be questioned. They are the areas of restaurants and institutions, miscellaneous cherry uses, and fresh commercial pie baking. These are the areas of weakness as seen by the author. The rest of the diagram is substantiated by good statistical evidence. We are now ready to discuss the four divisions of the marketing flow.

cont → The marketing flow of fresh cherries is the entire flow of cherries above the processor level. About 95 percent of the annual cherry production flows from the grower's orchard to the processor. Those cherries which are sold to processors are canned and frozen in various size containers for resale throughout the marketing year.] This part of the market flow will not be discussed further in this study because of the numerous other studies and reports which are available in this area.

About 5 percent of the fresh cherries produced annually move directly to the consumer in fresh form. This flow is limited in volume and occurs during the short period when cherries are harvested.] Even though it is small, this flow will be considered briefly in this study.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data. The second part of the document provides a detailed breakdown of the financial data, including a comparison of actual results against budgeted figures. This analysis helps identify areas where costs have exceeded expectations and provides insights into the reasons behind these variances. The third part of the document outlines the proposed budget for the upcoming period, taking into account the lessons learned from the current period. It includes a forecast of revenue and a detailed breakdown of expected expenses, ensuring that all necessary resources are accounted for. The final part of the document concludes with a summary of the key findings and recommendations for future periods. It stresses the need for continuous monitoring and adjustment to stay on track with financial goals.

The second division in the cherry marketing flow includes the marketing of processed cherries by initial processors. These products are not sold by the initial processors directly to final consumers. The majority of them are reprocessed commercially into cherry products. These cherries, in effect, become transfers between businesses. The remainder are sold to distributors including wholesalers and retailers for resale to final consumers.

These inter-business transfers of cherries are the most complicated of the cherry marketing flows. On the diagram they make up the entire system of arteries or cherry flows from the processor to the markets listed such as retail sales, fresh commercial cherry pie, restaurants and institutions and exports.

The processor market flow can be simplified further by considering the two main segments, the flow of retail pack cherries and the flow of institutional pack cherries. The retail pack goes entirely to retail outlets which are primarily supermarkets, (the first segment of the diagram). From the supermarkets these cherries move directly to the consumer to be used in the household. Compared to the flow of institutional pack cherries, this flow is relatively uncomplicated.

The largest part of the initial processor market flow consists of institutional pack cherries which constitute the rest of the arterial flow in the marketing diagram. These cherries are all reprocessed before they are sold to the consumer. The largest reprocessors are fresh and frozen commercial pie industries. Cherries taken into restaurants and institutions and government purchases are

1. The first step in the process of identifying a problem is to recognize that a problem exists. This is often done by comparing current performance with a desired state or goal. For example, a manager might notice that sales are declining or that customer satisfaction is low. Once a problem is identified, the next step is to define it clearly and specifically. This involves determining the scope of the problem, its causes, and its effects. A clear definition of the problem is essential for developing an effective solution.

2. The second step in the process is to analyze the problem. This involves gathering information about the problem and its context. This information can be obtained through various methods, such as interviews, surveys, and data analysis. The goal of this step is to understand the underlying causes of the problem and to identify the factors that are contributing to it. This information is then used to develop a plan of action.

3. The third step in the process is to develop a plan of action. This involves identifying the specific steps that need to be taken to solve the problem. The plan should be realistic and achievable, and it should take into account the resources available and the time constraints. The plan should also be flexible, so that it can be adjusted if necessary. Once the plan is developed, the next step is to implement it.

4. The fourth step in the process is to implement the plan. This involves putting the plan into action and monitoring progress. It is important to communicate the plan to all relevant parties and to ensure that they understand their roles and responsibilities. Regular communication and reporting are essential for successful implementation. If the plan is not working, it may be necessary to make adjustments.

5. The fifth and final step in the process is to evaluate the results. This involves comparing the actual results with the desired state and determining whether the problem has been solved. If the problem has not been solved, the process may need to be repeated. Evaluation is an important part of the process, as it allows managers to learn from their experience and to improve their problem-solving skills.

also made into cherry desserts before they are sold or served.

The third part of the cherry marketing flow is the flow of reprocessed cherry products from remanufacturers to distributors. These remanufactured cherries are used primarily in fresh and frozen commercial cherry pie and cherry confections. These products are designated as remanufactured because they must pass through retail outlets to reach the consumer, and they have passed through two or more distinct processing stages. These flows are represented on the diagram by the flows from fresh and frozen cherry pie and cherry confections into the retail and insitutional markets. The retail sales are made primarily in supermarkets, although a considerable amount of fresh commercial cherry pie is sold in bakeries. The insitutional flows go to restaurants and similar eating establishments.

In effect these flows of cherry products are a continuation of the flow of insitutional pack cherries from the reprocessing industries to the consumer. Therefore, the flows from the fresh and frozen commercial pie industries and from the confectionary industry to the retail and insitutional markets are expressed in pounds of cherries raw product equivalents rather than pounds of finished product.

The final segment of the cherry marketing flow cannot be observed on the marketing diagram, however, it can be easily inferred. This is the flow of cherries and cherry products from the retail or distribution sectors of the market to the final consumer. For all practical purposes the entire flow of tart cherries and cherry products eventually reaches the supermarket, restaurants and

similar eating establishments, military and non-military government purchases, or exports, although some product is undoubtedly lost in the remanufacturing process.

These marketing channels provide the direct link with the consumer and here the market flow stops. Therefore, if the reader can visualize these five segments linking up to the consumer and thus the end point in the consumption process, the market flow will be complete.

In summary, the total marketing flow of tart cherries can be broken down into four segments. These four segments basically describe the total market flow in terms of homogenous units. The first segment involves moving cherries from the grower to the processor. The second segment involves the marketing of retail and institutional pack cherries by processors. Only part of these cherries actually reach the retail market from processors. Those institutional pack cherries which are sold to the manufacturers of cherry products reach the retail segment in this form. This becomes the third segment of the flow. The last segment is the actual movement of cherries and cherry products from the retail outlets to the consumer. The last three segments and the factors which affect them become the topic for the rest of the study.

DEFINITION OF THE FLOW SEGMENTS:

Each of the segments of the marketing model will be discussed briefly. This should be valuable to clarify the terms and the position of the segments in the market.

4. The first part of the text discusses the importance of maintaining accurate records of all transactions and activities related to the business. This is essential for tax purposes and for providing a clear picture of the company's financial health.

5. The second part of the text focuses on the importance of maintaining accurate records of all transactions and activities related to the business. This is essential for tax purposes and for providing a clear picture of the company's financial health.

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15. The twelfth part of the text focuses on the importance of maintaining accurate records of all transactions and activities related to the business. This is essential for tax purposes and for providing a clear picture of the company's financial health.

16. The thirteenth part of the text discusses the importance of maintaining accurate records of all transactions and activities related to the business. This is essential for tax purposes and for providing a clear picture of the company's financial health.

Fresh tart cherries are those sold in the fresh form. They are consumed primarily by the families of commercial growers and home gardeners with a cherry tree or two, by direct purchases by people living in or near the producing regions, and in the form of gifts by cherry growers to friends. Some are actually consumed in the fresh form, but the majority are probably canned or frozen in the home for later use. These cherries by-pass the normal cherry marketing routes because of the direct nature of the sales. This type of marketing is limited to the season of the year which cherries are harvested.

Retail canned cherries are primarily water pack cherries in size 303 cans. Prior to 1955 the No. 2 can was the most popular can size, but since then the 303 can has replaced it. Despite this change there is a downward trend in consumption of cherries in this pack. Also included in this category are packs of miscellaneous glass and tin containers and some syrup pack cherries, but as a group they are relatively unimportant. This pack moves directly into supermarkets and other grocery stores. The demand for this type of cherry bears a direct relationship to the desire of housewives to make their own dessert items, cherry pie in particular.²

Canned cherry pie filling is the only major specialized product produced at the processor level. As the name implies its primary use is a ready-made pie filling. Most of the pie filling

²U.S.D A., Homemaker Preference for Pie and Canned and Frozen Cherries, p. 14.

is packed in No. 2 cans for sale in retail stores, although some is packed in No. 10 cans and sold to institutions. The demand for pie filling is naturally dependent upon the household demand for home baked cherry pie. It has been a very popular product in recent years

Frozen cherries for the retail trade are commonly packed in 20 ounce cartons. Like retail canned cherries, most of the pack moves directly to the retail grocery market. Because the two products are substitutes, frozen cherries face the same demand forces as retail canned cherries.

Institutional canned cherries are mainly water packed in No. 10 cans. A large part of the pack is purchased by restaurants and small bakeries. In addition, it is purchased by the federal government for school lunch programs, for the armed forces, and for veterans' hospitals. In recent years the pack of No. 10 cans has declined relative to the frozen institutional pack. Several factors are associated with this change. The frozen cherry retains most of the color and firmness of the fresh product while these properties are partially lost in the canning process. However, the canned pack is much easier to store than are frozen cherries, often making it more convenient to handle.

The most common pack of frozen cherries for institutional use is the 30 pound tin. In the last few years this pack has become very popular. It has a variety of uses similar to those in the No. 10 can, but the most important use is in the bakery and confectionary industries. The primary reason for this popularity has been

the brighter color frozen cherries give these products relative to canned cherries.

Commercially manufactured fresh pies are the most important of the baked cherry products. Fresh pies are distinguished from frozen pies because they are sold in a ready-to-eat form. Frozen pies must be baked before they are ready to eat. The two principal sizes of fresh pies are the 9 inch institutional and the 8 inch retail pie. The institutional pie is sold to restaurants and other public eating places and it is the more important of the two pies. As the name implies retail pies are sold primarily to households.

Frozen pies are more commonly manufactured in the retail size for sale in supermarkets. Within this market they have enjoyed a rapid increase in sales. Some frozen institutional pies are being manufactured, but as yet they are not an important segment of the institutional market.

The manufacture of cherry confectionaries is small relative to commercial cherry pie. The primary confections are jam and preserves, with a small amount of jelly and jelly combinations. Per capita consumption has remained fairly constant as manufacture has risen at about the same rate as the population. Production for the retail market appears to be more important than for the institutional trade.

The Quartermaster's Corps purchases cherries for use by our servicemen at home and abroad. While the average serviceman has very limited power to determine his consumption pattern, he does



constitute a substantial market for tart cherries. With the exception of confectionaries, military purchases are of institutional pack cherries. Canned cherries seem to be preferred over frozen cherries. The latter have been rising in importance, however.

Other government purchases are made in support of various national and state institutions and programs. Large consumers of these cherries are the school lunch program, Veteran's Administration programs, and public supported mental, penal, and related institutions. They also prefer canned cherries probably for their handling and storing qualities.

Restaurants and institutions are the most important market outlets for commercially prepared cherry products. These products are sold on a per-serving basis. They also provide a market for institutional packed cherries through their own baking.

Exports are a relatively minor part of the total cherry marketing flow. Work has been done in Europe to promote tart cherries and cherry products, but it has had only limited success in terms of increased volume of sales.

The last of the intermediate marketing flows is the miscellaneous flow. It takes in a number of minor cherry uses. Among the most important are the manufacture of cherry drinks, cherry flavorings, and cherry fillings for bakery and institutional use. No attempt will be made to study this area because it is too small to be important relative to the total cherry marketing.

Inventory is merely a residual item which is made up of the

cherries not consumed within the period. The ending inventory of one period becomes the beginning inventory of the next period. In general, the size of the inventory bears a direct relationship to the crop of cherries produced in the year and the expected crop in the coming year. The 1960 crop of cherries was not nearly as large as the 1961 crop, thus the beginning inventory in 1961 was not nearly as large as the ending inventory for 1961. The 1961 crop of cherries was unusually large.

SUMMARY

This completes the explanation of the marketing flow diagram and of its components which will be used in this study. It was found that each year there is a stock of cherries at the end of the production period. From this stock, flows of cherries develop into the various segments of the market. It is an understanding of these flows and what affects them that becomes important in the study of cherry marketing. Therefore, the remainder of this study will be devoted to an analysis of these market flows.

CHAPTER III

TRENDS IN RETAIL SALES OF RED TART CHERRIES

INTRODUCTION

This chapter will analyze sales of fresh and retail processed tart cherries, one of the divisions in the marketing channel model. The primary processed retail packs are canned water pack, canned pie filling, and retail size frozen cherries. The 1950-61 average total quantity of fresh and retail packed cherries was 82.9 million pounds, or 30 percent of the average total cherry consumption.

The most important single part of retail pack was canned water pack cherries which made up 57 percent of the total. The smallest of the retail packs was frozen cherries which made up 3 percent of the total. Pie filling and fresh consumption were, respectively, 30 percent and 11 percent of the total. According to our assumptions the processed retail packs move directly to the retail grocery market, and the fresh sales are made directly from the farm to the consumer. Some product is consumed directly on the farms where produced.

The analysis will include the seasonal consumption derived from the MSU Consumer Panel, consumer preferences and reactions as noted

by the Panel and the homemaker preference study, and from general observations of trends.¹ From this variety of approaches information is developed about the general marketing pattern for tart cherry products.

Regional consumption patterns within the United States are not uniform, (Table 1). Per capita consumption of tart cherries in the Northeastern and the North Central regions appears to be much higher than in other parts of the nation. Consumption per capita in the South is about one-half the consumption in the Northeastern areas. Consumption in the West, with the exception of California, is higher than in the South, but not nearly as high as in the Northeast. Per capita consumption in California appears to be similar to per capita consumption in the Northeast. Therefore, care must be used in the general application of the findings because within these larger areas there are differences in consumption on a state or sub-region basis.

FRESH SALES

The 1959-61 average fresh sales of red tart cherries amounted to 11,835 million pounds which was 4.7 percent of the cherries

¹Based on the 1963 Marketing Guide of Quick Frozen Foods (pp. 136-139), the Homemaker Preference study, and from the pie baking ratios of commercial bakeries in these regions as presented in a questionnaire developed by the author.

consumed. The trend in consumption of fresh cherries declined over the period 1950-61.

Table 1: Estimated Index of regional per capita tart cherry consumption¹ for 1961.

<u>Region</u>	<u>Index</u>
Northeastern	135 ~ 34%
North Central	125 ~ 31%
South	65 ~ 16%
West	75 ~ 19%

Source: Compiled from the computed regional indexes of consumption of retail pack cherries, fresh and frozen commercial cherry pie, and of cherry confections with each of these indexes weighted by the relative amount of cherries they represent.

¹Computed from the consumption of all forms of tart cherries and cherry products on a regional basis throughout the United States. The figures are derived by developing an index of consumption for each cherry product in each region. The index being based upon the consumption per region as compared to total consumption. The index of consumption for each cherry product is then weighted according to the percent of total cherry sales each product represents. In this manner, the total index of consumption can be estimated on a regional basis.

The consumption of fresh tart cherries is centered in or near the production areas around the Great Lakes. This is primarily due to the limited distribution of this type of cherry, because of a high degree of perishability and a relatively high transportation cost. Some fresh cherry consumption undoubtedly takes place in and around the minor production areas.

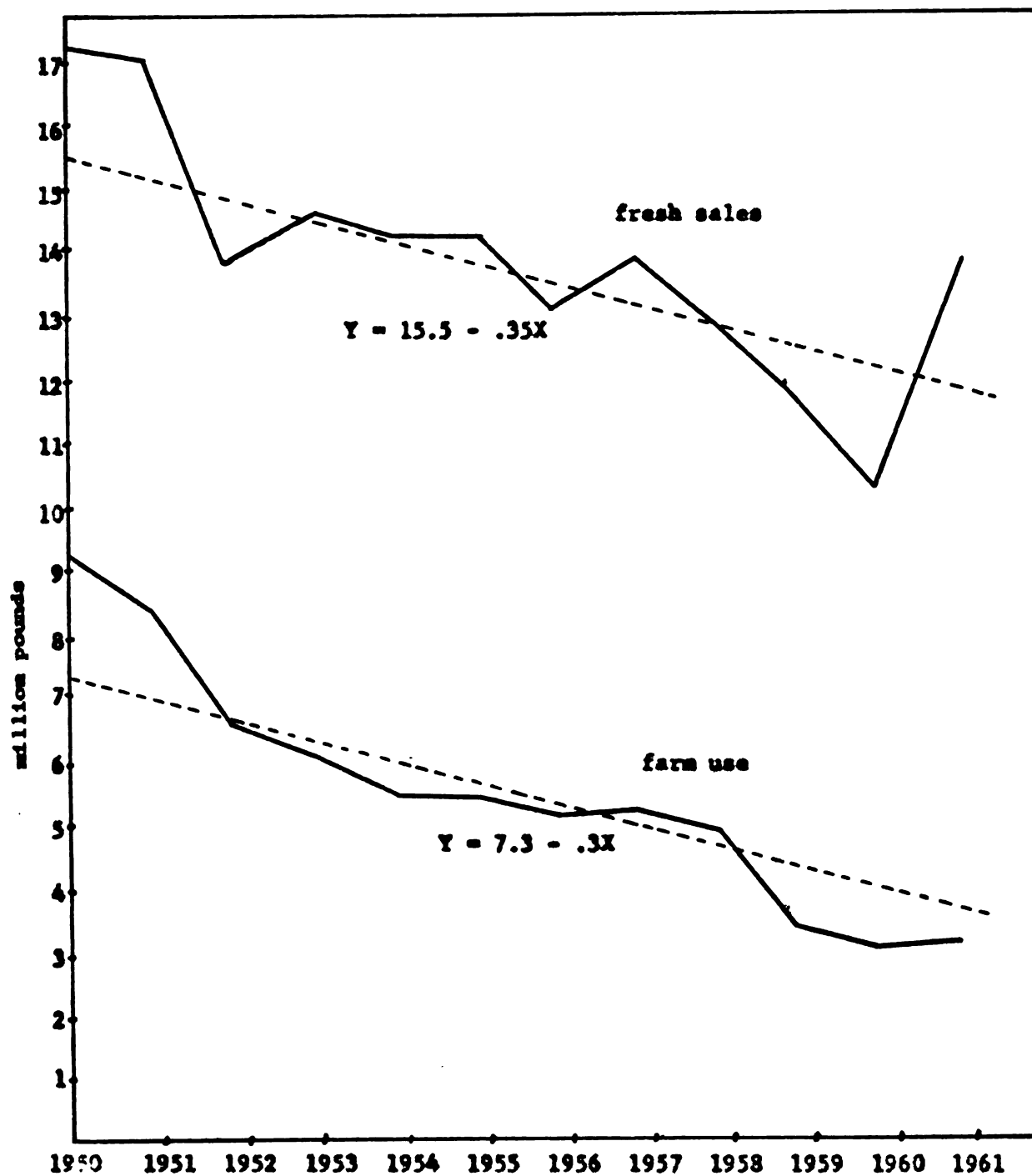
The consumption of fresh cherries is limited to that time of the year when they are in season. This time varies between production regions, but it is for the most part limited to June, July, and August with the peak coming in July and early August.

When the yearly consumption is plotted on a graph and fitted with a trend line the change in consumption over time becomes clearer, (Figure 2). The consumption of cherries for farm use and for retail sales have both been plotted for comparative purposes. In both cases the decline has been relatively smooth and steady, with the exception of 1961 when a record crop was harvested. This smoothness in the consumption curve could indicate a lack of erratic demand forces. Note that since 1957 the retail sales of tart cherries have decreased on the average much faster than has the rate of farm use.

A primary factor in the declining demand for fresh cherries could be a decline in the volume of home canning and freezing. It is unlikely that more than half of this total consumption actually takes place in the fresh form, the majority being preserved in the home for use at a later date. A decline in home processing would thus have a definite affect on the demand for fresh cherries.

The increased availability of processed and semi-processed convenience foods, coupled with the higher incomes of consumers, has had an affect on the demand for fresh cherries. The homemakers increased desire for labor saving products in the home and for more leisure is a phenomenon of our times. While this may not alter total consumption it definitely affects the type food items produced and

Figure 2: Fresh tart cherry consumption, 1950-61.



Source: Annual reports of Agricultural Estimates Division, AMS, USDA, compiled by Fruit Branch, AMS.

consumed. This likewise has led to a decreased desire on the part of the homemaker to do her own canning and freezing both on the farm and in the city.

It is likely that the consumption of fresh cherries will continue to decrease providing that economic growth and family income continue to rise. The 1961 increase is more than likely only a short run effect of the large crop and may contain some statistical error. The sales of fresh cherries will probably continue to decline at a more rapid rate than farm use. This is because the decline in home processing and demand for convenience foods tends to be higher in urban areas relative to rural areas.

Therefore, the amount of fresh cherries sold should continue to decrease both on a per capita basis and in total volume. Based on the data of the past few years farm use of fresh cherries may have reached a constant level and will not decline much past its present rate. In the long run fresh tart cherry consumption in total pounds will probably level off at a point near that of the present rate of farm use.

CANNED RETAIL CHERRIES

Homemakers purchasing water pack tart cherries in retail stores find them packed in No. 303 cans.² This has been true only

²Water pack cherries refers to the method of preserving by which the pitted fruit is put into cans, water is added and the can sealed and heated to kill bacteria. No sugar nor other preservative is added in order to retain as much of the natural cherry flavor as possible. Thus, the name "water pack" is used to distinguish this type of cherry from other methods of preservation.

since 1955. Prior to that time the larger No. 2 size can of water pack cherries was the primary pack. The net weight of the 303 can is 16 ounces while the net weight of the No. 2 can is 20 ounces.

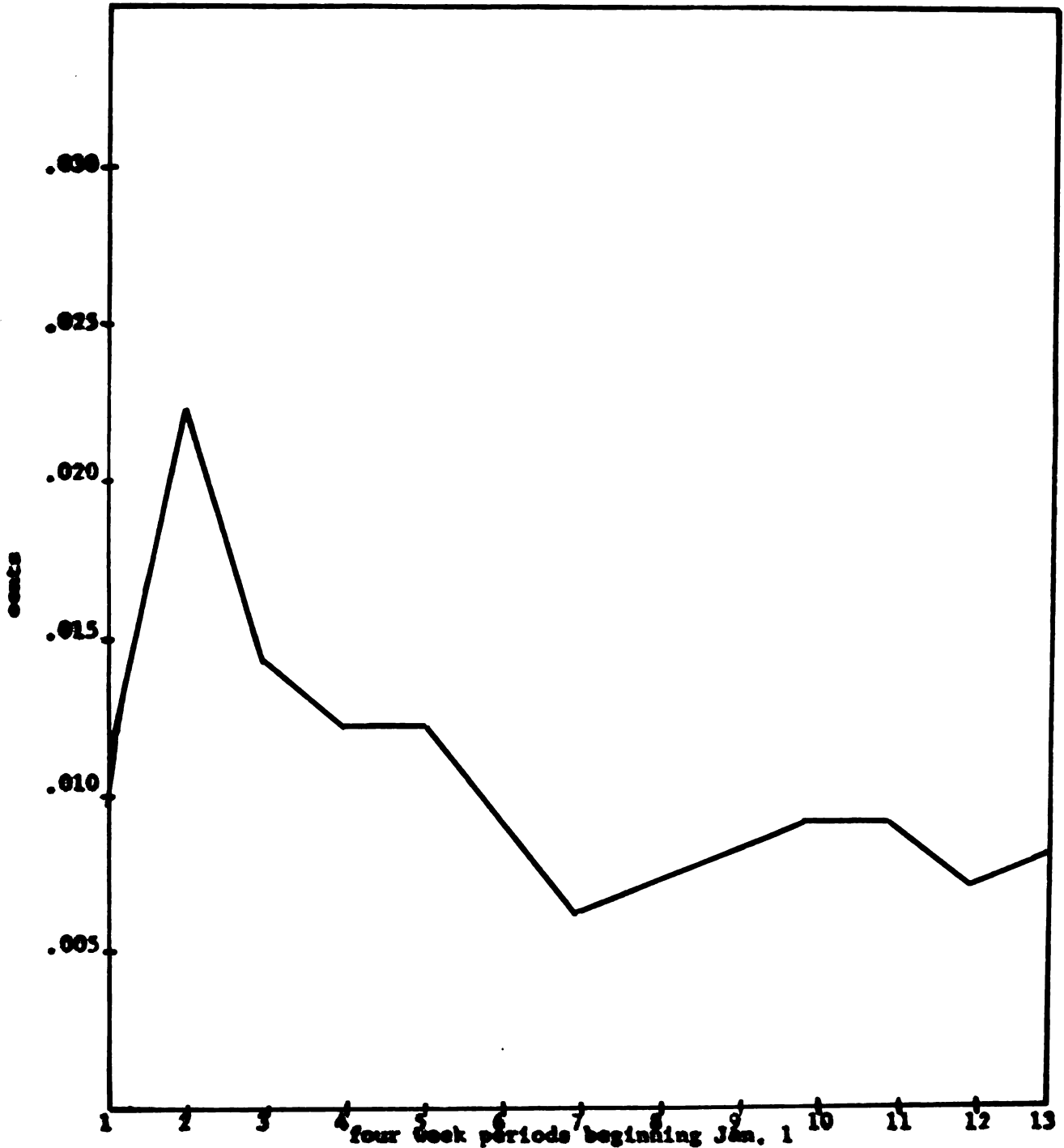
In terms of pounds of raw product, the decrease in water pack cherries has been tremendous. The 1959-61 average total pounds packed was 47.3 million pounds.³ This was only 51 percent of the 1949-51 average pack of 93.1 million pounds. Since the amount packed in each can in 1961 was 20 percent less than that packed in 1950 the number of cans sold has not necessarily decreased to the extent that the poundage has decreased. This may have a very important policy implication which will be presented later in the chapter.

The seasonal consumption pattern of retail canned tart cherry products purchased by the Lansing Consumer Panel families had a rather definite shape, (Figure 3). The low point was reached in the summer just prior to the harvest season. Sales rose slowly during the fall with a dip during December when mince and pumpkin pies were popular. There was a rapid rise in sales through January to the peak in February after which sales declined to the summer low.

The most important reasons which homemakers gave for preferring canned water pack cherries were flavor (46 percent),

³Compiled from statistical reports of the National Canners Association.

Figure 3: The seasonal per capita expenditure pattern for canned retail tart cherries, 1952-58 average of 250 Lansing, Michigan, consumer panel families.



Source: J. D. Shaffer, Consumer Purchase Patterns for Individual Fresh, Frozen, and Canned Fruits and Vegetables, Consumer Panel Bulletin No. 8, 1962.

convenience (41 percent), and cooking properties (20 percent).⁴ Flavor was the most important single reason for liking canned cherries, and it was particularly important in the South. Convenience was a particularly important reason in the North Central region and second overall. Homemakers listed cooking properties as the last of the particularly important reasons for preferring canned cherries.

The washed-out appearance of the fruit was the over-whelming reason given for disliking water packed cherries. Poor cooking properties was the second important reason for disliking them.⁵

By plotting the consumption over the 1950-61 period, and calculating a regression line the average magnitude of the decline in consumption can be estimated, (Figure 4). This decline is substantial. It can be attributed to two primary factors, the decline in home baking of cherry desserts and, since 1955, the substitution of canned pie filling for water pack cherries in making cherry pie.

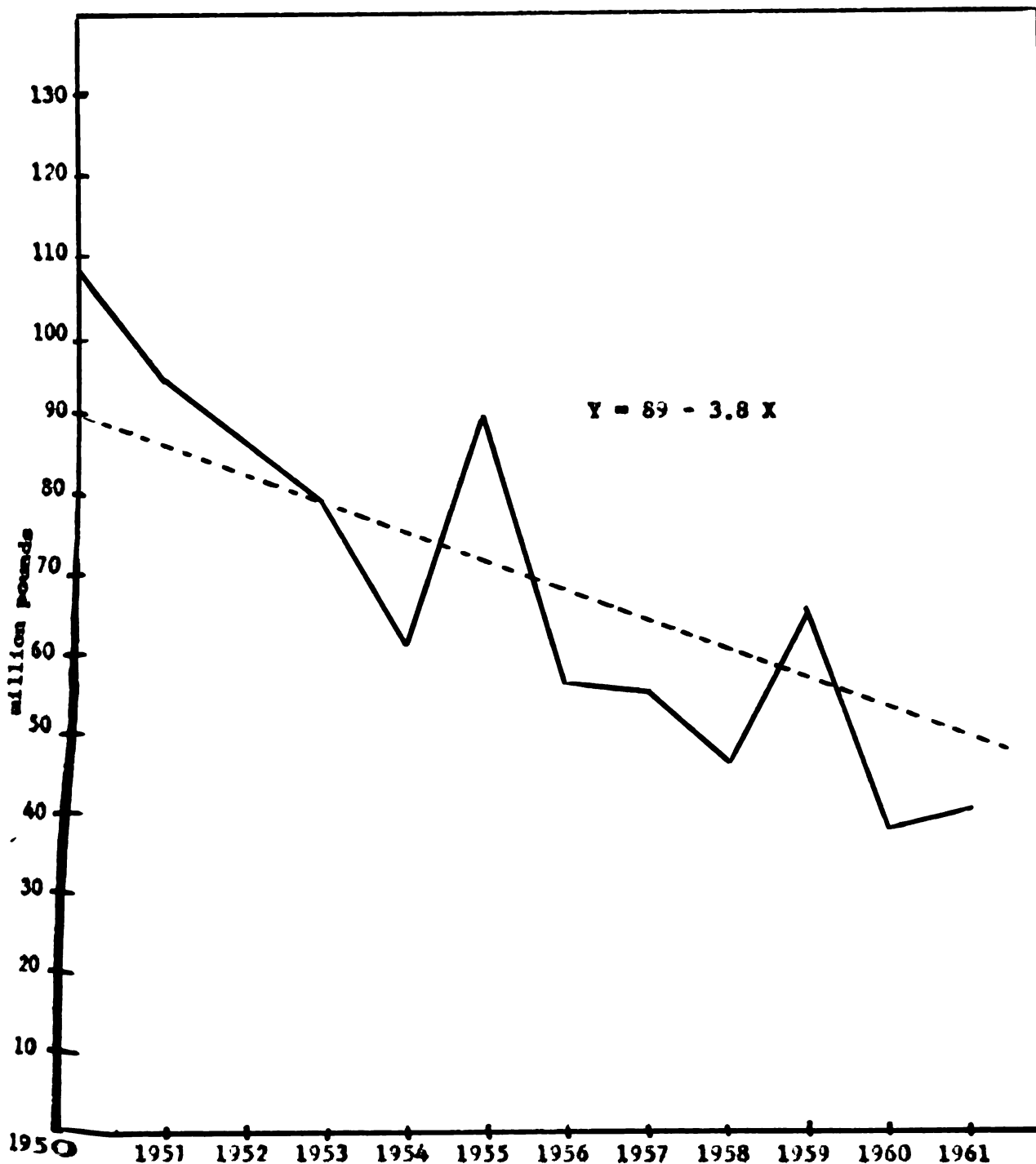
The substitution of commercially prepared pie filling for water pack cherries has had a dampening effect on the apparent decrease in canned cherry consumption. The water pack cherries are purchased for little else than for making cherry pie in the home.⁶

⁴U.S.D.A., Homemaker Preferences for Pies and Canned and Frozen Cherries, p. 47.

⁵Ibid., p. 51.

⁶Ibid., p.14.

Figure 4: The pounds of retail canned water-pack cherries consumed during the period 1950-61.



Source: Compiled from statistical reports of the National Canners Association.

Therefore, increases in the marketing of pie filling are partly at the expense of the water pack market.

If the 1961 packs of pie filling and water pack cherries are added together the total is approximately 71 million pounds of raw product equivalent. Even this is a 24 percent decrease in consumption from the 1949-51 average. Therefore, the decrease in consumption must be due to a stronger force than the substitution effect of pie filling. This second factor must be a decline in home baking of cherry desserts, and cherry pie in particular. Home pie baking will be discussed more fully in the next chapter, and it will be shown that in fact a decline in home baking is the primary reason for decrease water pack cherry sales.

It is improbable that water pack cherries will ever become dominant again in tart cherry sales. Even if there were an increase in home baking, it is unlikely that the demand for water pack cherries would increase proportionately. The substitution effects of superior products such as pie filling and frozen cherries would likely absorb most of the gain.

In the short run it might be possible to increase water pack cherry consumption or at least to prolong its decline by again changing can size. It was noted earlier that because of the decrease in can size, the number of cans of cherries sold has not declined as rapidly as the number of pounds sold. Therefore, the retail water pack market perhaps is not being used to its fullest advantage.

Studies indicate two factors of primary importance.⁷ First, consumers prefer the larger No. 2 can over the 303 can. Second, the average homemaker cannot easily distinguish between the sizes unless they are side by side. This second finding may explain the rising popularity of the 303 can. Grocers could charge from three to five cents less for a 303 can than for the No. 2 can. The homemaker, often under the assumption that she was buying the same can size, would tend to purchase the cheaper of the two. Thus, sales of the 303 can rose while sales of the No. 2 can fell.

Assuming that a basic preference for the No. 2 can still exists the question arises whether processors should attempt to shift back to the No. 2 can? The 20 percent difference in raw product content would indicate that such a change would result in increased tart cherry sales providing customers continued to purchase the same number of cans. However, two problems arise to complicate matters. First, would the increased cost to the consumer caused by a slightly larger can decrease sales enough to destroy all gains made in volume per can? Second, would the cherry processors all consent to this proposal? A few canners packing in 303 cans could cause severe competition to those canners packing in No. 2 cans.

The answers to these questions will not be found in this

⁷ B. C. French, "Trends and Characteristics of Red Cherry Consumption," Quarterly Bulletin and U.S.D.A., Homemaker Preference for Pie and Canned and Frozen Cherries.

thesis, but they are questions of considerable interest to tart cherry producers. A corollary of these two questions is, what are the real costs and returns to the industry of introducing and selling a smaller package in order to gain a short run competitive advantage through a lower unit cost? If the new package size does not satisfy the consumers' desires, he may shift his purchase to an alternative product. Or he may conclude that the smaller package is really more expensive and reduce his purchases for monetary reasons.

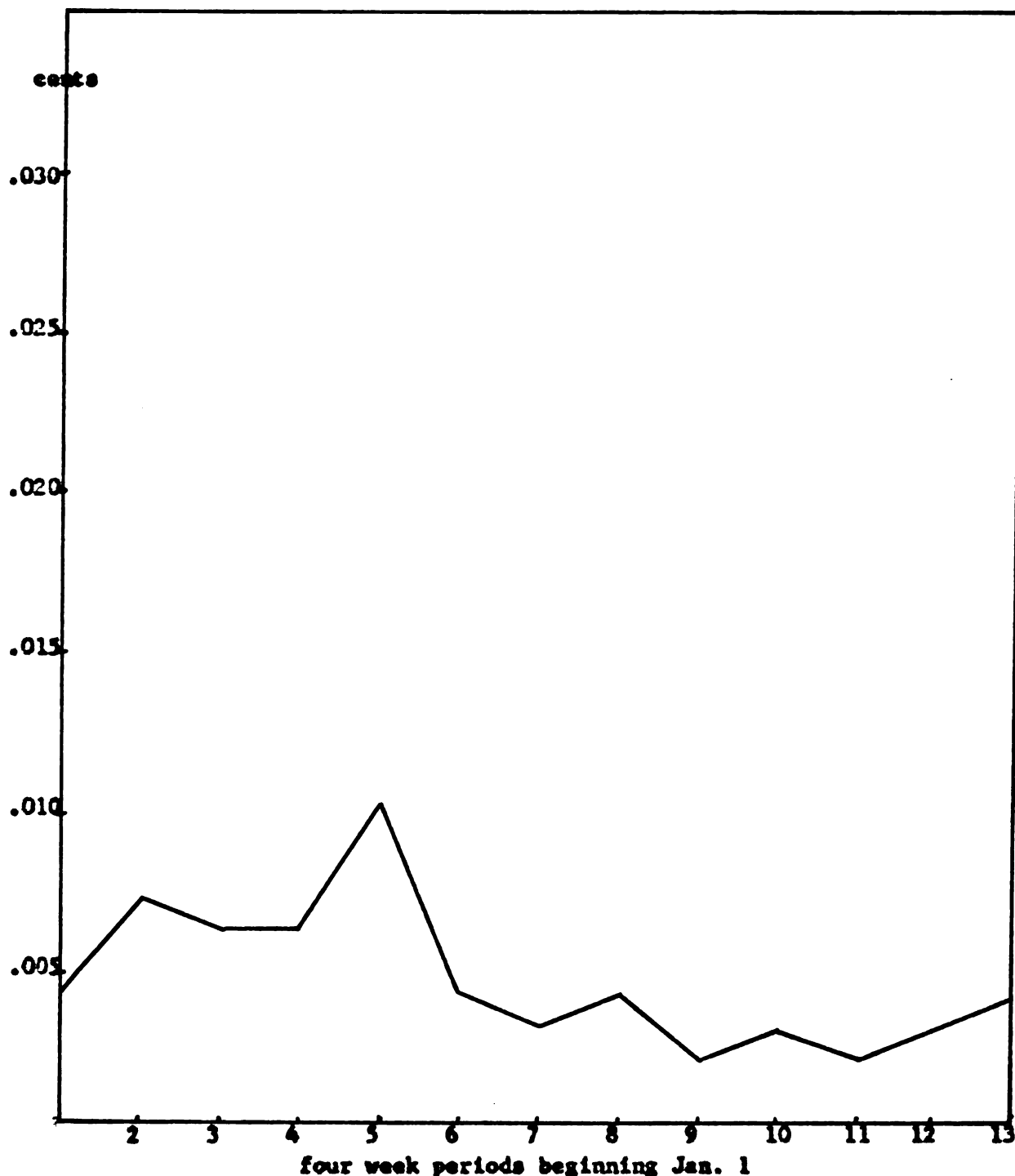
COMMERCIAL PIE FILLING

Pie filling is the only pack of all the canned cherry products which has shown an upward trend in consumption in the 1950-61 period. Among retail cherry products it is the only product that has shown a significant increase in consumption. The 1962 production of 45 million pounds of raw product equivalent is over three times the 1955 production of 13 million pounds. This increase, as noted earlier, was due primarily to a substitution of pie filling for other cherry products and does not represent a significant increase in total cherry consumption when compared to previous figures.

Based on Consumer Panel data the per capita expenditure for pie filling reached a peak in late April, and the low was reached in late August just after the year's crop has been harvested (Figure 5).

Convenience was rated by homemakers as the overwhelming reason given for buying pie filling. Of the homemakers interviewed 83 percent gave this as the most important reason. Next in

Figure 5: The seasonal per capita expenditure pattern for prepared pie filling, 1955-57 average.



Source: J. D. Shaffer, Consumer Purchase Patterns for Individual Fresh, Frozen, and Canned Fruits and Vegetables, Michigan Agricultural Experimental Station, Consumer Panel Bulletin No. 8, 1962.

importance was flavor with 21 percent⁸.

Flavor was also given by 53 percent of the homemakers sampled as the primary reason for not liking pie filling, and 21 percent gave expense as the reason for disliking pie filling⁹.

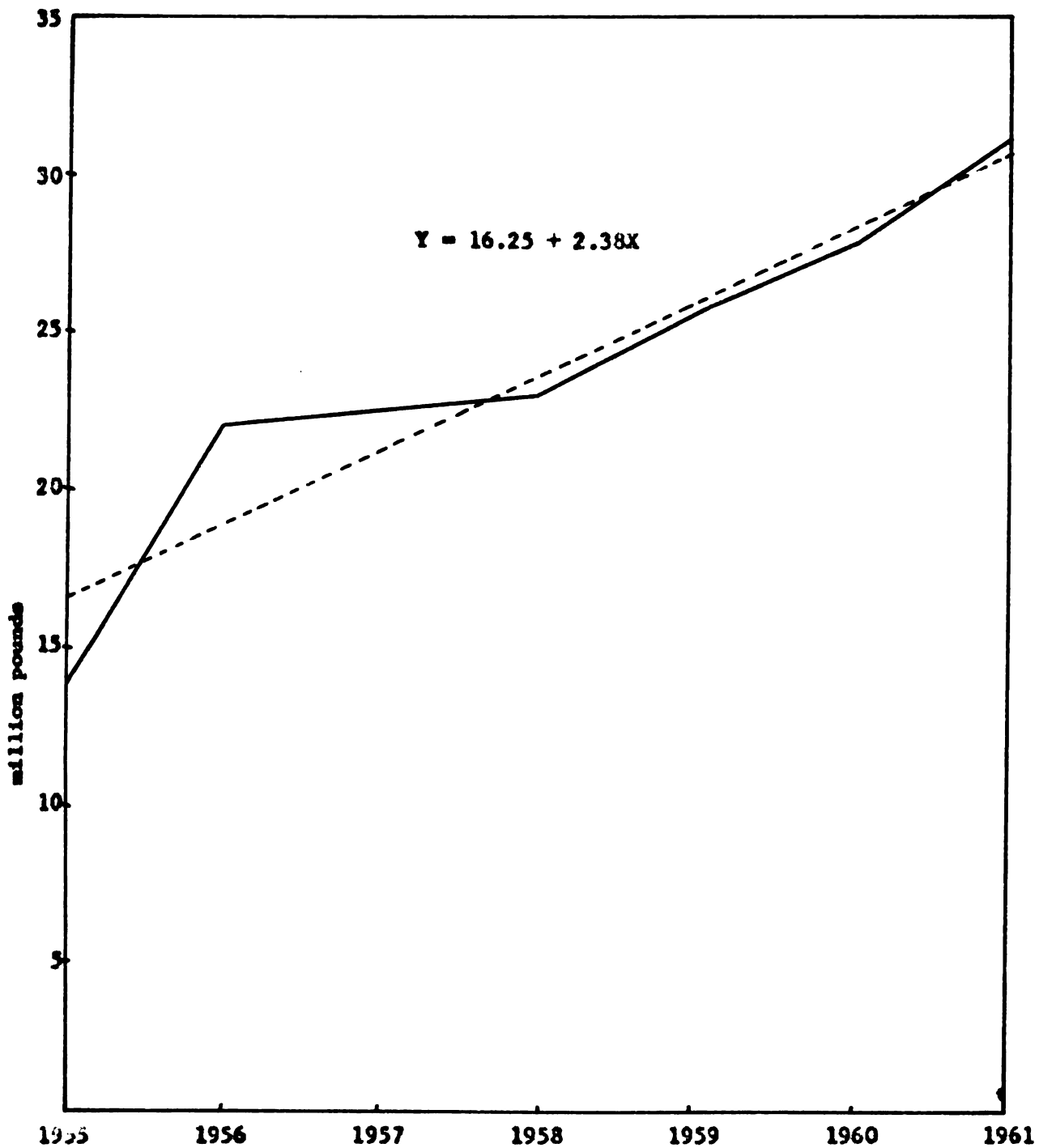
A regression line through the yearly production figures from 1955-61 indicates a significant upward trend in the use of pie filling, (Figure 6). The 1962 production figure indicates even a sharper increase. It is not likely that pie filling consumption will increase at the 1961-62 rate, however, it is likely that consumption will continue to increase at a fairly rapid rate for the next few years. The emphasis on convenience in American homemaking will be an important factor in this increase since it promotes the substitution of pie filling for other forms of retail cherries. However, the convenience trend which has tended to perpetrate the growth of pie filling may also limit its expansion. The convenience trend will also increase the consumption of commercially prepared pie and cherry desserts relative to home baked pies and desserts, thus lowering the total market for pie filling. It will be some time, however, before this significantly limits the growth of pie filling consumption.

High average incomes also affect the tendency of homemakers to buy pie filling. As income increased among Consumer Panel members the percent of households buying pie filling went up. Also younger

⁸U.S.D.A., Homemaker Preference for Pies and Canned and Frozen Cherries, p. 49.

⁹Ibid., p. 51.

Figure 6: The consumption of retail and institutional pack canned pie filling for the period 1955-61.



Source: Compiled from the statistical reports of the National Cannery Association.

homemakers were found to be larger buyers of pie filling than older homemakers¹⁰. Therefore, continued increases in national incomes and continued population increases which increase the number of young homemakers, should have a favorable effect on the consumption of pie filling.

FROZEN RETAIL CHERRIES

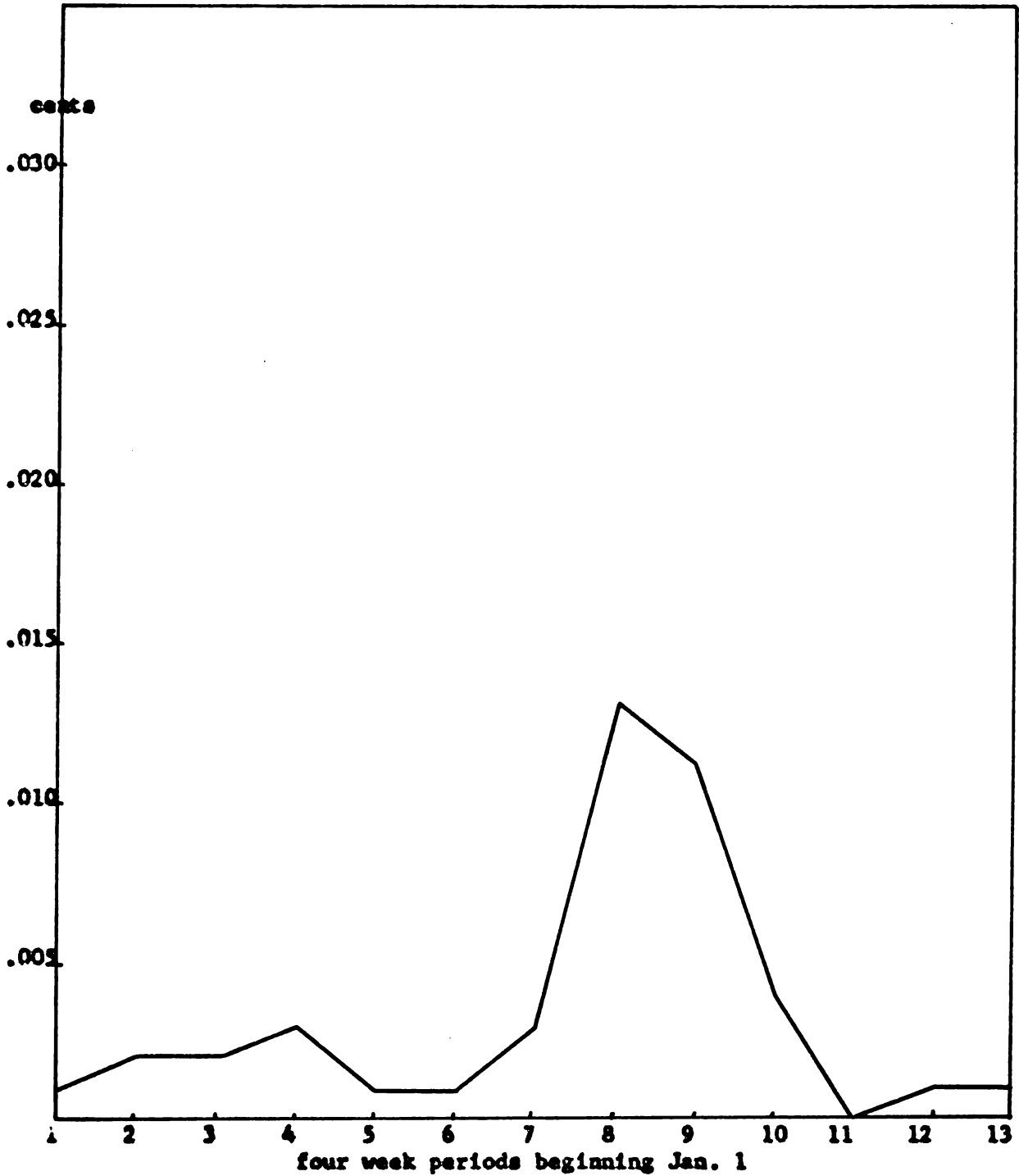
The frozen retail pack has never been very important in relation to total retail cherry consumption. Consumption has increased from 0.8 million pounds in 1950 to a 1959-61 average of 2.6 million pounds. This increase has been very slow for the most part, and there have been large fluctuations in consumption from year to year.

The seasonal consumption pattern for frozen cherries differs markedly from the consumption patterns of other processed cherries. Consumption remains fairly constant during the year except for June. During June it rises rapidly to a peak in July and August after which there is a sharp decline to a low in October (Figure 7). Most other processed cherry packs hit their low points during July and August. Bargains occurring in retail stores as packers and distributors try to lower their year-end stocks could be an important cause for this. The summertime appeal of frozen foods is probably the most important reason for the consumption increase.

Flavor was rated first by homemakers in the reasons why they

¹⁰B.C.French, "Trends and Characteristics of Red Cherry Consumption", p. 5.

Figure 7: The seasonal per capita expenditure patterns for retail frozen cherries, 1954-58 average.



Source: J.D. Shaffer, Consumer Purchase Patterns for Individual Fresh, Frozen, and Canned Fruits and Vegetables, Michigan Agricultural Experiment Station, Consumer Panel Bulletin No. 8, 1962.

prefer frozen cherries with 72 percent of the homemakers interviewed indicating this reason. Appearance was second with 20 percent¹¹. Inconvenience was rated first in undesirable characteristics by 33 percent of the homemakers. Expense was rated second with 23 percent¹².

A regression line of past consumption indicates a slight upward trend, (Figure 8). However, the level of consumption is too low to make frozen cherries very important relative to total consumption. Why consumption of frozen retail pack cherries has remained low is one of the mysteries of cherry marketing. In the Consumer Panel it was noted that as incomes increased household consumption of frozen cherries increased. Even more important the preference intensity was highest among families consuming frozen cherries¹³. In other words they had the highest level of repeat purchases. As noted earlier it was also a superior product in flavor and appearance. Why then did retail frozen cherry consumption remain low?

Lack of publicity is a major factor, but there are undoubtedly other important reasons. Homemaker awareness of frozen cherries was low throughout the U.S.D.A. sample, particularly so in the South¹⁴.

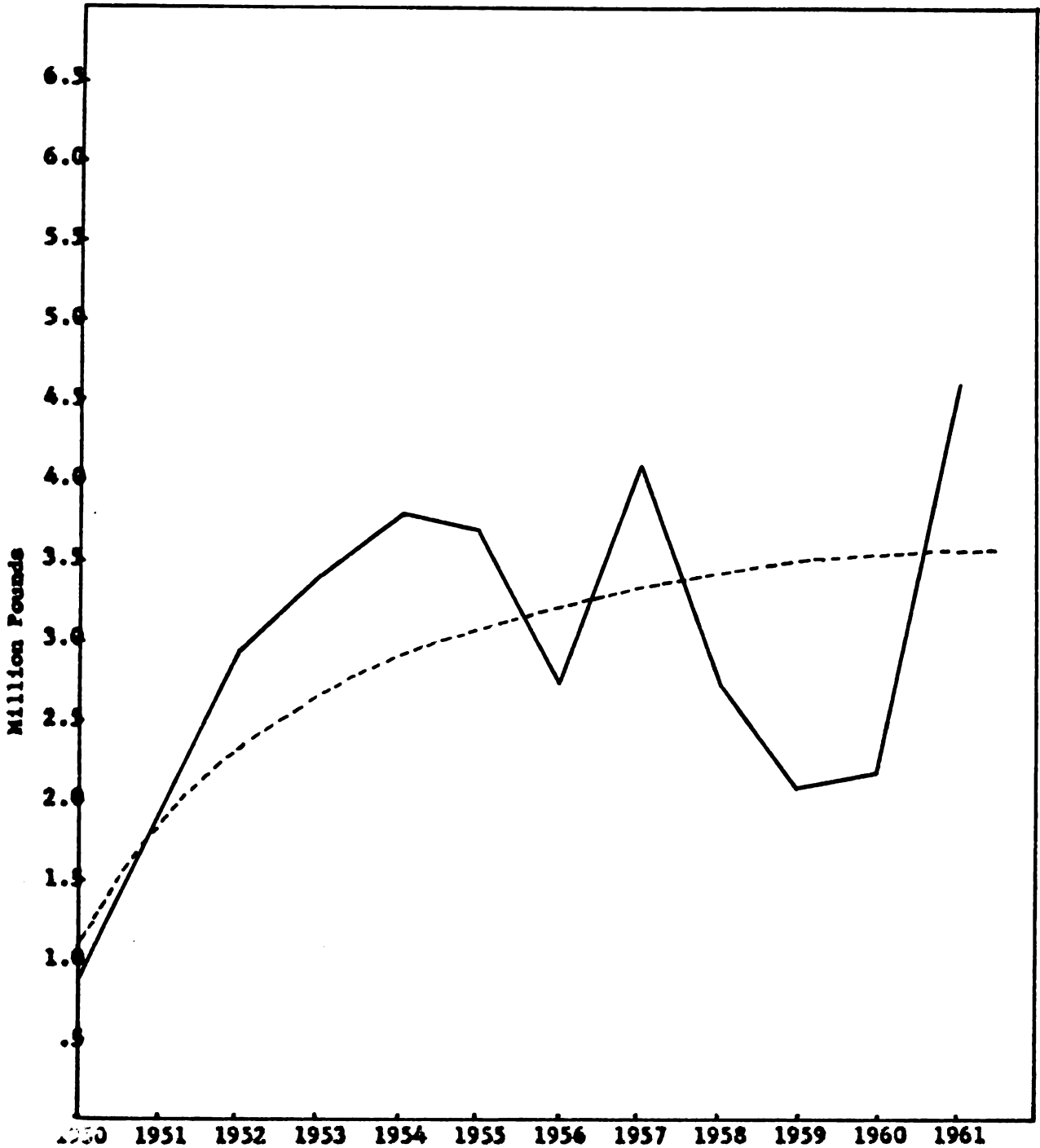
¹¹U.S.D.A., Homemaker Preferences for Pie and Canned and Frozen Cherries, p. 48.

¹²Ibid., p. 51.

¹³B. G. French, "Trends and Characteristics of Red Cherry Consumption", p. 5.

¹⁴U.S.D.A., Homemaker Preference for Pie and Canned and Frozen Cherries, p. 2.

Figure 8: The pounds of retail frozen cherries consumed in the United States during the period 1950-61.



Source: Compiled from the annual reports of the National Association of Frozen Food Packers.

This could have a significant effect upon consumption which could be reduced through added advertising and promotion along with more favorable packaging. The fact that frozen food cabinet space is high priced means only the high profit, fast turn-over items will be placed in them. A minor item such as frozen, unprepared deserts may not have the necessary qualifications.

GENERAL CONSUMER PANEL FINDINGS

Without going into detail, a few of the particularly relevant conclusions from the Consumer Panel regarding retail tart cherry consumption should be presented. The consumption of tart cherries is centered in a relatively small percentage of the total population. The 25 percent of the families with the highest consumption rates consumed 74 percent of the cherries. Household consumption of cherries increase as income, family size, and age of the homemaker increases. It decreases as the percentage of homemakers employed outside the home increases¹⁵. The effects of each of these are obvious.

Price likewise does not appear to be associated with changes in consumption of retail pack cherries according to the Panel¹⁶. This may appear to be inconsistent with economic theory which maintains that an increase in price will decrease the quantity purchased, with the amount of the decrease in quantity determined by the elasticity of demand. A decrease in price will

¹⁵ B. C. French, "Trends and Characteristics of Red Cherry Consumption", p. 4-5.

¹⁶ Ibid., p. 16.

increase the quantity sold. This apparent inconsistency can be explained by two factors. First, a decline in the grower price may not be passed on through the market to the consumer. In other words, retail prices remain fairly constant despite changes in quantities available for sale, indicating a relatively high price elasticity of demand. Second, the consumer is not aware of small differences in the retail price. His price threshold for tart cherries is wide. The relative power of each of these to increase or decrease consumption cannot be determined from the data available.

SUMMARY

Throughout the 1950-61 period the total consumption of retail packed cherries has declined. Not all products making up the retail cherry market have declined however, canned pie filling has had a very dramatic increase in consumption. This increase came primarily at the expense of other retail cherry products. The most noticeable of which was retail canned cherries.

With the present trends towards increased use of convenience foods and commercially prepared foods in the household it is unlikely that the consumption of retail pack cherries can be made to rise. Commercially prepared desserts have replaced part of the home baking market, thus forcing down the level of home baking. This is the primary factor in the decrease in retail pack cherry purchases. How long and at what rate this increase in the demand for commercial desserts will continue is a matter of speculation.

CHAPTER IV

HOME BAKED CHERRY PIE CONSUMPTION

INTRODUCTION

Pie is the most popular dessert in the United States. Except for children it is the most popular dessert among both sexes in the nation as a whole¹. Cherry pie is second to apple pie in overall popularity among consumers. Its popularity between regions varies, as does the consumption of all types of red tart cherries.

Home baked pies constitute the majority of the pies consumed within households. While this should remain true for some time to come the amount of home pie baking is declining. It has been estimated that in 1954 seven of every eight pies consumed within households were home baked. By 1958 this estimate had fallen to five of every six².

Since 1958 the amount of home baking, based on the increased sales of retail commercial pies, has undoubtedly decreased even further.

¹U.S.D.A., Homemaker Preferences for Pie and Canned and Frozen Cherries, p. 43.

²Quick Frozen Foods, "Has Frozen Fruit Pie Sales Hit It's Peak", January 1958, pp. 91-92.

However, the importance of home baked cherry pie in the marketing of tart cherries has not declined proportionately. The amount of cherries in a home baked pie is greater than the amount used in a retail commercial pie. Therefore, even though the number of home baked pies have decreased relative to commercial pies, their importance in tart cherry marketing may not have decreased proportionately.

Measurements of the characteristics of home baked pie consumption are difficult to determine. This is because of the limited number of studies which have been made in this area, and the limited quality of these studies. Therefore, most of the information presented in this chapter will be observations rather than trend movements.

FACTORS ASSOCIATED WITH HOUSEHOLD PIE BAKING

Urban and rural homemaker baking patterns are considerably different. Family consumption characteristics such as income, number of members in the family, and the age of the homemaker also affect the rate of home baking. It is interesting to note the effects of these changing social factors on pie baking or, more generally, on the willingness of homemakers to do home processing of food products.

The effects of these family characteristics vary with the region of the United States being discussed. For summary purposes Table 2 contains all these variables and the way in which they affect pie baking. The figures given are the estimated percent of households baking cherry pie during a seven day period in April, May, or June of 1955.

TABLE 2: Social-economic factors affecting the home baking of cherry pie expressed by the estimated percent of households baking during a one week period.

	United States		North-east		North Central		South		West	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
	- - - - - Percent - - - - -									
All Households	3.9	8.0	2.5	7.7	5.1	9.5	4.1	7.0	4.3	7.2
Income										
Under 2000	3.6	7.3	3.9	6.3	5.3	8.2	3.2	6.6	2.4	9.6
2000-3999	4.1	8.9	2.0	10.3	5.4	10.1	4.6	7.6	5.6	8.4
4000-5999	4.5	8.4	2.6	6.8	6.4	10.0	5.3	7.2	4.8	6.6
6000 & over	4.0	8.3	3.7	5.7	4.8	9.6	3.5	8.7	3.9	5.6
No. in Household										
2 Persons	3.5	7.3	2.4	7.3	4.9	7.9	3.6	6.9	3.1	6.2
3-4 Persons	4.1	8.3	2.6	8.1	5.1	9.5	4.4	7.7	5.5	5.6
5 or more Persons	5.1	8.5	3.4	7.7	6.7	10.4	5.1	6.6	5.3	10.1
Homemaker Age										
Under 30	4.3	7.5	2.7	8.0	3.2	9.7	4.3	7.2	4.5	7.5
30-49 Years	4.1	8.3	2.8	7.1	2.9	9.0	4.4	7.2	4.6	7.2
50 Years and Over	3.8	8.3	2.6	9.1	3.5	9.1	3.9	7.5	3.6	8.2

Source: Computed from U.S.D.A., Food Consumption in the United States, Household Food Consumption Survey, 1955.

For the United States as a whole the urban pie baking rate is only half that of the rural baking rate. In both sectors pie baking is greatest in the middle income groups. Increases in family size tend to increase the pie baking rate. As homemaker age increases in the urban sector pie baking decreases, but in the rural sector it increases.

Northeastern urban families had the lowest pie baking rate in the nation, it being only one-third the rural baking rate in that region. The effects of income, number in household, and age of homemaker on the rate of pie baking for the most part are erratic in both sectors. Each level of each factor seems to be unique in itself rather than indicating an observable pattern.

In the North Central region pie baking was again centered in the middle income groups. Increasing family size was associated with a higher rate of pie baking. Middle aged homemakers had slightly lower baking rates than did younger or older homemakers. The overall level of pie baking in both the rural and urban sectors was higher than in any other region.

Homemakers in the South and West were similar in many respects in their home pie baking habits. The difference in urban and rural baking diminishes in these two regions compared to the Eastern states. This is due, most likely, to the relatively smaller portion of the population living in cities, and the subsequent failure of a division to develop between the urban and rural sectors. Except for the rural West, pie baking is most prevalent in the middle income

families. Pie baking in the Western rural sector is centered in the low income households. In both the South and West increases in family size are associated with higher rates of home pie baking. Rural homemakers bake more pies as they become older, but urban homemakers bake fewer.

The reader should not confuse the above statements about home baked cherry pie with previous statements about the general level of tart cherry consumption. The fact that one segment of cherry consumption may be low or high in one region of the nation does not necessarily imply that the total cherry consumption is low or high in that region. Therefore, the statement that in the Northeastern region home baking of cherry pie is low does not destroy the consistency of the statement that in the Northeast total cherry consumption is the highest in the nation.

Another variable which affects the consumption of home baked cherry pie is the education of the homemaker. The higher the education of the homemaker the more often she bakes a cherry pie³. Homemakers with college and high school degrees baked more cherry pies than those with less education. This may have been due to a bias in the sample because of variations in regional cherry pie consumption and education level. The education level of women is higher

³U.S.D.A., Homemaker Preferences for Pie and Canned and Frozen Cherries, p. 11.

on the average in the North Central and Northeastern regions than the other two regions. These are also the regions of highest cherry consumption. Therefore, the relationship between education and cherry consumption may not be important.

It was also noted in the study and partially summarized in Table 2 that the middle and high-income households consumed more cherry pie than did lower-income households.⁴

REGIONAL VARIATIONS IN CHERRY PIE CONSUMPTION

The importance of cherry pie relative to total pie consumption in various regions of the nation varies considerably. In general, the closer to the production area the more important cherry pies become relative to total pie consumed. The primary production and consumption areas are centered around the Great Lakes.

The Northeastern and North Central regions of the United States have the highest per capita consumption in the nation. These regions also contain the vast majority of the nation's population, which is fortunate for the tart cherry industry. Exceptions in per capita consumption in the South and West are Texas, Oklahoma, Washington, D.C., Colorado, and the Pacific Coast. These five areas have fairly high rates of per capita tart cherry consumption.⁵

It follows that in areas of high per capita consumption of tart cherries the consumption of cherry pie relative to total pies

⁴Ibid., p. 11.

⁵Computed from the "Marketing Guide for 1963", Quick Frozen Foods, March, 1963, pp. 119-72.

consumed should be higher than in areas where cherries are less popular. The U.S.D.A. Homemaker Preference study and a questionnaire sent to commercial pie manufacturers across the nation supports this hypothesis.

In the North Central and Northeastern regions fruit pies are the most popular of all pies. Apple pie is first in total popularity and cherry is second. Lemon cream and chocolate cream follow in that order, but the rest of the important pies are fruit pies.

In the South cream pies, especially chocolate and lemon, are more popular than they are further North. They rate second and third, respectively, behind apple pie. Cherry pie ranks fourth in home pie baking popularity in this region.

Two factors are very important in explaining the relationship between production and consumption. First, consumer awareness of and, more important, experience with cherries declines as we move out from the producing regions. Second, an individual's tastes and preferences tend to favor locally grown, commonly consumed products rather than products shipped in from the outside. While there are exceptions, such as bananas, both relative price and availability are important in this respect. Therefore, for much the same reason that pecan pie is not popular in the North, cherry pie is not popular in the South.

The exact effect that the price of cherries has on home pie baking cannot be fully determined. It was noted in the last chapter that according to the findings of the MSU Consumer Panel, price does not affect the purchases of retail pack cherries. These are the

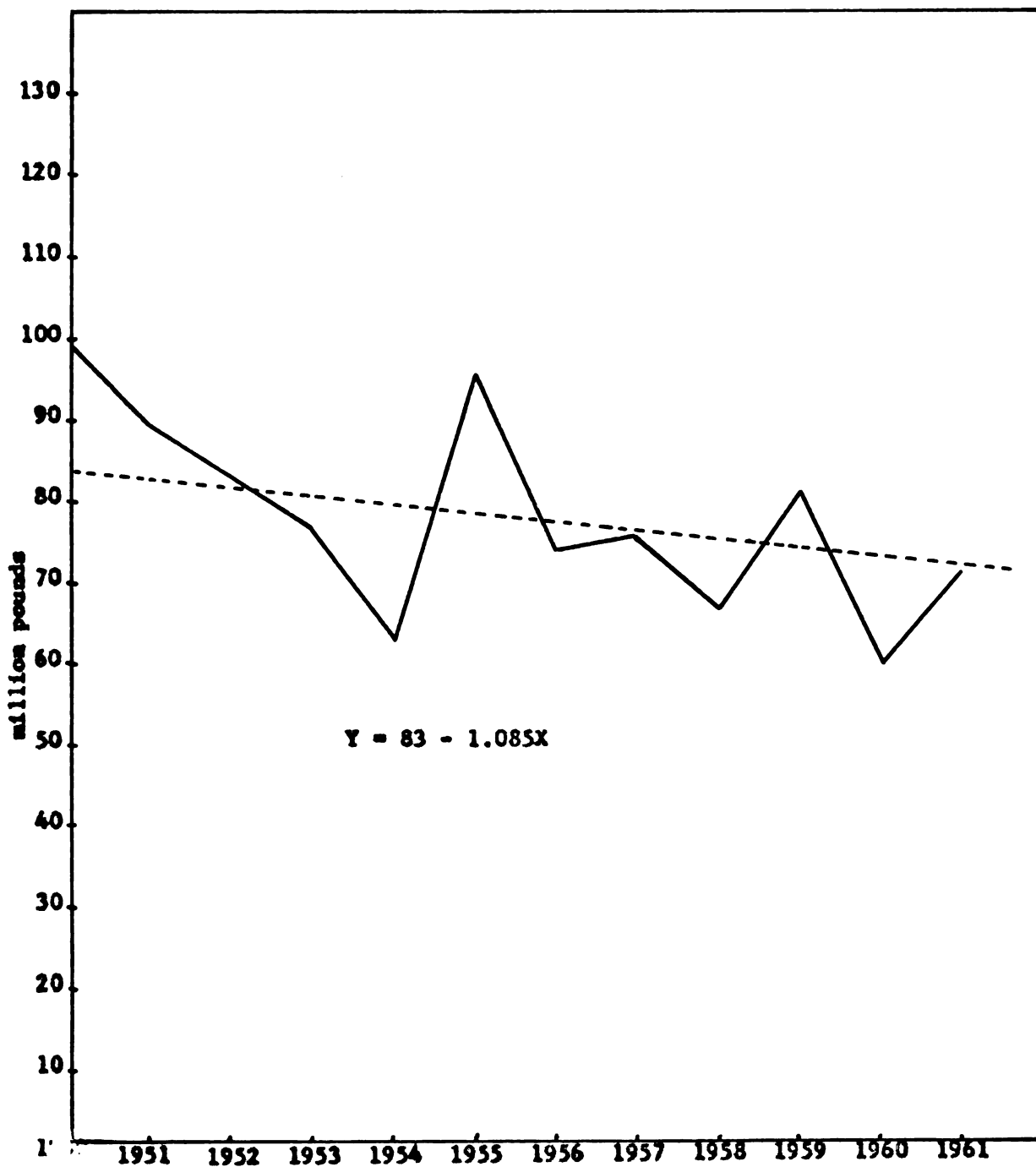
principal source of cherries for home baked pie. It will be shown in the next chapter on commercially prepared pies that price is an important factor in that market.

It does not seem consistent with economic theory to say that there is no price effect in the home baking of cherry pie. In other words, the price elasticity of demand is high. However, with the data which are available it is difficult to determine what the affect of price changes really are.

TRENDS IN HOME BAKING OF CHERRY PIE

The trend in total home baked cherry pie is definitely declining. If it is assumed that home baking of cherry pie is a function of the consumption of retail packed tart cherries then the total volume of cherry pies must be a function of the total consumption of retail cherries. If we assume that 90 percent of the retail packed cherries and fresh cherries are consumed in the form of cherry pie, and that on the average 14 ounces of cherries are used per pie then it is possible to derive an estimate of the total number of cherry pies consumed in a given year (Figure 9). Although the actual values are open to question, the trend is definitely downward. The available data are not sufficient to determine in what sectors or regions of the market the changes in home cherry pie baking are taking place.

Figure 9: The estimated pounds of home baked cherry pie during the period 1950-61.



Source: Sum of the retail packs of cherries and fresh cherries multiplied by the estimated percent of cherries going into cherry pie (.9) and assuming 14 ounces of cherries per pie (.875).

SUMMARY

Due to the limited amount of data available it is very difficult to indicate more than simple regional variations in home pie baking, and some simple basic analysis.

Cherry pie baking in the home is definitely decreasing. But it cannot be determined how this rate of decline compares to that of other pies. Factors affecting home pie baking are urbanization of the population, changing family size, changes in income, and education of the homemaker. The relative importance of these factors cannot be determined until further studies are done on the economic aspects of home pie baking.

CHAPTER V

MARKETING OF CHERRIES THROUGH FRESH BAKED COMMERCIAL PIES

INTRODUCTION

Commercially prepared ready-to-serve, or fresh pies, are the most important type of commercial pie produced. They are used primarily by restaurants and institutions. In 1961 an estimated 112 million pounds of fresh cherry pie were consumed in these two markets. Approximately 80 million pounds of fresh cherry pie were also sold in the retail markets. This represented a marketing of an estimated 46.6 and 36.6 million pounds of tart cherries respectively.

The size of commercial pies varies with the market being served. For the institutional and restaurant trade the common sizes are pies nine to ten inches in diameter and weighing from 40 to 48 ounces. The home baked is generally a nine inch pie. Institutions prefer these large pies because they give a reasonably large slice of pie when it is cut into six pieces.

Retail sized pies can vary from four to eight inches in diameter. The largest selling retail sized pie is an eight inch pie weighing 24 pounds. This will be the retail pie which is referred to in this chapter.

In terms of all pies manufactured, cherry pie ranks second

to apple pie. It makes up approximately 25 percent of the total pies manufactured. There are regional differences in the manufacture of fresh pies due to differences in consumer tastes and preferences which do not necessarily make this 25 percent figure true throughout the nation. In the Northeast cherry pie may be 33 percent of all pies produced, and in the South it may be only 15 percent of all pies.

Frozen cherries are used almost exclusively by bakeries for making cherry desserts. This is due to the brighter, more natural color which frozen cherries give relative to canned cherries. Therefore, fresh pie sales are an important market for frozen institutionally packed cherries, and nearly all the cherries consumed in this industry can be assumed to come from frozen cherries.

Tart cherries are the most costly single ingredient used in the manufacture of cherry pie.¹ Therefore, the price of cherries is an important consideration in the marketing of fresh commercial pies. The amount of cherries used in a pie varies to an extent between individual manufacturers, but on the average 8 ounces of cherries are used in a 24 ounce retail pie and 20 ounces of cherries in a 42 ounce institutional pie. If converted into percentage figures 33 percent of the weight of a retail pie is made up of cherries and 48 percent of an institutional pie in cherries. The difference in the percent of pie

¹Based upon the findings of the questionnaire used in this study, and interviews with commercial pie bakers in the Lansing, Michigan, area.

which is fruit is due to the amount of pie crust which must be used. The smaller, shallower eight inch retail pie requires nearly as much pie crust (14 ounces), as the larger, deeper nine inch institutional pie (18 ounces). Therefore, the additional weight must be made up of pie filling which is primarily fruit. By multiplying by the average price of cherries in 1961 we can derive approximate cost of the cherries used in each pie. By dividing the cost of cherries into the approximate cost of the total cherry pie we find that the cherries used in the pie make up 35 percent of the cost of a retail pie and 50 percent of the cost of an institutional pie. In either case it is the most costly ingredient.

Institutional-sized pies will be discussed separately from retail-sized pies in this chapter. The reasons for this are because the markets are different and subject to different forces, and because the data in each case are of a different nature and of varying degrees of completeness.

INSTITUTIONAL FRESH PIE

The restaurant and institutional pie market can only be discussed on a limited basis because of limitations of the data. The only source of data on the national and regional manufacture of fresh pies on a yearly basis is the Baking Industry, a trade magazine. The only other source of data is the United States Department of Commerce, Census of Manufactures which is published on a four year basis. Both these sources of data are so broad in their scope that

only trends can be computed and compared. Some additional information was obtained from interviews by the author and from a study of Detroit bakeries by W. Smith Greig and Noel W. Stuckman.²

The total manufacture of commercially prepared pies has remained remarkably constant throughout the 1950-61 period which is being studied. This has tended to be true of regional pie manufacture also. The trend is slightly downward sloping because of the declining production since 1955 (Figure 10). However, the deviation from the mean is only three percent at the maximum.

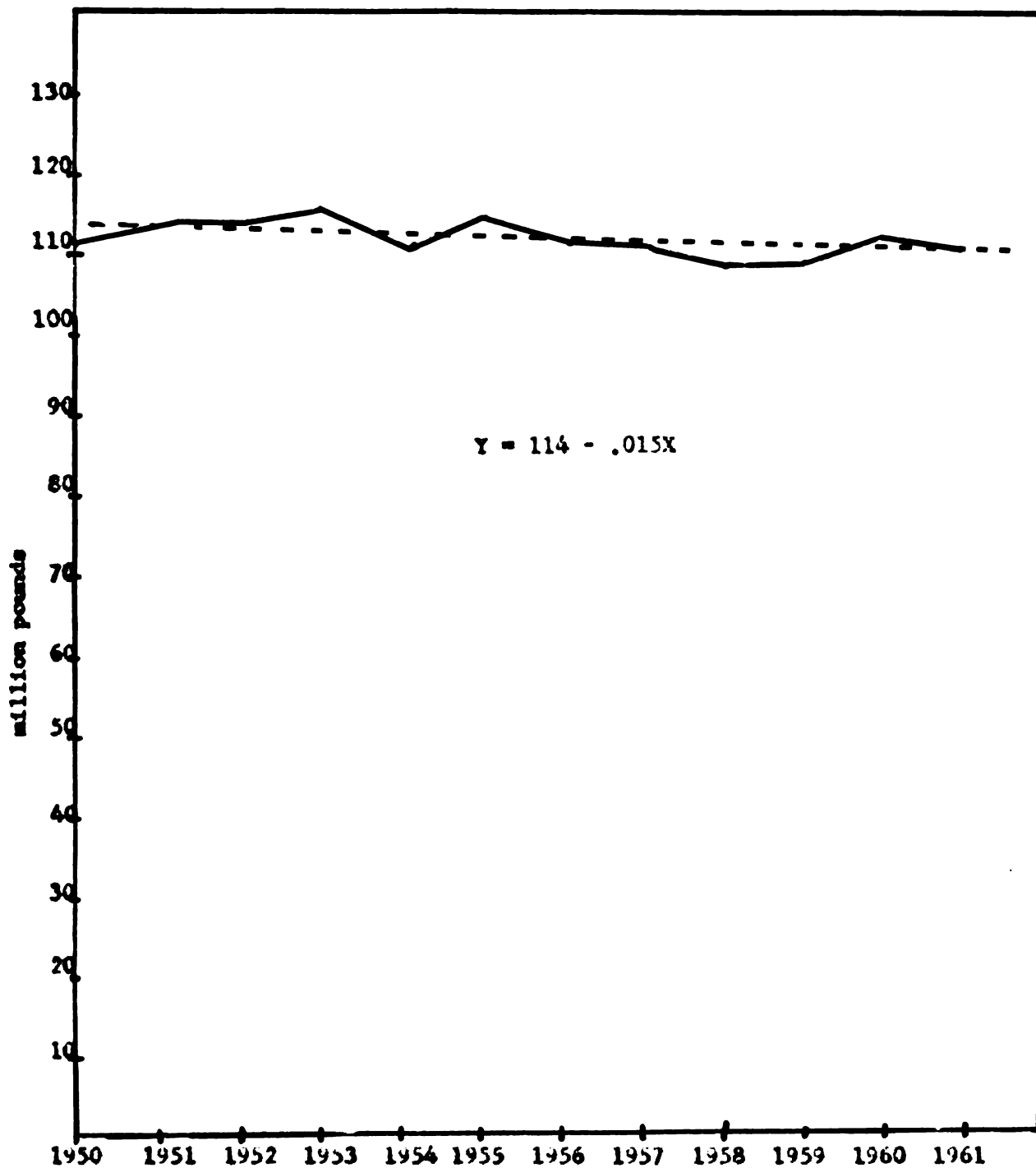
This rather constant level of manufacture is not what it may appear to be at first glance. By dividing the yearly production by the population to derive per capita consumption it becomes clear that per capita consumption is declining (Figure 11). During the 1950-61 period per capita consumption fell 18 percent.

Per capita consumption of commercial fresh baked institutional pies may have declined, but it does not necessarily mean that pie consumption in restaurants and institutions have fallen by the same amount. As the size of restaurants and institutions increase in terms of number of meals served the proportion of commercially prepared pies purchased decreases relative to total pies consumed, (Table 3). This obviously has definite effects on the growth of the

²Market Potentials for Dehydrofrozen and Dehydrocanned Apple Slices, Agriculture Economics Mimeo 801, Department of Agriculture Economics, Cooperative Extension Service, Michigan State University, East Lansing, Michigan, (September, 1960).

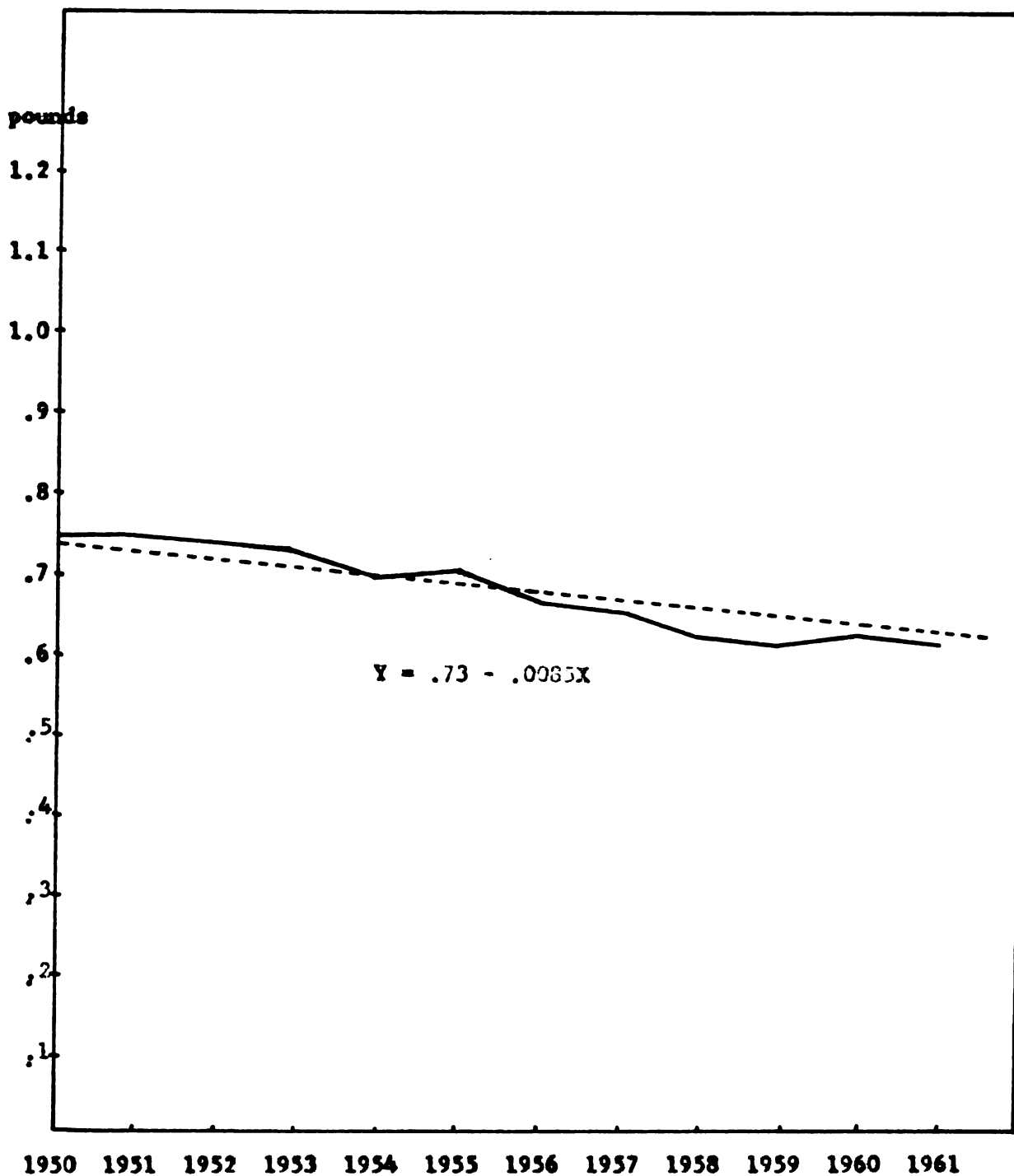
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Figure 10: The estimated pounds of institutional fresh commercial pie consumed during the period 1950-61.



Source: Computed from the annual Industry Production Study of Baking Industry.

Figure 11: The per capita consumption of institutional cherry pie, 1950-61.



Source: Computed by dividing the values in Figure 10 by the population of the United States for each year respectively.

TABLE 3: The average number of cherry pies utilized per week by 132 institutions by size of establishment and source of pies, Detroit, Michigan, 1960.

Size of Establishment (No. of meals served)	Number of Establishments	Made all pies Served		Purchased Baked	Purchased Frozen	Total Cherry Pies Served
		Number of Pies	% of total Pies			
150-875	25	14	13%	55	33	102
900-1500	27	55	36%	70	18	143
1600-2788	25	62	33%	89	22	173
3000-7000	27	299	64%	86	61	446
7500-60,000 +	28	594	76%	90	36	720

Source: W. Smith Grieg, Market Potentials for Dehydrofrozen and Dehydrocanned Apple Slices, Agriculture Economics Mimeo. 801, September, 1960, pp. 10-11.

commercial pie industry. A restaurant serving 900 meals a week may purchase more fresh pies than an establishment serving up to 60,000 meals per week. The trend in average restaurant size appears to be increasing rather than decreasing. Therefore, as the number of meals served by the average establishment increases, the restaurant may bake its own pies rather than buy them. Thus, the market for bakery pies may be reduced even though the total number of pies served may be increasing.

A reduction in the consumption of high calorie dessert may also be responsible for part of the decline in consumption of cherry

pie in fresh institutional form. The sense of weight consciousness which members of our society have developed has an effect on consumption of high calorie food. But the upward trend in meals eaten out may tend to offset this per capita decline in pie consumption by raising the total number of consumers. In 1960 an estimated 20 percent of the meals were eaten away from home, and by 1970 an estimated 30-50 percent of the meals in the United States will be eaten away from home.³ Therefore, although per capita consumption of cherry pie in restaurants may have decreased, the increased number of patrons may have more than offset it in total consumption. Thus, the total amount of fresh pie consumed in restaurants and institutions may not be decreasing at the rate indicated by the sales of pies by commercial bakeries. In fact, it may be increasing.

REGIONAL CONSUMPTION PATTERNS OF INSTITUTIONAL CHERRY PIE

The regional consumption of fresh institutional cherry pie within the United States varies considerably. The consumption of fresh bakery pies is a function of the population within the region, the frequency with which the population eats away from home (which is in part related to income), and a function of the personal preferences of the population within the region. Most of the differences in regional bakery pie consumption can be related to these three variables

³W. Smith Greig, Market Development for Cherries, A mimeographed speech, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan.

For purposes of convenience the same regions used in the Baking Industry reports will be used in this study.⁴ This regional breakdown is different than those generally used, but this is not important. The per capita consumption data used in the discussion were taken from the Census of Manufactures.⁵

Within Area A an average of 16 million pounds of fresh cherry pie were sold per year, 1950-61, by bakeries to restaurants and institutions. The trend was a small but steady decrease in sales over the 1950-61 period. In terms of pounds of cherries this amounted to an annual average marketing of approximately 7 million pounds of cherries. Per capita expenditure throughout the region, with the exception of California, is among the lowest in the nation and between 1954 and 1958 there was a 5 percent decrease in per capita expenditure (Table 4).

The North Central region of the United States makes up most of Area B. This is the heart of the cherry producing area, and the second most populated region in the nation. Pie manufacture in this area has been sporadic over the 1950-61 period, but the trend in production has remained constant. This area rated second in the nation in expenditure per capita with 29 cents being spent for commercially prepared cherry pie. There was a 10 percent decrease in per capita expenditure from 1954 to 1958.

⁴Industry Production Study", Baking Industry, Glissold Publishing Company, (for the years 1950-62).

⁵Bureau of the Census, Census of Manufactures, United States Department of Commerce, Washington, D.C., (1954 and 1958).



TABLE 4: The estimated total pounds of fresh institutional size cherry pie manufactured by region, 1950-61.

YEAR	REGION				
	A	B	C	D	E
	- - - Million Pounds - - -				
1950	17.6	23.7	56.5	8.3	5.3
1951	17.7	23.9	58.0	8.7	5.3
1952	17.8	24.1	57.7	8.9	5.2
1953	17.7	24.0	57.8	9.4	5.3
1954	17.1	22.8	56.7	9.6	5.3
1955	16.7	25.0	61.5	9.6	5.3
1956	16.6	22.6	55.8	9.6	5.3
1957	15.9	22.8	57.5	9.6	5.3
1958	15.6	22.3	55.9	9.5	5.3
1959	15.9	22.4	55.8	9.5	5.3
1960	15.7	23.1	55.9	9.6	5.3
1961	15.8	22.9	56.0	9.6	5.3

Source: Compiled from the annual Survey of Industry Production, Baking Industry, 1950-62.

Area C has the largest total consumption and the largest per capita expenditure in the nation of institutional cherry pie. The 1950-61 average annual consumption of commercial cherry pie was 52.3 million pounds which amounted to a marketing of 23.7 million pounds of cherries. However, the trend in consumption has a slight downward slope. An average of 47 cents per capita was spent in the region for cherry pie, with Massachusetts having the highest per capita expenditure in the nation with 68 cents per capita spent on fresh commercially prepared cherry pie.

Areas D and E can be discussed simultaneously. Total consumption in both areas has remained constant throughout the period, but they have the lowest consumption in the nation. The total consumption averaged

9.5 and 4 million pounds of institutional cherry pie, respectively. The average per capita expenditure is only about 15 cents, and it is the lowest in the nation. The range in expenditure is from 36 cents per capita in Kentucky to 9 cents in Oklahoma.

These regional differences in bakery sales of fresh institutional cherry pies further supplement the findings of the preceding chapter on home cherry pie baking. First, both total pie consumption and per capita pie consumption is higher in the Northeastern and North Central regions of the United States, and they are significantly lower in the South and West. Second, cherry consumption, both total and per capita, is higher in the Northeast and North Central regions and lower in the West and South.

These data also indicate that consumption of institutional-sized bakery pies is highest in regions having areas which are largely urban and much lower in the predominately rural areas. Regardless of their location in the nation states with large urban populations have higher per capita consumption than more highly rural states.

Discussion of the other relevant characteristics in the industry and of policy questions will be withheld until the retail fresh pies have been discussed. The characteristics and policy questions for both will be similar.

FRESH RETAIL PIES

The data on fresh commercially prepared retail pies are a bit paradoxical when compared to data on institutional pies. For

institutional sized pies only total production data could be obtained, but for retail pies the only data available are on variables affecting consumption and very little on total production. This will prove valuable later in the chapter when both types of pies are discussed together as there is a certain amount of overlap between the two sets of data.

The principal problem in tabulating data on the production of fresh retail cherry pies arises from the large number of small single shop bakeries which are located throughout the country. Their large number and relatively small output makes everyone reluctant to take the time and bear the expense required to gather the data on their production.

Data on the larger parts of the retail market can be obtained from the Census of Manufactures. These data are limited to the years 1954 and 1958, and therefore it is difficult to make comments about the total manufacture of retail cherry pie. Some very elementary indications about the trend in production can be made. The Census measures the production from three retail fields, retail multi-outlet bakeries, home service bakeries, and sales by grocery chains (Table 5).

Retail multi-outlet bakeries are as the name implies a bakery chain where one central bakery may have several retail shops located in the surrounding area. Estimated total cherry pie sales were down nearly 20 percent from 1954 to 1958. The total pounds of cherry pie fell from an estimated 5.6 million pounds to 4.6 million pounds.

TABLE 5: Estimated pounds and value of retail cherry pie sold by multi-outlet, home service, and grocery chain bakeries in 1954 and 1958.

	1958		1954	
	Pounds (000)	Value (000)	Pounds (000)	Value (000)
Multi-outlet	4,617	\$1,908	5,621	\$1,335
Home service	4,141	1,627	4,260	1,518
Grocery chain	11,274	2,999	5,782	1,661

Source: Computed from the Census of Manufactures, United States Department of Commerce.

Sales by home service bakeries during the period 1954-1958 have surprisingly remained fairly constant with 4.2 million pounds of cherry pie being sold in 1954 and 4.1 million pounds in 1958. Home service bakeries employ the door to door selling method. It would seem likely that the growth of urban shopping centers and improved transportation facilities would result in declines in this method of selling.

Sales in grocery and supermarket chains have increased substantially during the 1954-58 period. Production over the four years increased from 5.8 million pounds of cherry pie to nearly double that amount, 11.3 million pounds. A substantial rate of increase has probably carried over since that period. Much of this increase in pie sales has been due to the development of private brands of bakery products by the large national supermarket chains. These

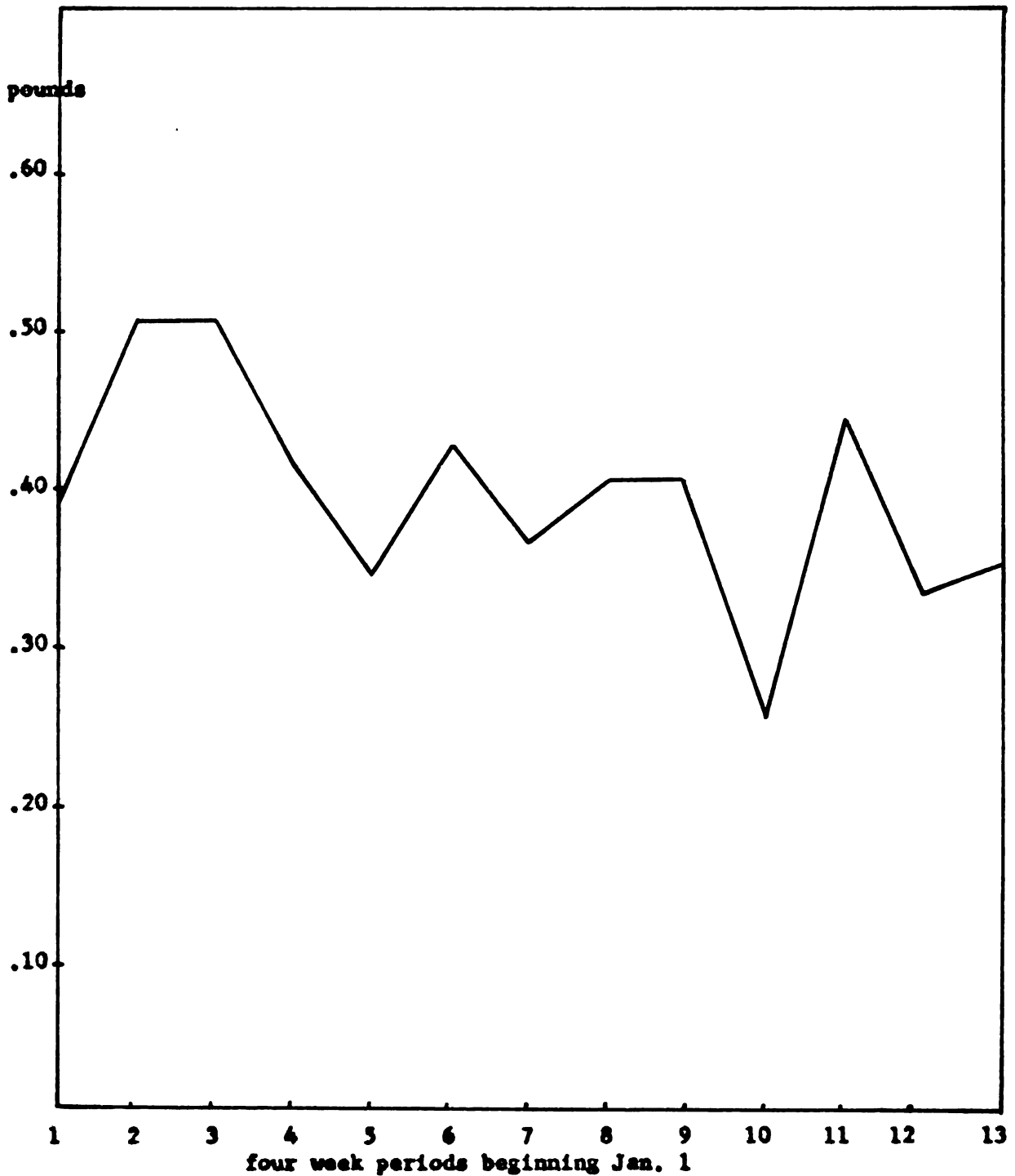
bakery products are then given large display areas within the supermarket which greatly aids in their sale. It is likely, however, that much of the increased sales in this area have taken place at the expense of other retail bakery outlets.

While no reliable data are available for single shop retail bakeries it is likely that their sales have been declining. The competition is becoming more intense as one-stop shopping becomes more common. The rate of decline cannot be determined because of a lack of reliable data.

SEASONAL CONSUMPTION PATTERN FOR FRESH RETAIL CHERRY PIE

Per capita consumption of fresh retail cherry pie has a definite seasonal pattern as measured by the MSU Consumer Panel. This pattern is applicable to most of the primary consumption areas of the North Central and Northeastern regions of the United States, but only to the extent that the Consumer Panel is representative. The peak in consumption is reached in February at a time when cherries get special promotion because they are symbolic of Washington's Birthday (Figure 12). The low is reached in September when fresh apples are just beginning to come into season and the consumer's thoughts turn to apple pie. The drop in consumption late in the year is due to competition from the seasonal favorites at that time, mince and pumpkin pies. There is a slight increase in consumption when the new crop of cherries becomes ripe in July, but not as much as might be anticipated. This is due partly to the limited availability of

Figure 12: The seasonal per capita consumption pattern for commercially prepared cherry pie for MSU Consumer Panel households, 1955-58 average.



Source: Computed from data of the MSU Consumer Panel.

fresh cherries and a limited willingness of the homemaker to use them. This may also be partly due to the seasonality of total pie consumption. Pie consumption appears to be higher in the fall and winter than the spring and summer.

The influence prices have on seasonal consumption cannot be determined with certainty, but it would appear that it has little effect. Figure 13 depicts the seasonal price pattern for cherry pie. It will be noted that the times of lowest consumption are also times of lowest price and times of highest consumption are times of highest price. This does not follow economic logic in consumption, but it may be due to other factors which have not been mentioned.

SOCIAL AND ECONOMIC FACTORS AFFECTING PIE CONSUMPTION

Consumption of commercially prepared retail pies appears to be associated with income, size of family, age of the homemaker, and the employment status of the homemaker. These conclusions are reached by observations from the MSU Consumer Panel during the 1953-57 period.⁶ These data have the same limitations as noted earlier with the Consumer Panel data.

Per capita consumption increased from lower to middle income levels. Beyond the middle income level further increases in income did not cause any significant increase in consumption. As incomes

⁶B. C. French, "Some Economic Aspects of Pie Consumption," Quarterly Bulletin, Volume 41, No. 3, Michigan Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, February, 1959, p. 498-502.

increased there appeared to be a tendency to substitute a certain amount of commercially prepared pies for home baked pies. By the time the family has reached the middle income strata their income is sufficient to buy all the commercial pie they desire so further increases in income have little effect on consumption.

Per capita consumption also increases as the age of the homemaker increases and when the homemaker is employed outside the home. It is rather surprising that homemakers under 40 would buy fewer pies than those who were older. Rising commercial pie consumption with rising homemaker age is most prevalent in the lower and middle income group. Per capita consumption in households where the homemaker is employed is nearly twice the level in households where the homemaker is not employed.

Per capita pie consumption tends to decrease with increases in family size, but total household consumption remains fairly constant. It would appear that family size does not affect the total number of pies purchased, but the increased size of the household would make each member's share less, thus decreasing per capita consumption.

Per capita consumption of commercial pie should increase in the future according to the above findings. Within the United States the trends appear to be for average household income to be increasing, for the average family size to be decreasing, and for the number of women employed to be increasing. All these factors lead to increased

per capita consumption of commercial pie. Even during the six year period studied by the Consumer Panel, per capita consumption of commercial pies increased. The trend toward the consumption of fewer calories may, however, over-ride this result.

PRICE AS IT AFFECTS PIE CONSUMPTION

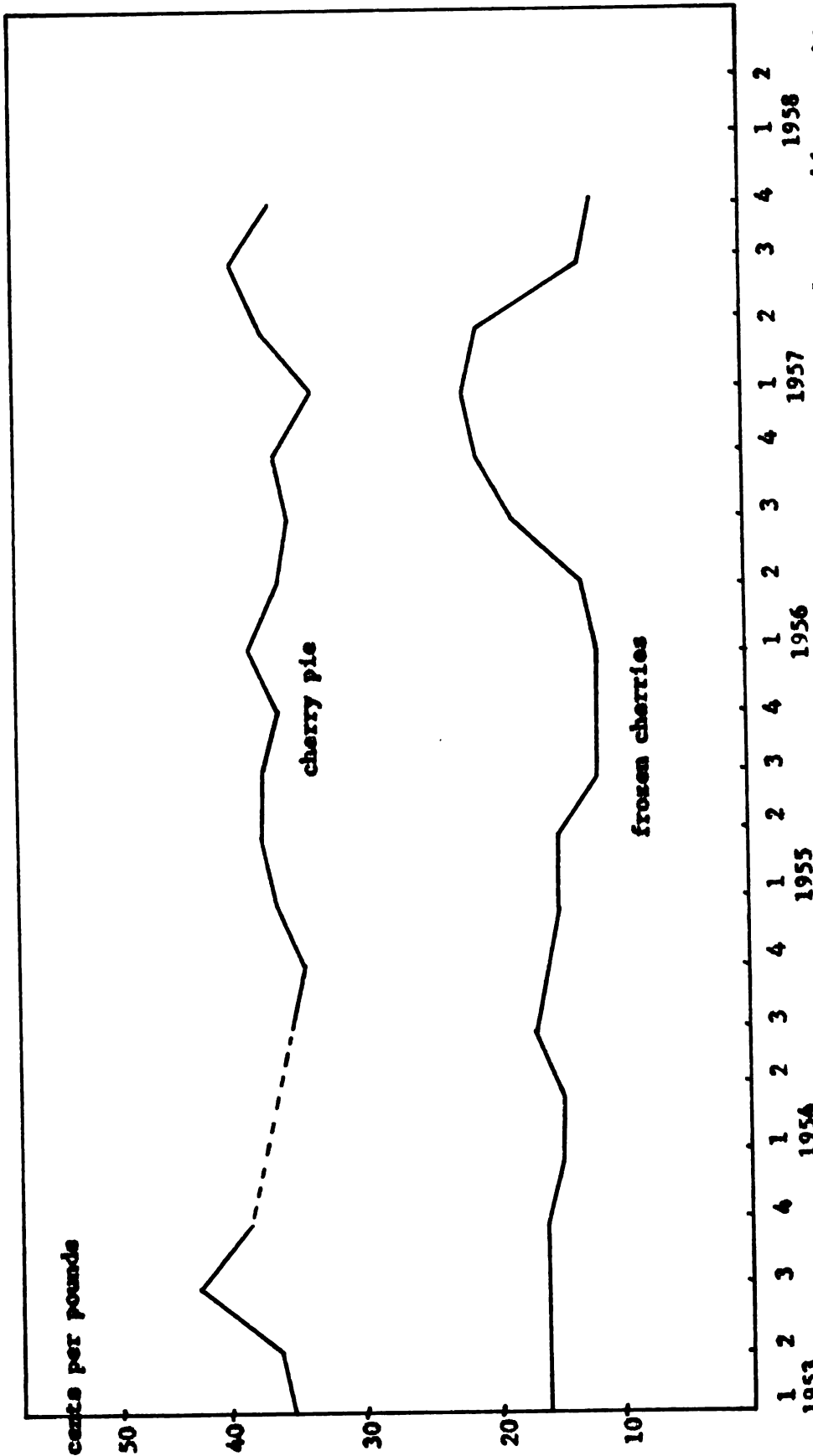
Price is a very important factor in fresh pie consumption. If the price of a given pie rises relative to other pies this can cause a substantial decrease in consumption of that pie as consumers will buy more substitute pies. The demand for any given pie is elastic because of the large number of substitutes.⁷ For all pies it may be elastic also. Therefore, even small changes in price may give large changes in the volume sold.

The effect of prices on the consumption of fresh commercial cherry pie will be discussed from three points of view. The effect of a change in the price of processed cherries on the price of cherry pie will be considered. Also the affect which a change in the price of cherry pie has on cherry pie consumption must be considered. Last, the pricing policies of commercial bakeries will be discussed to some extent.

The price of retail cherry pie reflects some changes in the price of frozen cherries at the processor level. In Figure 13 are plotted the price per pound for commercially prepared cherry pies

⁷Where price elasticity of demand refers to the percentage change in quantity of a commodity divided by a one percent change in its price.

Figure 13: A comparison of the average price per pound for retail commercially prepared pies and for institutional pack frozen cherries by quarter, 1953-57.



Source: Pie prices obtained from the MSU Consumer Panel data, and the cherry prices from monthly reports of Quick Frozen Foods.

purchased by the Consumer Panel and the price per pound for institutional packed frozen cherries. There appears to be a negative correlation between the two. An increase in the price of cherries at the processor level occurred at times when the price of retail cherry pies decreased.

Based upon interviews of fresh pie bakeries, there appears to be two primary reasons which explain this unusual correlation. First, there was evidence to suggest that at least the full benefits of downward shifts in cherry prices were not being passed down to the bakeries by the brokers and selling agencies. This may also be true for upward shifts, but it is less likely. This policy of sellers not passing down all the price changes from the processor would tend to dampen the fluctuations in cherry prices. Second, there appears to be a sufficient profit margin on cherry pie that the bakeries can operate independently of cherry prices at least in the short run. Therefore, yearly cherry price variations are not extremely important to the bakery operators.

Within the Consumer Panel it was found that consumers are very price conscious. Interviews with bakery operators tended to support this. Cherry pie sells on the average for about one cent per pound less than the average price for some other favorite commercial pies. This gives it a slight competitive advantage to begin with. French's statistical analysis of the price of all fruit pies indicates that a one cent change in the price paid will cause an inverse change of

.076 pounds of pie purchased per household.⁸ It is likely that a similar price - purchase relationship is true for cherry pie.

Commercial bakeries use a composite pricing system in which the price of all pies to the buyer are similar although the cost of manufacture of different flavor pies varies. Low profits or even negative profits from one type of pie are covered by high profits from another type of pie. The prices are adjusted in a manner which will make the average profits sufficient to operate the business. Therefore, under this system some types of pies could be sold at a lower price and still return a satisfactory profit. Cherry pie is one of these.

Other parts of the pricing policies obtained by interviewing bakers do not agree with the findings in Figure 13. The bakery operators indicated that if the price fell they might run cherry pies as a "special" at a lower price to draw customers. Generally, however, they would not change price, but would average their profits over time as the price of cherries fluctuated up and down. Figure 13 shows that neither of these are actually followed by the majority of pie bakers, or that in the aggregate these tendencies are eliminated.

Other methods of reacting to changes in the price of cherries which were discussed were changing the pie formula by using fewer cherries, or changing the output of cherry pie. None of the pie bakers indicated that they would change their formula. Because they face a

⁸Ibid, p. 496.

rather constant demand for institutional cherry pie they also indicated that they could not change their output to react to changes in the price of cherries. How bakeries really react remains somewhat of a mystery.

It is the author's conclusion that both price and output are the mechanisms used when bakeries react to changing cherry prices. They are interrelated reactions. If the price of cherries increases and bakeries increase the price of their cherry pie it will tend to reduce the amount of cherry pie they will sell whether the bakery plans to decrease its manufacture of cherry pie or not. Therefore, the price and output would be interrelated.

THE MARKETING OUTLOOK FOR COMMERCIAL FRESH PIES

The institutional fresh cherry pie market will most likely remain about the same over the next few years. Restaurants and institutions are faced either with the prospect of baking their own pies or purchasing them. Unless it is a fairly large establishment which serves a large number of pies each day the per unit cost of baking pies may be greater than the cost of buying them. As long as the average income of the population remains high it is unlikely that the demand for restaurant meals will decline, and subsequently, the demand for institutional pies will not decline.

The market outlook for fresh retail pies is not nearly as good as that of institutional fresh pie. Retail frozen pies are providing stiff competition in both price and quality. The effect of price on pie marketing has already been discussed. Fresh pies purchased from

retail bakeries in the Lansing area sold on the average for approximately 65 cents for an eight inch cherry pie while a retail frozen pie of the same size had an average cost of only 39 cents in the spring of 1963. Fresh cherry pies sold by supermarkets under their brand name have tended to decrease their average price to compete with the frozen pies they carry. How long retail bakeries can continue under this type of competition is a matter of speculation.

Fresh retail pies, especially supermarket brands, face tough quality competition also. Bakers themselves admit that, while the storage life of a fresh pie is about three days, pies lose half their flavor in just a matter of hours after they are baked. Most pies sold by supermarkets are a day old when they are sold, and probably two days old when they are consumed. It is therefore doubtful that they can compete in flavor to fresh home baked or frozen pie.

SUMMARY

Fresh commercial pies are a very important method of marketing red tart cherries. The principle type of cherries which are used by this market are institutional pack frozen cherries. This is because they give a higher quality product. Institutional sized pies are the largest selling fresh pies with an excess of 100 million pounds of cherry pie being sold annually representing 46 million pounds of raw fruit. The retail size fresh pie does not have as large a market, and this market appears to be declining.

The Northeastern and the North Central regions of the nation

have the highest total and the highest per capita consumption of fresh cherry pie. This is true of both retail and institutional sizes.

Price is the most important factor which influences consumption, as price decreases consumption increases. Other socio-economic factors which increase fresh pie consumption are rising income, rising age of the homemaker, and a rising number of homemakers employed outside the home.

There appears to be a negative correlation between the current price of cherries and the current price of fresh cherry pie. This makes the methods pie bakers use to adjust to a change in cherry prices uncertain. But it seems likely that changes in price and output are still the primary methods.

CHAPTER VI

MARKETING OF CHERRIES THROUGH FROZEN COMMERCIAL PIES

INTRODUCTION

Frozen commercial cherry pie is manufactured almost entirely from frozen institutional pack cherries. Most frozen cherry pie is sold through the retail market. Some institutional frozen pies are being produced for the restaurant trade, but as yet this trade is only a minor part of the total. Today's standard retail sized pie is eight inches in diameter and has a net weight of 22 ounces. There are miscellaneous sized pies being produced which range in weight from 10-1/2 to 24 ounces, but even as a group they are not very important.

The total retail market absorbed an estimated 56.9 million pounds of frozen cherry pie in 1961, which is equivalent to an estimated 22.4 million pounds of frozen tart cherries.¹ Institutional frozen cherry pie in 1961, which was equivalent to an estimated 4.6 million pounds of tart cherries, totaled an estimated 10.1 million pounds.²

¹Computed from the "1962 Frozen Foods" Almanac published by Quick Frozen Foods assuming 25 percent of all frozen pies are cherry pies and assuming a standard of 6.5 pounds of cherries per dozen 22 oz. pies.

²Computed from the "1962 Frozen Foods Almanac" published by Quick Frozen Foods assuming 25 percent of all institutional pies were cherry pies and that 1.15 pounds of cherries were used per 42 ounce pie.

Since 1954, when frozen pies were first manufactured in quantity, the principal size of the manufactured pie has changed twice. The first size was a 10.5 ounce pie which would serve one or two persons. In 1956 the size was changed to an eight inch, 24 ounce pie which was large enough to serve a family of six. The diameter of the pie has remained constant, but the weight was reduced around 1958 to 22 ounces. In this study only the 22 ounce pie will be discussed since it now comprises the bulk of the frozen pies manufactured for which some data are available.

Considerable quantities of good data are available on the marketing of frozen pie on a national, regional, and state basis. This may be due in part to a willingness of the industry to make these data available. Little information, however, is available on the factors which affect the marketing of frozen cherry pies. Most of the studies which have been referred to previously were completed before frozen cherry pies became very important in household expenditures. Therefore, they are of little value in the study of this product.

THE TREND IN RETAIL FROZEN CHERRY PIE PRODUCTION

Frozen cherry pie is becoming a very popular item in our diet. During the seven years since 1955, when frozen cherry pies were first reported, production has increased 4.5 times from an estimated 12.1 million pounds to 56.9 million pounds in 1961.³ The total production

³Computed from the annual Frozen Foods Almanac published by Quick Frozen Foods.

of retail frozen pies has been rising at a steady and rapid rate as seen in Figure 14. Evidence from recent reports on 22 ounce pies since 1958 indicates that the production may be leveling off slightly (Figure 15), although it still continues to increase at a substantial rate.

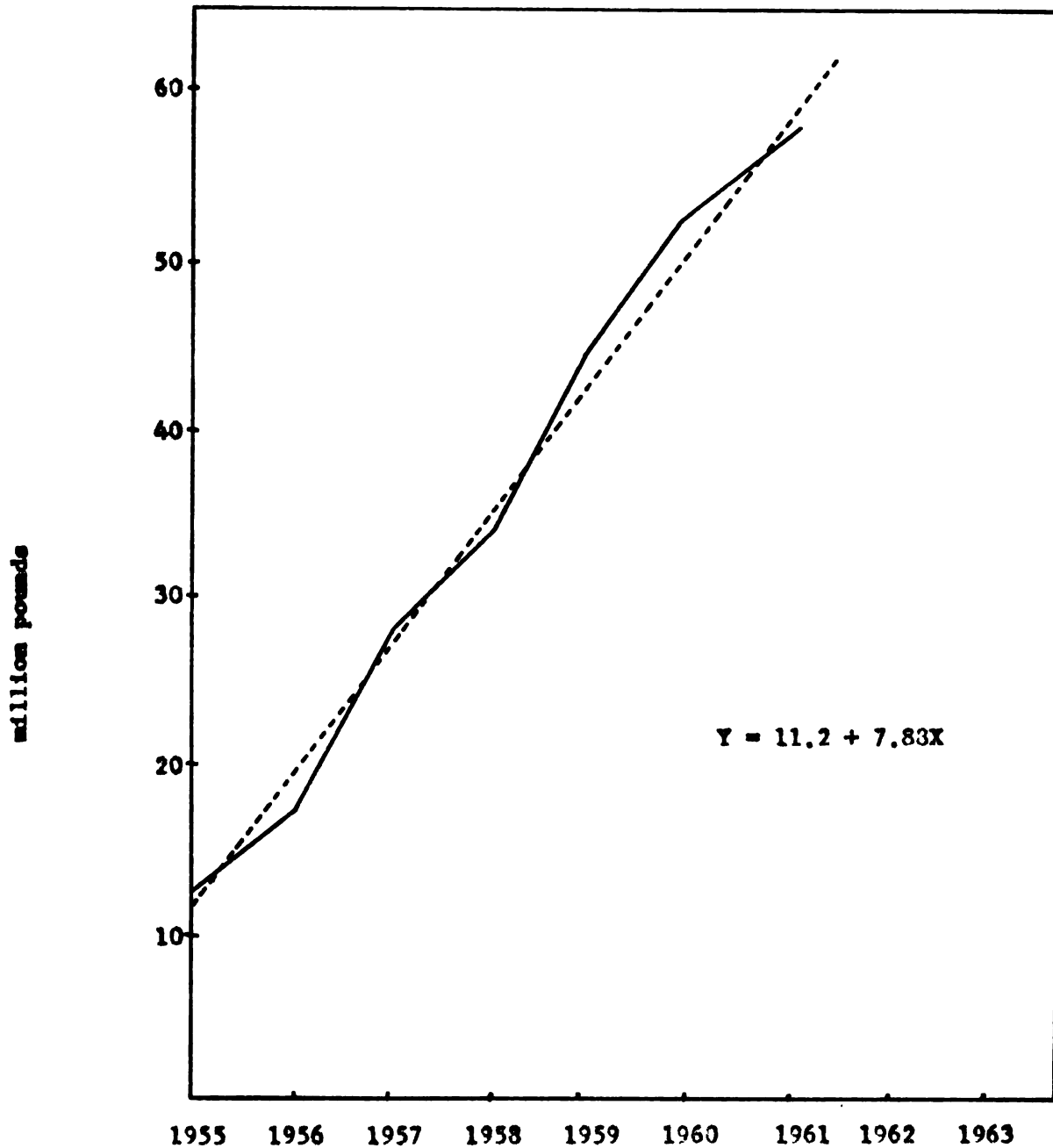
It was noted earlier in the study that much of the rise in demand which certain cherry products are enjoying has come from a substitution between cherry products. This substitution between cherry products should not be confused with an increase in the total demand for cherries. While there has undoubtedly been a certain amount of new demand created by frozen cherry pie, most of the increased consumption of frozen pie has come from substituting it for home baked pies and commercial fresh pies.

It is likely that the demand for frozen cherry pie will remain at a high level during the near future because it incorporates many of the good features of both home baked pies and commercially prepared pies. Frozen pie combines the convenience of commercial fresh pie with the freshness of home baked pie. In addition, several pies can be easily stored in the freezer for future use. These factors combine to make frozen cherry pie a superior product in many respects to both fresh commercial pie and home baked pie. They should combine to give frozen pies a continued popularity.

Among frozen food distributors frozen fruit pies are considered to be one of the top selling frozen food products for the near future.⁴

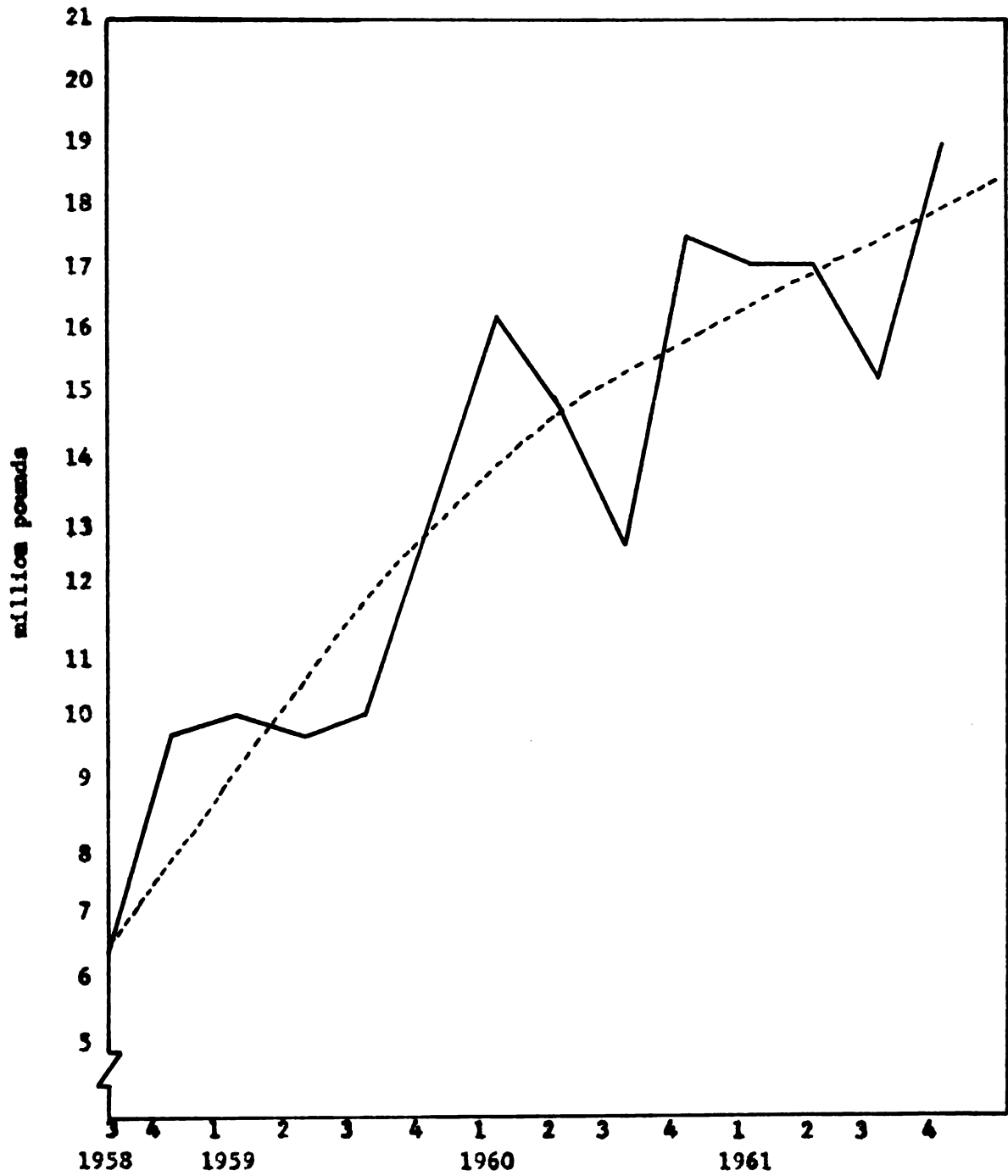
⁴Fruit Pies, French Fries, and Dinners Lead as Potential Top Sellers in 1962", Quick Frozen Foods, February, 1962, p. 156.

Figure 14: The estimated pounds of frozen retail cherry pie consumed annually during the period 1955-61.



Source: Compiled and computed from "Frozen Foods Almanac", Quick Frozen Foods, 1955-61.

Figure 15: The estimated quarterly consumption of retail frozen cherry pie, 1958-61.



Source: Courtesy of Petritz Division of the Pet Milk Company.

This appeared to be particularly true in the South and West where 33 percent of the frozen food distributors picked fruit pies as their top sellers. This was in comparison to 20 percent of the distributors in the rest of the nation. While this was noted for all fruit pies it should be true to a large extent for cherry pie because of the large percentage of fruit pies which are cherry and the usually favorable price position of frozen cherry pies. An increase in the consumption of frozen cherry pie in the South should be of particular interest to the cherry industry. This could be the beginning of a strong entry into a market which previously has not reached its potential in cherry consumption. It could open this market to greater sales of other cherry products.

REGIONAL CONSUMPTION PATTERN

The Northeastern and East North Central regions of the United States lead in both total and per capita consumption of frozen cherry pie. With the exception of the Pacific Coast, per capita consumption is nearly double that of any other region (Table 6). Residents in the Pacific states are particularly strong in consumption of frozen cherry pie relative to other cherry products. The South and West are low in per capita consumption as was true for other cherry products. The reference table in Appendix A will show that per capita consumption is highest in the states, as well as the regions, with large urban populations. This is similar to the findings in the last chapter on fresh commercial cherry pie and indicates a tendency for urban homemakers to buy more frozen pies than rural homemakers.

TABLE 6: The estimated consumption of retail frozen cherry pie by region for 1961.

<u>Region</u>	Total Sales (000)	Sales Per Capita (Cents)	Total Pounds (000)	Pounds per Capita	Estimated Pounds of Cherries
New England	1,235	12	3,155	.30	1,243
Middle Atlantic	4,618	14	11,799	.35	4,649
East North Central	3,956	11	10,109	.28	3,983
West North Central	956	6	3,443	.16	963
South Atlantic	1,283	5	3,278	.13	1,292
East South Central	258	2	659	.06	260
West South Central	943	6	2,410	.14	950
Mountain	340	5	868	.13	342
Pacific	2,429	12	6,205	.30	2,444
Grand Total	16,019	9	40,928	.23	16,124

Source: Computed⁶ from the 1963 Marketing Guide published by Quick Frozen Foods.

⁶Computed by multiplying the sales of each region by 25 percent to get cherry pie sales. Divide this figure by .39 (average price for pie) and multiply by 1.375 (to convert from number of pies to pounds of pie) to determine pounds of cherries. Divide both figures by population to determine per capita consumption. Pounds of cherries determined by multiplying pounds of pie by .394.

The states with high per capita frozen pie consumption also tend to be states with above average per capita incomes. The level of income

reflects the ability of the household to buy frozen cherry pies, but it also reflects the ability of the household to buy a freezer or the more expensive refrigerator-freezer necessary to store large quantities of frozen foods. Both of these influence the amount of frozen foods, including cherry pie, a household will buy. The inability to buy a freezer could explain part of the low consumption in the South and parts of the West where average income is very low.

It is interesting to note that Kentucky which had a relatively high level of per capita fresh pie consumption was among the lowest in per capita frozen pie consumption. This could indicate a regional preference in the type of pie consumed besides the other factors affecting consumption. There are states with lower per capita average income and less urbanization which have a higher per capita consumption of frozen cherry pie. In light of the relatively large per capita consumption of fresh cherry pie one possible hypothesis is that in this region fresh pies are preferred to frozen pies. This may be also true of other regions.

SEASONAL CONSUMPTION PATTERN

The consumption of frozen cherry pie has a very definite seasonal pattern. This pattern is similar to that found for fresh pies and discussed in the last chapter. The seasonal high for frozen cherry pie occurs in the April - June quarter of the year. The low is in the following July - September quarter (Table 7). For comparative purposes some of the other popular fruit pies have been added to the table.

TABLE 7: Seasonal index of families serving selected flavors of frozen pie-1959.

(Annual Average = 100)

Flavor	QUARTERS			
	Jan. Mar.	Apr. June	July Sept.	Oct. Dec.
Cherry	116	123	77	84
Apple	97	78	113	111
Peach	97	78	154	71
Blueberry	88	115	120	78
Mince	131	46	20	200
Strawberry	78	150	94	83

Source: Courtesy of the Petritz Division of the Pet Milk Company.

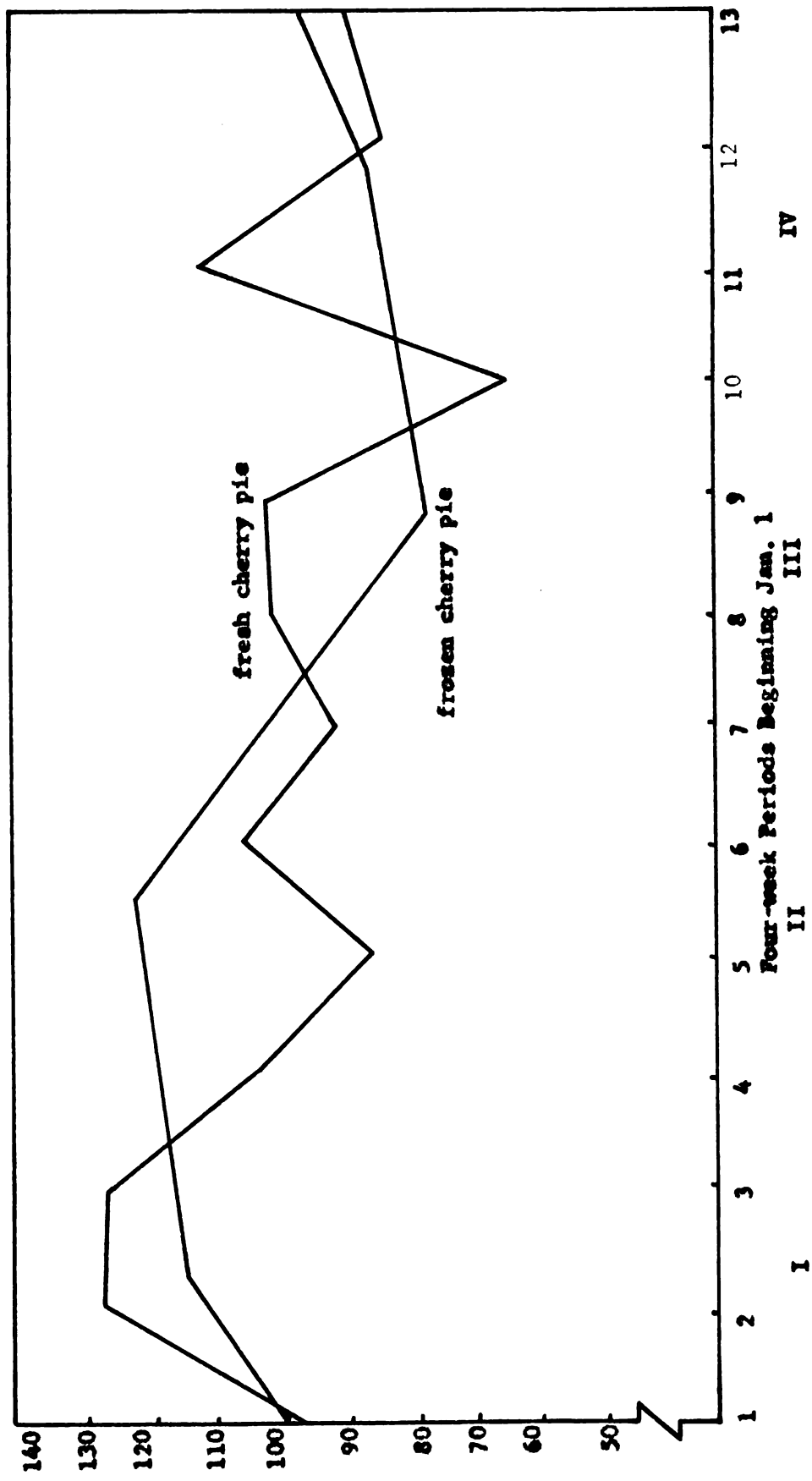
The high point of the seasonal consumption pattern of the other fruit pies in Table 7 occurs when the fruit is being harvested. This is not true with cherry pie. The majority of tart cherries are harvested in the month of July during the lowest part of the seasonal consumption cycle. This is very interesting from the standpoint of cherry marketing. The major reason for this can be explained by the large percentage of tart cherries which go to the processors. Approximately 95 percent of the tart cherries are sold to processors while a much smaller percentage of most other common fruits are marketed in this manner. Therefore, a large majority of the consumers do not realize when the cherries are being harvested. Nor do they particularly care, since it does not alter the form in which they buy cherries anyway.

A close correlation exists between the seasonal consumption patterns of fresh cherry pie and frozen cherry pie. In Figure 16 the seasonal index of consumption of fresh cherry pie has been computed from the MSU Consumer Panel, and this index has been superimposed upon the frozen pie seasonal index from Table 7. In both cases cherry pie appears to be a product which is consumed in the winter and spring rather than the summer and fall. This was also true for canned cherries and commercial pie filling which are used extensively in home baked pies. Thus, the consumption of all cherry pie must be associated with the winter months.

THE EFFECTS OF PRICE CHANGES ON PIE CONSUMPTION

Pie manufacturers can react in many ways to a change in the price of frozen tart cherries. Three principal ways would be to change the price of cherry pie, change the output of cherry pie, or change the number of cherries within a pie. In a questionnaire sent to frozen pie bakers around the nation these three possibilities were presented. Their reports indicated that the primary reaction to an increase in the price of frozen cherries is to decrease the output of cherry pie relative to total pies. Frozen pie manufacturers use an average margin system in pricing their pies similar to that used by fresh pie bakers and other multi-product merchandisers. By reducing the number of cherry pies the manufacturer will decrease the size of the loss in normal profits because fewer of these low margin pies will be produced and sold. Less than a 5 percent change

Figure 16: The seasonal index of families serving fresh and frozen commercial cherry pie.
 (Annual average = 100)



Sources: Fresh pie from MSU Consumer Panel; frozen pie courtesy of Petrits Division of Pet Milk Co.

in the price of cherries is sufficient in most cases to change the output of cherry pies.

A second method of reacting to a change in the price of frozen cherries is to raise the price of cherry pie. This was the second most popular method among manufacturers. The majority of the manufacturers, however, were reluctant to change the price of their pie, or at least to change it upward. Homemakers are extremely price conscious with respect to frozen pies. In a consumer survey it was found that 64 percent of the homemakers are highly perceptive of price changes in fruit pies.⁵ This makes pie manufacturers reluctant to change their prices upward relative to the price of their competitors' pies.

The above two methods of reacting to an increase in the price of tart cherries cannot in reality be discussed independently because according to economic theory one implies the other. If you change the output of cherry pie, there will also be change in the price. The amount of this change will be dependent upon the elasticity of demand. Conversely, if you change the price there is automatically a change in output. Because the demand for frozen cherry pie is relatively elastic the change in output becomes the primary reaction to a change in tart cherries prices because a large change in output can be made with only a small change in price. Conversely, a small change in price will cause large changes in the quantity sold. Several pie manufacturers

⁵"Consumer Attitudes Towards Frozen Foods", Quick Frozen Foods, October, 1960, p. 90.

stated in their remarks that the low price of cherries, consequently lower manufacturing costs, during the last two years have been instrumental in the expansion of cherry pie output within the frozen pie industry.

The last method, one used by only two of the manufacturers responding, was to change the formula of the pie by reducing the amount of fruit used in the pie when the price of cherries increased. Respondent manufacturers using this method used it exclusively rather than in combination with one of the other two methods.

The average price for frozen cherry pie at the retail level has been close to 39 cents throughout the nation the last two years. This is considerably lower than the price of commercial fresh pie. This price difference has been very important in the growth of the frozen pie industry.

Within the frozen pie industry price differences exist between the different brands of frozen pie, but price does not appear to be used as a method of competition. The price differences for the most part are small, and they exist mainly because of quality differences. A known, high quality frozen cherry pie may sell for slightly more than another brand of pie having slightly lesser quality, but neither attempts to exploit their advantage with cut-throat price competition. This lack of price competition may, however, be due to previous keen competition which has forced prices down to the point where further reduction in the margin could not be undertaken without all parties suffering serious losses. Therefore, the present price is such that

further price competition is very difficult.

Between regions, however, there are significant differences in the price of frozen cherry pie. The average price of cherry pie is lowest in the Great Lakes area and it becomes higher as the manufacture radiates outward from this center. The difference between the lowest price at St. Louis and the highest price at San Francisco was four cents per pie. Converting the monthly prices of frozen cherries into an average price index for the years 1959-61 gives a price structure which is easier to compare (Table 8). The difference in price is probably due to the cost of transporting cherries from the Great Lakes centers to the area in question. Exceptions to this cost scheme are Seattle and Philadelphia because of the Washington and Eastern tart cherry producing regions which supplement the Great Lakes production.

The cost of the cherries used in frozen cherry pie makes up the largest single cost of manufacturing, about 30 percent of the total cost. Yet the price of frozen cherry pie over time does not reflect changes in the wholesale price of frozen institutional pack cherries. The wholesale price of frozen cherries and the average price per pound of frozen cherry pie has been plotted on Figure 12, and little correlation exists between the two prices. This may be due to a change in the output of cherry pie, a change in the amount of cherries per pie, improved technology, and a number of other factors which have reduced cherry pie prices. Regardless of increases in raw product prices in the short run, at least, there appears to be little correlation between

TABLE 8: Average index of retail prices paid by consumers for frozen cherry pie in representative cities across the nation, 1959-1961.¹

City	Index
Miami, Florida	97.2
St. Louis, Missouri	86.9
Seattle, Washington	90.3
Philadelphia, Pennsylvania	90.6
San Francisco, California	100.0
Houston, Texas	88.1

Source: Compiled and computed from monthly reports of Quick Frozen Foods.

¹The highest priced market, San Francisco, is the base.

price of cherries and the price of cherry pie. This cannot be said for the long run, a further change in cherry prices upward could bring an upward change in the price of cherry pie.

The actual reaction of frozen cherry pie prices to changes in the price of cherries in Figure 17 appears to contradict the responses some manufacturers gave on the questionnaire. This is not necessarily the case, because it should be remembered that the price of cherry pie used in Figure 17 is an average price based on all manufactures in regions covering the nation. Therefore, it would be possible for some manufactures to change price without affecting the average price to any great extent.

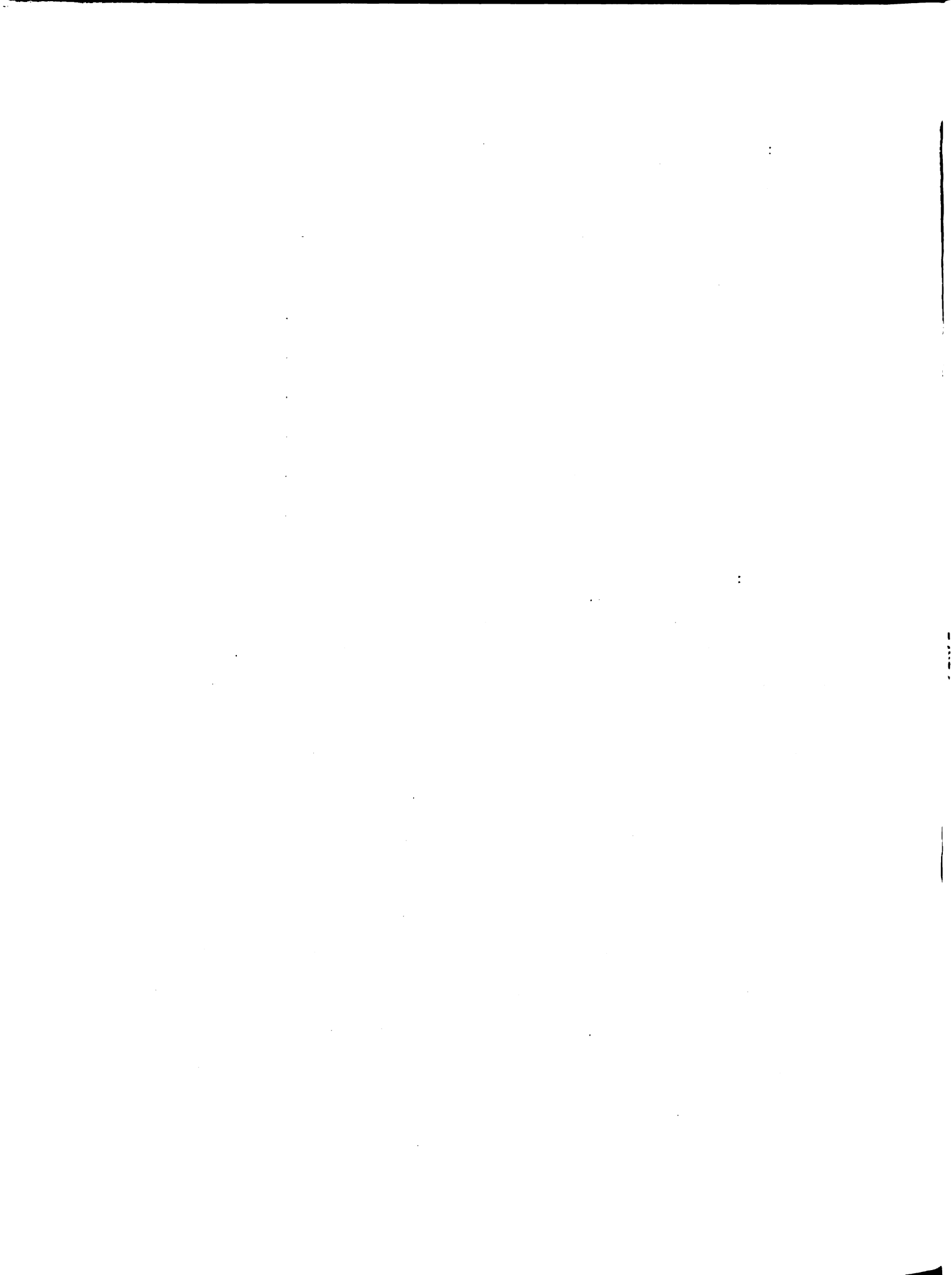
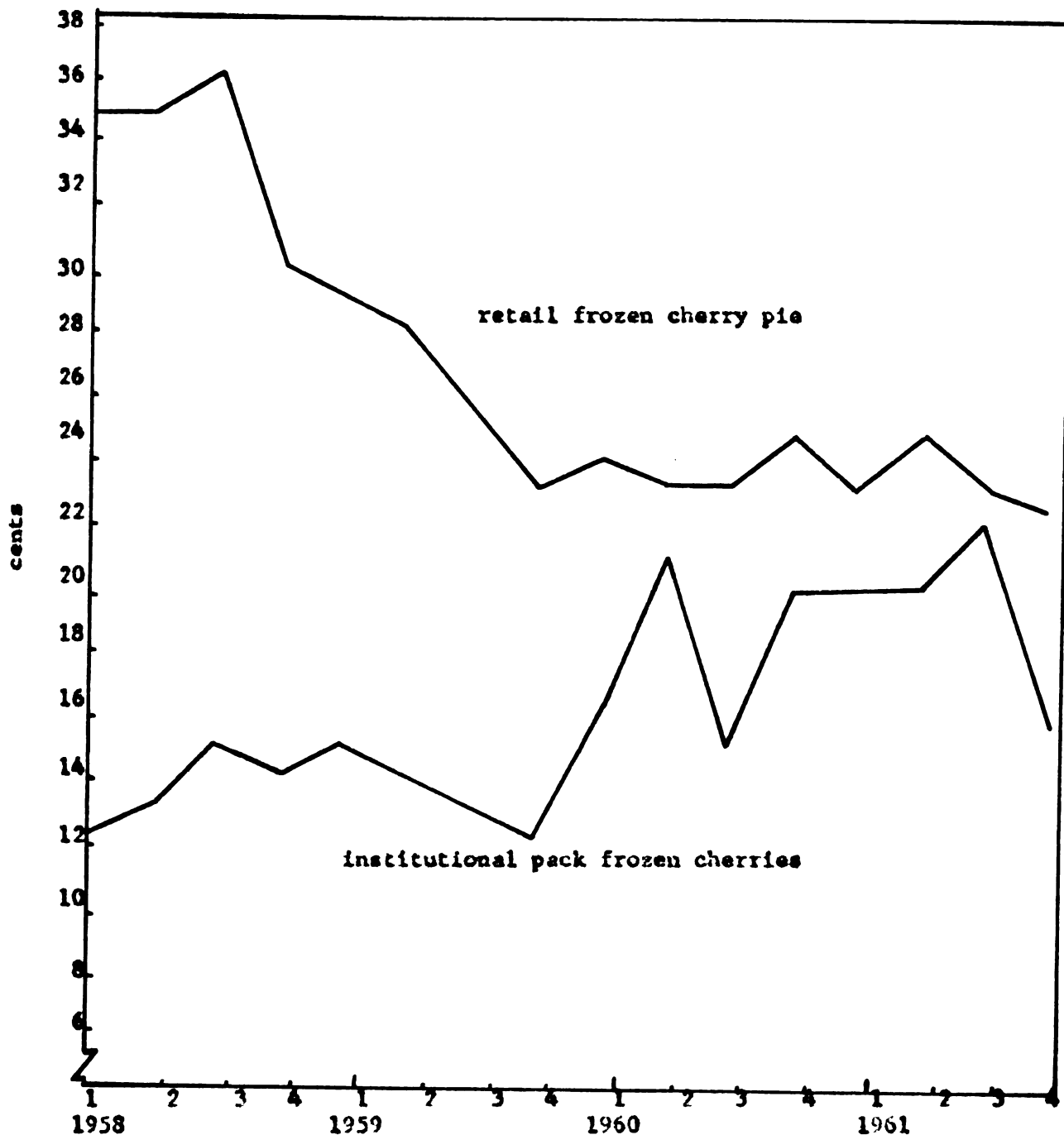


Figure 17: The relationship between the quarterly price per pound for frozen cherry pie and the quarterly price per pound for institutional frozen cherries, 1958-61.



Source: Compiled and computed from the annual and monthly reports of Quick Frozen Foods.

THE EFFECTS OF VARYING THE AMOUNT OF CHERRIES USED IN PIES

The amount of cherries which manufacturers use in the same size frozen cherry pie varies widely within the industry. It was noted in the last section that cherries were the most expensive item in the average cherry pie. Thus, there is an incentive for manufacturers to lower their costs, and increase sales and profits, by using only the minimum amount of cherries in their pies and charging a reduced price. This is not to say that all manufacturers or even the majority endeavor to use the least cherries possible, but the variation in fruit between pies cannot be ignored.

The cherries used in frozen pies come exclusively from frozen cherry packs, generally 30 pound tins. The number of retail pies made from a 30 pound tin varied from 30 to 65 pies among those manufacturers answering the questionnaire. If converted in ounces of cherries per 22 ounce pie, this would be a variation from 13.6 ounces to 6.3 ounces. The average appears to be around 8 ounces. Findings by Mary Zehner, Agriculture Economics Department of Michigan State University, in an independent study indicates a similar variation in the amount of cherries used in retail pies, but the average of the six brands she studied was only 5.9 ounces of cherries per pie. It is interesting to note that from findings of the questionnaire manufacturers located nearest the primary producing area around the Great Lakes used the least amount of cherries, while those located much further away in the South and West used the most cherries. This may

be because further from the producing areas cherry pies are not as popular, and it takes a higher quality product to get many sales.

Mary Zehner measured the change in the ingredients in her study on frozen fruit pies. Although her study is not yet completed, the data indicates that from the beginning of 1963 to mid 1963, the number of cherries used by different manufacturers varied. The amount of variation in the number of cherries used varies from large changes to changes small enough to be merely chance variations in manufacture. The study is not yet complete enough for further comment.

This lack of uniformity within the industry and the small amounts of fruit in some brands of cherry pie have caused considerable concern within the industry and within government regulatory bodies. Comments expressed by manufacturers on the questionnaire and from numerous articles in Quick Frozen Foods give the impression that these people feel the lack of uniformity is seriously affecting the potential of the industry. Consumers who buy these "fruitless" cherry pies are generally dissatisfied consumers whose experience makes them reluctant to buy more frozen pies. This causes criticism and may lower sales. On the other hand, the fact that prices are lowered may permit even the low income consumers to purchase this dessert, thereby expanding the market. Where the optimum balance between low price and fruit content will occur remains to be determined.

Michigan Senator Philip Hart has recently begun to press for government action against those manufacturers who persist in the mislabeling of their products. This may bring a slight price rise in

cherry pie due to the higher manufacturing costs if more fruit is required in each pie. If the price change is negligible it could raise substantially the number of pounds of cherries marketed through frozen pies. If one more ounce of cherries had been added to each of the approximately 41.4 million retail frozen cherry pies sold in 1961 it would have meant a marketing of another 2.6 million pounds of cherries.

Closely related to the problem of variations in the amount of fruit within a cherry pie is the problem of changes in the standard weight of frozen fruit pies. In 1958 the standard size of the retail frozen fruit pie decreased from 24 to 22 ounces. This had a definite effect on the amount of cherries used within a pie, and a subsequent effect on the price of cherry pie. The diameter of the pie did not change, nor did the package size, and the slight flattening of the pie was not easily noticed by the consumer. Therefore, the consumer on the average did not realize a change had taken place. At the processor level the change was very significant because it allowed them to cut back costs in a greater proportion than the change in weight. Most of the two ounce reduction in weight came from the expensive filling rather than the relatively inexpensive crust. In crust there was only a $\frac{1}{2}$ ounce reduction, but the amount of filling was reduced by 1-3/4 ounces.⁶ Filling makes up approximately 35 percent of the cost of a frozen pie, while the crust makes up only 16 percent of the cost. Thus the reduction in filling allowed the manufacturer to enjoy more

⁶"Price Line Fruit Pies Become a Reality", Quick Frozen Foods, September, 1959, p. 110.

than a proportional reduction in costs. This allowed the manufacturer to establish a nearly uniform price of 39 cents for frozen fruit pies.

The net effect of this reduction in the amount of filling, and thus number of cherries, cannot be accurately assessed because the increase in cherry pie sales due to the lower price may have more than off-set the decreased use of cherries in each pie. It is impossible to say what the sales of 24 ounce retail pies, at a higher price of course, would have been, and therefore it is impossible to determine the actual total effect of the reduction in retail pie weight.

INSTITUTIONAL FROZEN CHERRY PIE

The sales of institutional frozen pies are not nearly as large as those of retail frozen pies. An estimated 10.2 million pounds of institutional frozen cherry pie was manufactured in 1961.⁷ This was less than one-fifth the amount of frozen retail cherry pie. This 10.2 million pounds of pie represented an estimated 4.6 million pounds of frozen cherries.⁸ The average sized institutional pie is 9 to 10 inches in diameter and weighs 40-48 ounces.

The frozen institutional pie has not been nearly as popular among eating establishments as fresh pies. Over 11 times more fresh cherry pie was sold in 1961 than frozen cherry pie. The main factors which retard increased frozen pie popularity are that it must be baked

⁷Assuming 27.5 percent of the figure of 37 million total pounds reported in the 1962 Frozen Foods Almanac, Quick Frozen Foods, was cherry.

⁸Assuming 46 percent of the weight of the pie is fruit.

before it can be used, and it requires freezer storage. It takes time and space to bake and cool a large number of pies. Many smaller restaurants buy fresh pies in an effort to eliminate this type of activity. Furthermore, the difference in the quality and flavor of fresh and frozen commercial pies on the institutional level is questionable. Thus, the small restaurant operator is reluctant to spend the time and trouble which frozen pies require.

Frozen pies are not without their good points. Frozen pies have a cost advantage over fresh pies. Among those bakeries interviewed, the cost of a frozen cherry pie is somewhat less than that of a fresh cherry pie. This may be inherent in the industry, or competition from fresh pie may force frozen pies to be cheaper. Probably it is brought about by both of these factors.

Also with frozen pies it is possible for the restaurant to always have an extra supply of pies on hand to meet unusually heavy demands, providing freezer space is available. By baking several times a day the restaurant can easily regulate its pie requirements with the number baked. Thus, it can always have fresh pie available and still reduce its waste.

There are data which indicate that the largest users of frozen institutional pies are the middle sized restaurants serving 3,000 - 7,000 meals per week. W. Smith Grieg's study of eating establishments in Detroit in 1960 indicated that 40 percent of the frozen pies

consumed by restaurants was in this group.⁹ Smaller restaurants buy a greater percentage of fresh pies, and larger restaurants make most of their own pies. Although fragmentary, this study does give some indication of the consumption of frozen cherry pies.

THE OUTLOOK FOR FROZEN CHERRY PIE MARKET

It is difficult to predict the future of the frozen cherry pie industry based upon the questionnaire sent to the manufacturers, but some indications were obtained. Most pie manufacturers operate in a regional market, and therefore their responses not only reflect the total demand within the region but also the demand for their product within the region.

In general, they see the total demand for commercially prepared pie increasing at the rate of 10 percent per year. In the South the outlook was especially good. This approximates the increase predicted by the trend line in Figure 14. At this rate the consumption of retail frozen pie will soon surpass the consumption of fresh cherry pie.

More encouraging is the fact that consumer demand for cherry pie appears to be rising relative to other fruit pies. Manufacturers feel cherry pie consumption is rising from 5-10 percent faster than consumption of other fruit pies. This increase was aided by the heavy

⁹W. Smith Grieg, Market Potential for Dehydrofrozen and Dehydrocanned Apple Slices, Agriculture Economics Mimeo 801, Cooperative Extension Service, Michigan State University, September, 1960.

supplies and low price of frozen cherries since 1961. This has made it possible for pie manufacturers to reduce the price of cherry pie relative to other pie prices causing consumers, in many cases, to substitute cherry pie for other types of desserts. A change in cherry prices upward would, of course, cause this trend to change.

About as many pie manufacturers see the demand rising for fruit pies in general relative to non-fruit rising as those who see no change in relative demand. Those who see it rising feel that it is rising 10 percent or more relative to non-fruit pies. There seems to be no regional pattern or distribution in the responses, therefore, an overall 5 percent increase in the demand for fruit pies relative to non-fruit pies seems to be a reasonable expectation. The increased demand for cherry pie is important in this increased demand for fruit pies.

The manufacturers of frozen pies have a further advantage over fresh pie bakers because their product can be easily stored for long periods. A frozen cherry pie can be stored easily for a year without appreciable deterioration in quality. This is important because it allows pie manufacturers to produce large amounts of frozen cherry pies when cherries are cheap and store them for future sales. When cherry prices rise they cannot only manufacture fewer cherry pies, but they can also liquidate their stock of pies at a nice profit. Therefore, they can operate on a narrower margin of profit because they are not concerned with short run cherry price movements. This practice is however, limited by the additional handling and storage which it

necessitates. This should continue to aid frozen cherry pie in its ability to compete in the commercial cherry pie market.

SUMMARY

Frozen cherry pies are a very important means of marketing red tart cherries. While total frozen cherry pie sales are not as large as total fresh cherry pie sales the industry is enjoying a rapid rate of growth. Retail frozen cherry pie sales may soon surpass fresh cherry pie sales. The low cherry prices over the last year and a half have been instrumental in this growth.

Factors which tend to promote the sales of frozen cherry pie are its relative ease of preparation, its freshness, and its lower price. The fact that it must be baked limits its demand in the restaurant field.

Consumption is much higher in the Northeastern and North Central regions of the nation than in any of the other parts of the nation, with the exception of the Pacific Coast. States with high urban populations have higher per capita consumption than those states which are predominately rural. The average level of income is also important in per capita consumption as consumption is higher in high income areas.

Frozen cherry pie also has a seasonal pattern of consumption. The largest sales occur in the April - June quarter of the year, and the lowest sales occur in the July - September quarter. The correlation between the consumption patterns of frozen and fresh pies is very high.

A large portion of the demand for frozen cherry pie has probably come from substituting it for older, less popular forms of cherry consumption. However, there has been considerable amounts of new cherry consumption started in some regions which were formerly low cherry consuming areas due to the marketing of frozen cherry pie. In the future it will likely become an even more important outlet for tart cherries.

CHAPTER VII

MISCELLANEOUS MARKETING FLOWS OF RED TART CHERRIES

INTRODUCTION

Until now this study has dealt with the market flow of retail pack cherries, and the major marketing flows of institutional pack cherries. Red tart cherries in institutional packs have many uses other than those already discussed. This chapter will be devoted to a brief discussion of four other uses of tart cherries. These are cherry confections, direct sales to restaurants and institutions, military and non-military government purchases, and exports. In 1961 these four flows totaled an estimated 73 million pounds of tart cherries which as a group makes them very important in the total marketing flow.

CHERRY CONFECTIONS

Tart cherry confections are largely cherry jams, jellies, and preserves, and fruit mixtures of these same products. The confectionary industry is not a very important part of the total cherry marketing flow nor are cherry confections a very important part of the entire confectionary industry. Cherry preserves are about 4.4

percent of the total preserve sales, and cherry jelly about 3.8 percent of the total jelly sales.¹ In 1961 an estimated 25 million pounds of cherry confections were produced, which used an estimated 12.5 million pounds of frozen tart cherries.² Nearly all cherries used in the confectionary industry are frozen cherries. In the pack of confections about equal quantities are packed for retail sales in one pound or smaller containers and for institutional use in larger containers.³

With the exception of the West, where cherry confections are only 3.2 percent of total confections consumed, the regional variation in consumption is small. The Northeast is slightly above average with 4.8 percent of the confections being cherry, but the South and North Central regions are very near the mean of 4.4 percent.⁴

The total consumption of all confections varies between regions, however. Per capita consumption is highest in the Northeast and lowest in the South. The West and North Central regions gave

¹Information obtained by personal letter from the Marketing Division of the J. M. Smucker Company, Orrville, Ohio.

²Computed by using a base figure of 600 million pounds of total confections, multiplying by 4.2 percent to determine the pounds of cherry confections and assuming that two pounds of confection equals one pound of fruit.

³U.S. Department of Agriculture, Agriculture Marketing Service, Survey of Fruit Use by Preserve Manufacturers, Marketing Research Report No. 123, Washington, D.C., June, 1956, p. 6.

⁴Ibid., p. 39.

similar patterns of per capita consumption. Consumption is also higher in urban areas relative to rural areas which would help to explain much of the regional differences in confection consumption.⁵

Per capita consumption of confections, and thus cherry confections, appears to be quite stable over time. Consumption does increase slightly as households move from low income to middle income levels and decreases slightly as individuals pass out of their teens, but other than these factors the per capita consumption of confections appears to be quite stable. Therefore, population change appears to be the factor with the greatest influence on the total manufacture of cherry confections.⁶ If this continues to be the case then further increases in population will be necessary to bring about a greater total demand for confections, and thus an increase in the total volume of cherry confections. There is no information on the substitution of one flavor of confection for another, but assuming this remains constant, the amount of cherries used in the confectionary industry should continue to increase slightly with the present population increases. It is not likely that this increase will have much effect on the total cherry marketing flow because of the relatively small amount of cherries involved.

⁵Ibid., p. 5.

⁶Ibid., pp. 18-28.

THE FLOW OF CHERRIES TO RESTAURANTS AND INSTITUTIONS

Previously we have discussed the flow of cherry products, frozen and fresh cherry pie, and cherry confections, into restaurants and institutions. We will now consider the direct flow of institutional pack cherries into these establishments.

There are a few sales of fresh cherries to restaurants and institutions, but these sales are so small that they can be ignored, and we can deal only with flow canned and frozen packs of cherries. The bulk of the material discussed in this section came from a U.S.D.A. Market Research Report published in 1956.⁷

Approximately 6 percent of the total pack of canned and frozen cherries were purchased directly by restaurants and institutions. In 1961 this amounted to an estimated 18.6 million pounds of cherries. Frozen cherries at the time of the study amounted to 77.5 percent of the cherries used in these establishments. Since this time frozen cherries have probably gained a further advantage.

There is also a seasonal variation of tart cherry purchases by restaurants as shown in Table 9. Although the table deals only with the months of August and November, its data strongly suggests a seasonal pattern similar to those already discussed for retail

⁷U.S. Department of Agriculture, Agricultural Marketing Service, The Use of Frozen Foods by Restaurants, Marketing Research Report No. 114, Washington, D.C., (November, 1956).

TABLE 9: Percentage of restaurants purchasing fruits, in August and in November of 1955, by form.

<u>Form</u>	<u>August</u>	<u>November</u>
	- -Percent- -	
Any Form	18.8	27.7
Frozen	12.6	16.0
Canned	6.3	13.0
Fresh	1.1	0.0

Source: U.S.D.A., Use of Frozen Foods by Restaurants, Marketing Research Report No. 144, p. 11.

cherry packs and fresh commercial cherry pie. Additional information is necessary, however, to confirm this finding.

Also there tends to be a regional variation in cherry consumption. The U.S.D.A. study cited above measured the regional differences between the type of packs which were used rather than the volume of consumption. The differences in relative quantities could be assumed to be similar to that of retail pack cherries. This is because restaurant consumption of cherries would be similar to household consumption within these areas. Variations in the type of pack used were measured only in the North Central, Northeastern, and Southern regions of the nation. A higher percentage of frozen cherries relative to total cherries consumed was found in the Northeastern and North Central regions. In the South a higher percentage of canned cherries was consumed (Table 10). Although this study was conducted several years ago it is probably still relevant with respect to regional differences in purchases and consumption.

the following: (1) the number of employees; (2) the number of employees who are members of the union; (3) the number of employees who are members of the union and are also members of the company's pension plan; and (4) the number of employees who are members of the union and are also members of the company's health plan.

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004:

Year	Number of employees who are members of the union and are also members of the company's pension plan	Number of employees who are members of the union and are also members of the company's health plan
2000	100	100
2001	100	100
2002	100	100
2003	100	100
2004	100	100

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004, broken down by gender:

Year	Male	Female	Total
2000	50	50	100
2001	50	50	100
2002	50	50	100
2003	50	50	100
2004	50	50	100

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004, broken down by race:

Year	White	Black	Hispanic	Other	Total
2000	50	50	0	0	100
2001	50	50	0	0	100
2002	50	50	0	0	100
2003	50	50	0	0	100
2004	50	50	0	0	100

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004, broken down by age:

Year	18-24	25-34	35-44	45-54	55-64	65+	Total
2000	0	0	0	0	0	100	100
2001	0	0	0	0	0	100	100
2002	0	0	0	0	0	100	100
2003	0	0	0	0	0	100	100
2004	0	0	0	0	0	100	100

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004, broken down by education level:

Year	High school or less	Some college	Bachelor's degree	Master's degree	PhD	Total
2000	0	0	0	0	100	100
2001	0	0	0	0	100	100
2002	0	0	0	0	100	100
2003	0	0	0	0	100	100
2004	0	0	0	0	100	100

The following table shows the number of employees who are members of the union and are also members of the company's pension plan and health plan for each year from 2000 to 2004, broken down by marital status:

Year	Married	Single	Divorced	Widowed	Total
2000	0	0	0	100	100
2001	0	0	0	100	100
2002	0	0	0	100	100
2003	0	0	0	100	100
2004	0	0	0	100	100

TABLE 10: Percent distribution of restaurant purchase of red tart cherries within regions.

<u>Area</u>	<u>Frozen</u>	<u>Canned</u>	<u>Fresh</u>
Northeast	84.7	15.3	--
North Central	78.8	15.9	5.3
South	65.9	33.9	.2

Source: U.S.D.A., The Use of Frozen Foods by Restaurants, Marketing Research Report No. 144., p. 32.

The size of the restaurant affects the type of pack and the amount of cherries purchased. The larger restaurants do more of their own pie baking and tend to use frozen rather than canned cherries (Table 11). These findings agree with those reported by W. Smith Grieg in a Detroit restaurant study discussed in Chapter 5.

If the number of meals eaten outside the home continues to increase, the number and size of restaurants should continue to increase, and the flow of direct sales of cherries to these establishments

TABLE 11: Percent of restaurants purchasing and relative quantity of frozen, canned, and fresh red tart cherry used, by size of restaurant.

	Percentage of Restaurants Purchasing Any <u>Form of Cherries</u>	Of Those Cherries Purchased the Break- down by Form		
		<u>Frozen</u>	<u>Canned</u>	<u>Fresh</u>
6-11 Employees	38.4	43.8	55.8	.4
12 or More Employees	49.4	82.9	13.8	3.3

Source: U.S.D.A., The Use of Frozen Foods by Restaurants, Marketing Research Report No. 144, p. 18.

should increase, referring again to W. Smith Grieg's study presented in Chapter 5. Part of this increase will be due to a substitution of restaurant-made cherry desserts for commercially-made cherry desserts. Also there will be a substitution of restaurant made cherry desserts for home-made cherry desserts. This increase in the restaurant flow of cherries will be particularly evident in sales of frozen cherries. However, due to the substitution of one type of cherry dessert for another it is a matter for speculation as to how much of an increase will be created in the total demand for tart cherries.

GOVERNMENT PURCHASES AND EXPORTS

Military and non-military government purchases will be discussed together in this study because in cherry marketing they are both affected largely by the price of cherries, other things being equal, and they seem to provide a stabilizing force in cherry marketing. Military purchases are, as the name implies, cherries purchased by the government to help feed our service personnel at home and abroad. Non-military government purchases are used in the feeding of inmates in our public supported mental, penal and old-age institutions, for Veteran's Administration programs, and in our school lunch programs. Most exports go to Europe.

These two market flows combined make up a rather important segment of the total cherry marketing flow. However, as will soon be discovered, this flow is subject to large and rather sharp fluctuations. Military purchases amounted to 11.8 million pounds and non-military purchases were 13 million pounds in 1961. This, plus the 7 million pounds of exports in 1961, amounts to 31.8 million pounds of canned and frozen institutional pack cherries.⁸ Canned cherries seem to be preferred over frozen cherries by the government, although the amount of frozen cherries purchased appears to be increasing. This is probably due to the relative ease with which canned cherries can be stored and transported. Exports are made up of both canned and frozen packs with the latter market developing only recently.

The price of institutional pack cherries appears to have considerable affect on the consumption of cherries within these markets. Government buyers are faced with a budget and try to get the most possible product for the least cost. More importantly, some non-military purchases are made to stabilize prices in years of surplus production. Also the actual consumers of government cherries are not the buyers, and they have only a limited ability to express their preferences. Therefore, supply and price become important factors in government purchases. Exports must be able to compete

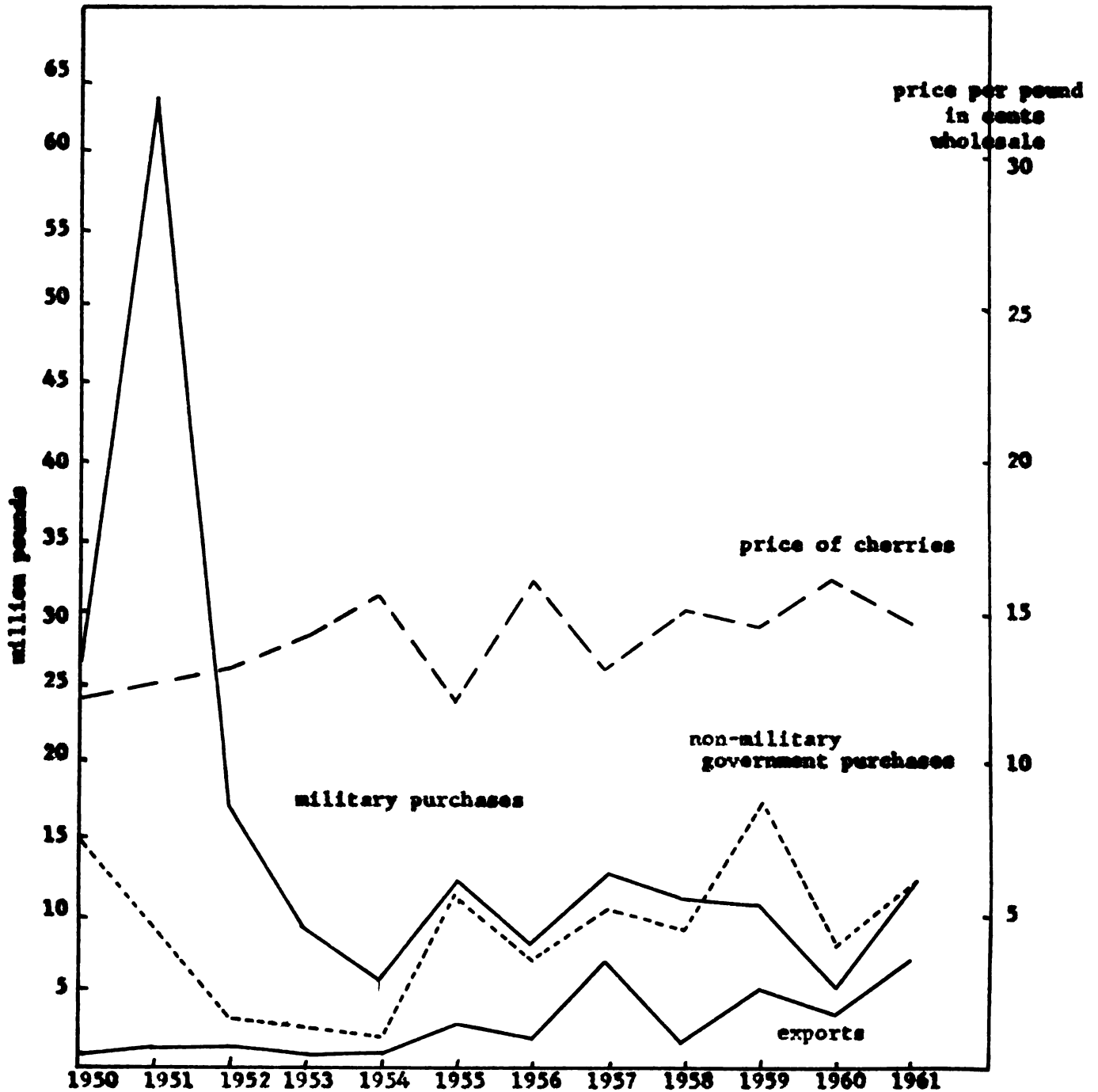
⁸Compiled from various reports of U.S. Department of Agriculture, U.S. Department of Commerce, the National Cannery Association, and Quick Frozen Foods.

with the domestic products in foreign countries and with exports from other producing countries. Therefore, they must be of superior quality and/or have the same or a lower price than the domestic and foreign competition. Thus, to both government buyers and exporters the price of the cherries is a primary consideration.

By plotting the average yearly price of institutional pack cherries and the yearly flow of cherries into exports and government purchases the effect of price in these markets becomes clear (Figure 18). With the exception of the war years of the early 1950's, there is a strong negative correlation between price and quantity. A change in price is associated with a significant opposite change in the quantity purchased. Economic theory tells us that there is an inverse relationship between the price and the quantity consumers are willing to purchase, but often through habit, a lack of awareness of price changes, and other factors which cause a "stickiness" in consumption patterns, this price quantity effect is not as clear cut as it is in this case. In most of the other cherry packs or cherry products the price effect was not nearly as strong nor well defined.

It is fortunate in a way that government purchases and exports are affected so strongly by prices. Generally when there is an abundance of cherries on the market the price is low relative to years when cherries are scarce. Increased government purchases and increased exports relieve some of the strain on the market. Conversely, high prices for cherries indicates a small quantity of cherries on the market, and sharply decreased exports and government

Figure 18: The relationship between the price of institutional pack cherries and the amount of government purchases and exports.



Source: Compiled from a series of reports prepared by Dennis L. Oldenstadt, Department of Agriculture Economics, Michigan State University, and George McManus, Jr., Cooperative Extension Service, Traverse City, Michigan.

purchases again relieve some of the strain on the market. Therefore, these market flows provide an important stabilizing force in the market.

OTHER USES OF INSTITUTIONAL PACK CHERRIES

Institutional pack canned and frozen cherries have many uses other than those already discussed. Among these uses are various cherry flavorings, drinks, various dessert items, cherry sauces, and other miscellaneous uses. For the most part data on these flows are incomplete or non-existent. Therefore, the unaccounted portion of the tart cherry flow will be assigned to this entire group collectively and no attempt will be made to separate the flows. In 1961 this unassigned portion of the flow of institutional pack cherries amounted to 21 million pounds, or approximately 6 percent of the total pack of red tart cherries. This is the amount assigned to the collective flows of the miscellaneous uses of tart cherries.

SUMMARY

Individual red tart cherry use by the confectionary industry, restaurants, the government, and exports is not sufficient to make them major market flows, but as a group they are very important in the marketing of tart cherries.

Different factors appear to have primary effects on each market. The population changes appear to have the greatest effect upon the amount of cherry confections sold, and subsequently the amount of cherries the industry uses. The size of the restaurant

largely determines the amount of cherries a given establishment will purchase. Government purchases and exports are influenced primarily by the supply and price of cherries. Through the close relationship of price and quantity government purchases and exports provide an important stabilizing function. The rest of the tart cherries are consumed as miscellaneous products, and the factors which affect these flows are not determined.

CHAPTER VIII

SUMMARY AND CONCLUSIONS

SUMMARY

This study has been devoted to determining the important marketing channels and marketing flows of tart cherries and cherry products for 1961. Within this study the marketing of tart cherries can be categorized into two primary series of flows. First is the flow of the retail packs of canned and frozen cherries and of fresh cherries through the supermarket and on to the consumer. The second primary series of flows are the flows of institutional pack canned and frozen cherries into intermediate processing or remanufacturing plants, which change their form from cherries into cherry products. These cherry products, primarily cherry pie, are then sold to the consumer in supermarkets, restaurants, public supported institutions, and other similar outlets. Therefore, the flow of retail pack cherries is the flow of cherries as they are originally processed to the consumer while the flow of institutional pack cherries becomes a flow of remanufactured cherry products to the consumer.

The flow of retail pack cherries is the smaller of the two flows. The trend in total retail cherry consumption has been sloping

down over the 11 years this study has included. The primary reason appears to be a substitution of commercially prepared retail cherry desserts for cherry desserts made in the home from retail pack cherries. For purposes of comparison, and in summary, the estimated consumption of the various types of retail cherry packs for the last three years can be found in Table 12. A more complete table can be found in the appendix. Of the four retail flows the only one which has shown a sustained increase in consumption is canned pie filling. The frozen retail pack has shown an increase over the last few years, but the level of consumption has been so low that it cannot be considered very important. Most of the increase in canned pie filling appears to be due to a substitution of this product for water pack canned cherries.

Retail pack cherries pass through supermarkets and related stores on their way to the consumer. The cherries move directly from the processor to the supermarket and other retail outlets and finally to the consumer. The demand for this product probably depends heavily on the desire of homemakers to make their own desserts.

The flow of institutional pack tart cherries is more complicated than that of retail pack tart cherries. Institutional pack cherries are purchased by the consumer in the form of a cherry product rather than in the form of processed cherries as such. Therefore, the flow of cherries from the processors to the product manufacturers or remanufacturers must be considered.

TABLE 12: Estimated total consumption¹ of retail pack tart cherries for the years 1959-1961.

	1961	1960	1959
	- - million pounds - -		
Total Consumption	89.6	76.9	102.5
Water Pack Cherries	40.1	37.8	64.2
Canned Pie Filling	31.1	27.7	25.5
Fresh Cherries	13.7	10.2	11.7
Frozen Cherries	4.7	1.2	1.1

Source: Compiled from yearly reports of Quick Frozen Foods, National Canners Association, and Agricultural Estimates Division, AMS, U.S.D.A., Compiled by Fruit Branch, AMS.

¹Beginning inventory plus year's pack less ending inventory to give an estimate of total consumption.

Without differentiating between canned and frozen cherry packs the entire market flow of institutional pack cherries can be broken down into its sub-flows in a manner similar to the breakdown in Table 13. The reader should exercise caution in the use of these figures. For the most part they are only indicators of the actual flow of cherries since they are computed estimates of the total product flow rather than actual measurements of the flow of cherries.

The largest part of the institutional pack of cherries is used in the manufacture of commercial fresh and frozen pies. The majority of restaurant and government purchases are also made into cherry pies.

The frozen cherry pie industry and parts of the fresh retail pie industry are the only parts of the institutional pack market now showing

TABLE 13: Estimated marketing of institutional pack cherries by type of industry, 1959-1961.

	1961	1960	1959
	- - million pounds - -		
Total marketing of institutional pack cherries, canned and frozen ¹	195.4	166.4	183.4
Fresh institutional cherry pie	46.5	45.1	45.1
Fresh retail cherry pie	36.7	36.8	36.5
Frozen retail cherry pie	22.4	20.5	17.6
Frozen institutional cherry pie	4.6	3.1	--
Total government purchases	24.9	13.1	28.1
Direct institutional sales	18.6	15.0	16.6
Cherry confections	12.5	12.5	12.4
Cherry exports	7.0	3.5	5.2
Miscellaneous uses	12.1	8.1	12.5
Cherries unaccounted for	10.1	8.7	9.4

Source: Compiled and computed from yearly reports of Quick Frozen Foods, Baking Industry, and Agricultural Estimates Division, AMS, U.S.D.A., U.S.D.A. Marketing Reports 123 and 144; and a series of reports by D. L. Oldenstadt and George McManus, Jr., Michigan State University.

¹Beginning inventory plus year's pack less ending inventory to give an estimate of total consumption.

a substantial increase in production. This increases the cherry marketing within these areas, but primarily at the expense of some other markets. These increases in the consumption of commercial cherry desserts come largely from a substitution of home-baked desserts for commercially

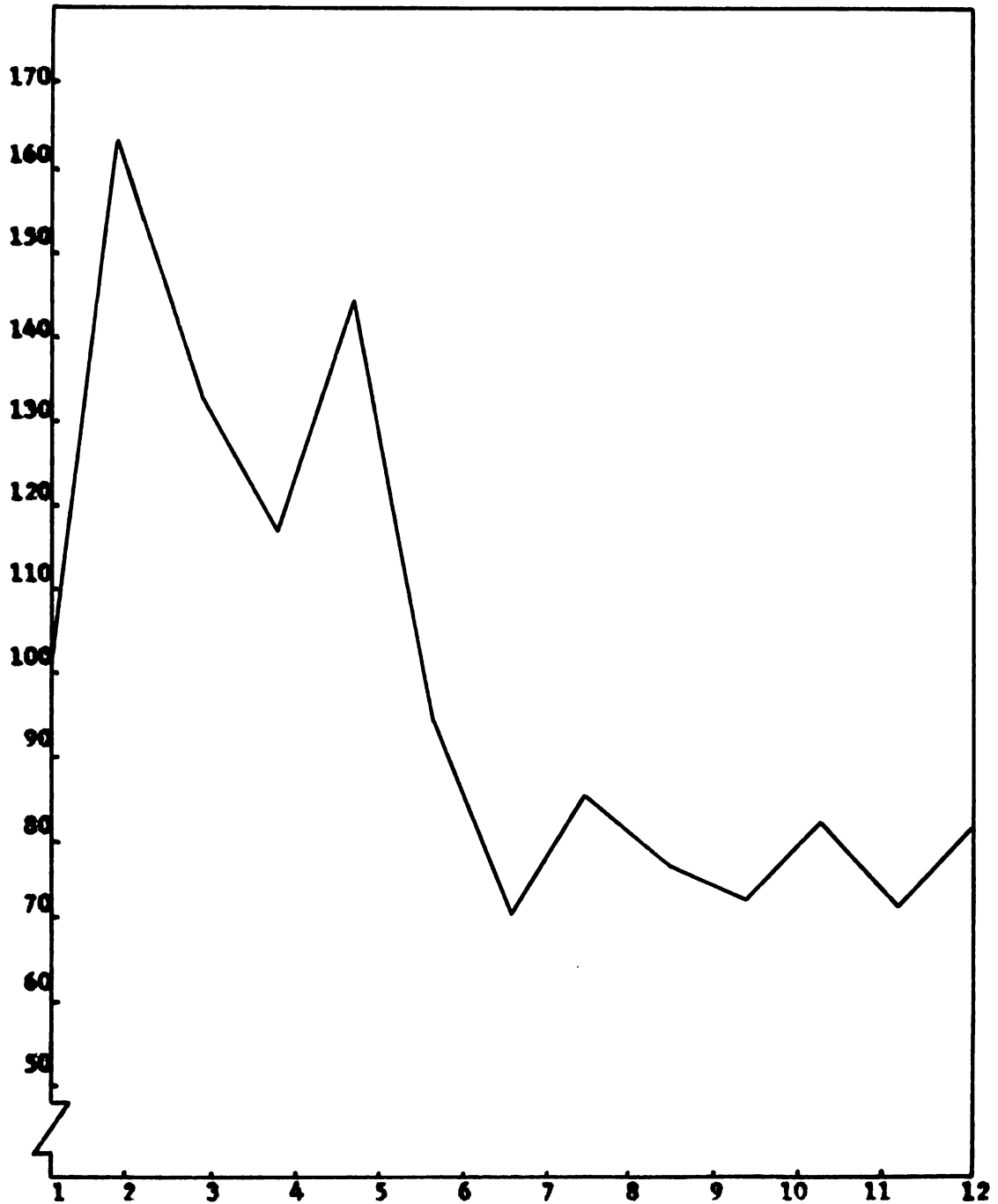
prepared desserts. The gain in the sales of retail dessert items off-sets much of the decline in the consumption of retail pack cherries discussed previously.

The market flow of all tart cherries and cherry products is affected by regional variations in consumption and seasonal variations in consumption. The total and the per capita consumption of tart cherries is much higher in the North Central and Northeastern regions of the nation than in the South or in the West. These two regions are also the center of the tart cherry production so the average consumer is more acquainted with tart cherries and transportation cost, and hence prices are lower. This may to a large degree explain the regional variation. However, states with large urban populations generally have a higher per capita consumption than states with a predominately rural population.

For nearly all cherry products there appears to be a typical seasonal consumption pattern (Figure 19). This pattern of consumption has an unusual characteristic. The consumption pattern of most fruits shows a sharp increase in consumption near the harvest period, but for tart cherries the low point in consumption is reached just prior to the harvest period. The consumption of cherries is low throughout the June to November period. The high point in the consumption pattern is not reached until February, a full half year after the harvest.

Cherries and cherry products have an elastic demand caused, in part, by a large number of substitute fruit products. Therefore, even a small change in the price of tart cherries relative to other fruits

Figure 19: Average monthly index of consumption of all tart cherry products.



Source: Based on the findings of the MSU Consumer Panel, 1952-57.

tends to cause large changes in the amount consumers are willing to purchase. Price, therefore, becomes the factor which has the largest effect on the amount of cherries households will consume. When the price of cherries falls relative to other fruit substitutes there is undoubtedly a considerable amount of substitution of cherries for other fruits on both the retail and the institutional level, although no statistical measurement is available. This, of course, works both ways.

The flows of each of the types of cherry packs and cherry products are affected by unique factors and have their unique characteristics which are too numerous to discuss in this brief summary. This completes a discussion of the general characteristics within the total marketing flow of red tart cherries.

CONCLUSIONS

The above summary has provided a brief sketch of the cherry marketing flows as developed within this study. This study represents an attempt by the author to determine and measure the previously unexplored flows of processed tart cherries and the flows of cherry products in an effort to provide benchmark data to the people in the cherry industry. The prime concern of this industry is to develop an increased demand for tart cherries and cherry products which would increase both sales and income. As a result of this study five hypotheses are presented regarding ways of increasing the market for tart cherries and cherry products.

First, the trend in our society is towards more convenience

products and a lessening of the work within the kitchen. Furthermore, the disposable income within the household is increasing at a rate that allows the average household to enjoy a multitude of convenience goods. Therefore, in keeping with this trend the development of "convenience" and "work saving" cherry products must be increased. We have already seen how the demand for convenience cherry products such as prepared pie filling and retail commercial pies has increased in the last few years. The same potential also lies in other areas of the cherry market. Therefore, the cherry industry must become more aware of this trend and look ahead in their product and market development programs.

One suggestion is for the cherry industry to take greater advantage of the public and private organizations at their disposal in attempting to develop new products. The United States and state departments of agriculture, colleges and universities, and many private organizations are willing, in fact often eager, to apply their resources and experience in the developing and testing of new products and the improvement of existing products, if given the ideas and encouragement. In some cases the services are free or the cost nominal, but if the cherry industry is to continue to develop it must be willing to pay a price, and the returns can be high.

Second, the public awareness of some cherry products within some regional areas appears to be low. Therefore, the promotion of some select cherry products should be increased. Promotion of the

• **Stressors:** External factors that trigger stress, such as work pressure, financial difficulties, or family issues.

• **Response:** The individual's reaction to stressors, which can be physical, emotional, or behavioral.

• **Coping Mechanisms:** Strategies used to manage stress, such as exercise, meditation, or seeking support.

• **Outcomes:** The results of stress management, which can range from improved well-being to chronic health issues.

• **Resilience:** The ability to bounce back from stress and maintain mental and physical health.

• **Support Systems:** Networks of people who provide emotional and practical assistance during stressful times.

• **Self-Care:** Practices that promote overall health and well-being, such as regular exercise and a balanced diet.

• **Work-Life Balance:** The ability to manage professional and personal responsibilities effectively.

• **Mental Health:** The state of one's mind, which can be affected by stress and requires attention and care.

• **Physical Health:** The state of one's body, which can be impacted by stress through changes in blood pressure and immune function.

• **Emotional Well-being:** The state of one's feelings and emotions, which can be influenced by stress and coping strategies.

• **Behavioral Changes:** Actions taken to reduce stress, such as taking breaks, delegating tasks, or practicing relaxation techniques.

• **Long-term Effects:** The cumulative impact of stress on health and quality of life over time.

popular and potentially popular cherry products would increase public awareness of these products and increased sales of not only these products, but possibly all cherry products. Special promotion during times when the seasonal consumption pattern is high would probably give the highest returns for a given promotional outlay. Selected promotion of select cherry products should return high dividends, especially in those regions of the country where consumption is now low.

Third, the amount of fruit in retail cherry desserts should be standardized at a reasonable level. It would mean that the average product quality would be more uniform, and the product image in the eyes of the consumer should be improved. This more uniform product quality should increase the total marketing of cherry desserts over the long run which would, in turn increase the marketing of tart cherries. The marketing of cherries will also be increased, if the amount of fruit within a given dessert is raised by the standardization level. Of course, additional study is needed to determine consumer preference for various amounts of fruit.

Fourth, greater use must be made of the new technology in the growing of tart cherries. Wider use of our present technology would allow growers to enjoy a reasonable profit on a lower price for tart cherries. Mechanical harvesting is probably the best example of this new technology which is available. By use of mechanical harvesting the picking cost for cherries can be reduced, and therefore, the grower can make the same profit on a lower price for cherries. Other

forms of labor and money saving devices are being developed which will further cut the cost of growing and harvesting cherries. If this reduced cost of producing cherries were passed on to the consumer, the demand for cherries and cherry products would increase substantially.

Last, increased urbanization of the population should cause some increase in the consumption of tart cherries. In the study it was noted that urban areas have a larger per capita cherry consumption than rural areas. This is because the growing area of tart cherries is limited, and thus most of the consumer contact with tart cherries and cherry products occurs in the supermarket or in public eating establishments. Urban households tend to make greater use of these facilities than do rural households, and therefore, they have greater contact with and are more likely to buy tart cherries. They appear to be particularly receptive to commercially prepared cherry products.

These five conclusions should aid in reducing the pressure which large cherry crops have put on the market the last few years, problems of low cherry prices to growers, and some of the anticipated problems which large crops in the future may bring. Through an educated, forward-looking effort many of the problems of the tart cherry industry can be reduced.

APPENDIX A - STATISTICAL TABLES

TABLE 14: The estimated consumption of red tart cherries by type of pack, 1950-1961.¹

Year	Farm Use	Fresh Retail Sales	Canned				Frozen				Total Consumption
			Retail		No. 10 Institutional	Retail	30 Lb. Institutional	Barrels	Misc.		
			Water Pack	Pie Filling							
1950	9,190	17,130	107,783	2	69,805	807	100,505	191	2,955	308,366	
1951	8,410	16,908	94,415	2	65,179	1,889	94,419	1,073	2,601	284,894	
1952	6,530	13,850	86,874	2	51,394	2,893	57,275	825	873	220,514	
1953	6,140	14,630	78,779	2	50,422	3,418	108,841	302	2,681	265,213	
1954	5,350	14,230	60,923	2	43,715	3,789	79,036	1,387	2,483	210,893	
1955	5,380	14,220	90,113	13,276	62,542	3,678	106,581	497	3,709	299,987	
1956	5,010	12,916	55,881	21,730	35,481	2,769	81,966	406	3,594	219,753	
1957	5,140	13,768	55,002	22,151	61,247	4,188	118,048	7,716	619	287,879	
1958	4,860	12,796	45,010	22,880	41,818	2,742	74,570	8,702	180	213,531	
1959	3,174	11,652	64,161	25,464	69,111	1,091	100,629	3,865	1,863	281,010	
1960	2,906	10,174	37,794	27,656	43,298	1,204	120,570	3,175	4,080	250,857	
1961	3,074	13,680	40,060	31,080	64,670	4,660	135,604	5,114	3,062	300,004	

- - - 1000 pounds raw product equivalent - - -

Source: Compiled from statistical reports of the National Canners Association, and the annual "Frozen Foods Almanac", Quick Frozen Foods, 1950-62.

¹Computing by adding together the year's production and the inventory of the previous year and subtracting the end-year inventory of the respective year.

²Not reported.

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TABLE 15: The pounds of tart cherries moving into frozen pies¹, and the pounds of frozen cherry pies moving to retail and institutional outlets.

Year	Retail		Institutional		Total	
	Lbs. Cherries	Lbs. Pies	Lbs. Cherries	Lbs. Pies	Lbs. Cherries	Lbs. Pies
- -1,000 pounds raw product equivalent- -						
1955	4,862	12,100			4,862	12,100
1956	6,851	17,050			6,851	17,050
1957	11,271	28,050			11,271	28,050
1958	13,813	34,375			13,813	34,375
1959	17,901	44,550			17,901	44,550
1960	20,885	51,975	3,198 ²	6,875 ²	24,083	58,850
1961	22,874	56,925	4,732	10,175	27,606	67,100

¹Raw product equivalent weight.

²Estimated.

Source: Compiled and computed from the annual "Frozen Foods Almanac", Quick Frozen Foods.

TABLE 16: The pounds of tart cherries consumed by the government and exports, 1950-1961.

Year	Military		Other Government Purchases	Exports	Total
	Canned	Frozen			
- -1,000 lbs. raw product equivalent- -					
1950	23,946		15,299	647	39,892
1951	63,240		9,622	907	73,769
1952	17,620		3,090	986	21,696
1953	9,108			688	9,796
1954	5,434			674	6,108
1955	11,518	816	11,359	2,233	25,926
1956	5,834	2,437		1,433	9,704
1957	11,863	844	10,179	7,172	30,058
1958	7,514	3,524		1,507	12,545
1959	7,272	3,188	17,615	5,163	33,238
1960	3,290	1,762	8,011	3,507	16,570
1961	9,534	2,271	13,094	6,964	31,863

Source: Computed and compiled from a series of papers prepared by Dennis Oldenstadt and George McManus, Jr., and from the annual "Frozen Foods Almanac", Quick Frozen Foods.

TABLE 17: The estimated utilization of frozen cherries by state and region for 1961.

Area	30 Pound Tins				Retail Pack	Total Frozen Cherries
	Retail Frozen Pies	Institutional Frozen Pies	Other Uses	Total		
NEW ENGLAND						
Conn.	379	108	2,843	3,330	113	3,443
Maine	89	16	345	450	12	462
Mass.	992	172	6,428	7,592	169	7,761
N. H.	56	12	285	353	15	368
R. I.	124	36	963	1,123	23	1,146
Vt.	33	10	217	260	9	269
Total	1,728	354	11,026	13,108	340	13,448
MIDDLE ATLANTIC						
N. Y.	3,906	1,157	16,645	21,708	826	22,534
N. J.	1,255	231	4,159	5,645	204	5,849
Pa.	1,230	233	3,421	4,884	193	5,077
Total	6,462	1,621	24,154	32,237	1,223	32,460
EAST NORTH CENTRAL						
Ill.	1,557	331	9,447	11,335	403	11,738
Ind.	560	118	2,923	3,601	121	3,722
Mich.	1,368	194	4,355	5,917	237	6,154
Ohio	1,514	209	5,816	7,539	281	7,820
Wis.	538	57	1,462	2,057	88	2,145
Total	5,536	909	24,004	30,449	1,130	31,579
WEST NORTH CENTRAL						
Iowa	206	35	854	1,095	56	1,151
Kans.	213	35	316	564	42	606
Minn.	292	60	880	1,232	60	1,292
Mo.	413	29	351	793	50	843

- -1000 pounds raw product equivalent--

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TABLE 17: Continued

Nebr.	133	16	370	519	23	542
N. Dak.	49	3	62	114	7	121
S. Dak.	31	2	81	114	6	120
Total	1,339	179	2,970	4,488	244	4,732
SOUTH ATLANTIC						
Del.	70	13	229	312	12	324
D.C.	113	60	1,198	1,371	50	1,421
Fla.	464	136	2,436	3,036	115	3,151
Geo.	139	35	879	1,053	40	1,093
Md.	359	55	1,150	1,564	64	1,628
N. C.	168	36	735	939	34	973
S. C.	103	21	409	533	20	553
Va.	259	55	1,034	1,348	72	1,420
W. Va.	124	19	316	459	17	476
Total	1,796	431	8,389	10,616	423	11,039
EAST SOUTH CENTRAL						
Ala.	92	30	1,215	1,337	48	1,385
Ky.	103	16	1,195	1,314	38	1,352
Miss.	56	12	674	742	24	766
Tenn.	110	36	1,419	1,565	65	1,630
Total	361	95	4,502	4,958	175	5,133
WEST SOUTH CENTRAL						
Ark.	95	17	677	789	24	813
La.	110	24	1,261	1,395	49	1,444
Okla.	167	26	1,626	1,819	61	1,880
Texas	944	262	7,700	8,906	290	9,196
Total	1,321	329	11,259	12,909	425	13,334
MOUNTAIN						
Ariz.	56	20	723	799	31	830
Colo.	138	38	1,603	1,779	63	1,842
Idaho	47	9	437	493	22	515

TABLE 17: Continued

Mont.	58	10	456	524	28	552
Nev.	49	8	399	456	19	475
N. Mex.	40	12	498	550	20	570
Utah	42	10	335	387	17	404
Wyo.	44	8	267	319	14	333
Total	475	115	4,718	5,308	214	5,522
PACIFIC						
Alaska	0	0	84	84	4	88
Cal.	2,672	606	15,202	18,480	501	18,981
Hawaii	113	0	-64	49	7	56
Oreg.	242	44	940	1,226	48	1,274
Wash.	374	47	1,159	1,580	72	1,652
Total	3,397	698	17,323	21,418	631	22,049
GRAND TOTAL	22,412	4,729	108,351	135,492	4,801	140,293

Source: Computed from "1963 Marketing Guide", Quick Frozen Foods, March, 1963, pp. 119-172.

TABLE 18: The estimated pounds of fresh commercial cherry pie sold in institutional and retail outlets and the amount of tart cherries used.¹

Year	Total Pounds Institutional Cherry Pie	Pounds of Cherries	Retail Sales			Pounds of Cherries
			Multi-Outlet	Home Service	Grocery Chains	
- - 1,000 pounds raw product equivalent - -						
1950	111,969	46,467	2	2	2	
1951	113,648	47,164	2	2	2	
1952	114,204	47,395	2	2	2	
1953	115,327	47,861	2	2	2	
1954	111,191	46,144	11,334	8,588	11,857	12,631
1955	114,771	47,630	2	2	2	
1956	111,524	46,283	2	2	2	
1957	111,010	46,069	2	2	2	
1958	108,686	45,105	9,408	8,350	22,730	16,155
1959	108,718	45,118	2	2	2	
1960	111,612	46,319	2	2	2	
1961	112,043	46,623	2	2	2	

Source: Computed from the annual "Industry Production Study", Baking Industry, and the 1954 and 1958 Census of Manufactures.

¹ Does not include the sale of pies by retail single shop bakeries because of the lack of reliable data.

² Not reported.

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TABLE 19: The total and the per capita sales of commercially prepared fresh cherry pies by state and region for 1954 and 1958.

Area	1958		1954	
	Total Sales (000)	Per Capita Sales	Total Sales (000)	Per Capita Sales
- -Dollars- -				
NEW ENGLAND				
Conn.	957	.38	1,176	.53
Mass.	3,660	.68	3,172	.65
Total	5,026	.48	4,689	.48
MIDDLE ATLANTIC				
N. Y.	8,008	.48	6,195	.39
N. J.	1,810	.30	1,911	.37
Pa.	5,999	.53	5,925	.55
Total	15,817	.46	14,031	.44
EAST NORTH CENTRAL				
Ill.	3,620	.36	3,872	.43
Ind.	899	.19	883	.21
Mich.	2,021	.26	2,370	.34
Ohio	3,593	.37	2,821	.32
Wis.	396	.10	422	.12
Total	10,527	.29	10,368	.32
WEST NORTH CENTRAL				
Minn.	429	.13	464	.15
Mo.	845	.20	896	.22
Total	1,724	.11	1,897	.13
SOUTH ATLANTIC				
Fla.	634	.13	536	.16
Geo.	650	.17	619	.17
Mo.	1,085	.35	936	.36
N. C.	1,039	.23	464	.11
Va.	415	.11	627	.18
Total	4,610	.18	4,041	.18
EAST SOUTH CENTRAL				
Ky.	1,093	.36	620	.21
Tenn.	1,190	.33	1,510	.45
Total	3,087	.26	2,277	.20

TABLE 19: Continued

WEST SOUTH CENTRAL				
La.	358	.11	317	.11
Okla.	212	.09	502	.23
Texas	1,312	.14	1,298	.15
Total	1,915	.11	2,202	.15
MOUNTAIN				
	723	.11	735	.13
PACIFIC				
Cal.	6,084	.39	5,316	.41
Oreg.	280	.16	407	.24
Wash.	577	.20	514	.20
Total	6,940	.33	6,237	.34
GRAND TOTAL	50,368	.28	46,477	.29

Source: Computed from the Census of Manufactures, U. S. Department of Commerce.

TABLE 20: A conversion table for determining the estimated amount of cherry pie or fruit from a given series of data.

Type of Pie	Diameter of Pie	Average Weight of Pie	Average Amount of Fruit	Ratio of Fruit/Pie	Ratio of Pie/Fruit	Average Price of Pie
Fresh Pie						
Retail	8 in.	24 oz.	9 oz.	.38	2.67	49 cents
Institutional	9 in.	42 oz.	18 oz.	.43	2.33	28 cents
Frozen Pie						
Retail	8 in.	22 oz.	8.6 oz.	.39	2.56	39 cents
Institutional	9 in.	42 oz.	18.4 oz.	.44	2.34	24.3 cents

TABLE 21: The estimated percent of homemakers baking one or more cherry pies during one week in April, May or June of 1955.

	U.S.		Northeast		North Central		South		West	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
	All Households	3.9	8.0	2.5	7.7	5.1	9.5	4.1	7.0	4.3
1 Person Households	1.9	1.8	0.7	4.5	1.9	2.7	2.9	0.6	2.3	2.0
2 or More Person Households	4.1	8.2	2.7	7.7	5.4	9.2	4.3	7.1	4.5	7.6
Income										
Under 2000	3.6	7.3	3.9	6.3	5.3	8.2	3.2	6.6	2.4	9.6
2000-3999	4.1	8.9	2.0	10.3	5.4	10.1	4.6	7.6	5.6	8.4
4000-5999	4.5	8.4	2.6	6.8	6.4	10.0	5.1	7.2	4.8	6.6
6000 and Over	4.0	8.3	3.7	5.7	4.8	9.6	3.5	8.7	3.9	5.6
Not Classified	3.2	8.9	2.1	6.9	3.9	11.1	4.7	7.9	4.0	6.4
Number in Household & Income										
2 Persons	3.5	7.3	2.4	7.3	4.9	7.9	3.6	6.9	3.1	6.2
Under 2000	3.6	6.7	3.3	5.4	6.4	6.8	2.2	6.7	3.0	6.4
2000-3999	3.2	8.9	1.4	12.0	3.9	9.8	4.1	7.3	4.5	8.0
4000-5999	3.7	5.8	1.7	2.6	6.0	7.9	3.6	5.3	3.5	0
6000 and Over	3.7	6.5	5.0	18.0	4.0	3.3	4.5	10.7	1.6	0
Not Classified	3.0	8.3	2.1	6.0	4.2	10.3	4.0	7.3	2.9	8.0
3 and 4 Persons	4.1	8.3	2.6	8.0	5.1	9.5	4.4	7.7	5.5	5.6
Under 2000	2.8	8.2	3.9	9.7	3.3	8.6	2.6	7.6	0	8.7
2000-3999	5.0	8.6	2.2	9.4	6.8	9.0	5.5	8.0	6.9	7.4
4000-5999	4.4	7.8	2.8	8.2	5.9	9.3	5.0	6.9	5.2	5.0
6000 and Over	3.4	7.5	2.6	3.6	4.1	11.0	2.6	6.9	4.8	3.2
Not Classified	3.1	8.9	2.2	6.0	3.0	11.2	4.3	8.4	6.0	0
5 Persons or More	5.1	8.5	3.4	7.7	6.7	11.0	5.1	6.6	5.3	10.1
Under 2000	6.5	6.7	7.2	4.2	0	10.4	6.7	5.6	0	14.2
2000-3999	3.5	9.2	2.5	4.7	5.1	11.2	3.2	7.3	4.3	9.4
4000-5999	5.7	9.9	3.0	5.3	7.6	11.3	7.1	8.3	5.7	9.6
6000 and Over	5.8	9.2	5.3	10.8	7.0	10.4	4.4	9.4	5.6	10.0
Not Classified	4.6	9.1	1.4	7.2	6.0	11.5	7.1	7.6	5.3	8.0

TABLE 21: Continued

Age of Homemaker & Income

All Homemakers	4.1	8.2	2.7	8.0	3.2	9.7	4.3	7.2	4.5	7.5
Under 30 Years	4.3	7.5	2.2	8.1	3.4	9.2	4.4	5.3	5.4	7.5
Under 2000	2.6	6.1	0	6.8	6.0	9.3	2.9	2.9	0	12.8
2000-3999	4.8	8.1	1.8	8.0	3.7	9.0	4.8	6.8	7.6	8.9
4000-5999	4.7	7.1	2.7	0	3.5	7.5	4.2	9.1	6.4	4.6
6000 and Over	4.6	7.9	2.8	9.0	3.8	10.3	5.3	5.3	4.0	5.3
Not Classified	2.4	9.7	2.0	18.0	0	13.1	4.0	8.0	2.7	5.3
30-49 Years	4.1	8.3	2.8	7.1	2.9	9.0	4.4	7.2	4.6	7.2
Under 2000	2.8	7.2	2.6	6.4	3.0	10.2	2.6	6.3	4.0	9.3
2000-3999	4.0	9.4	2.4	10.4	2.8	10.9	4.7	8.2	3.9	7.5
4000-5999	4.6	8.7	2.7	7.4	3.5	10.3	5.8	7.7	4.9	6.5
6000 and Over	4.1	8.1	4.1	3.6	2.6	9.0	3.2	8.4	4.7	8.0
Not Classified	3.2	8.5	1.6	2.4	2.3	11.6	5.6	8.0	5.3	4.0
50 Years and Over	3.8	8.3	2.6	9.1	3.5	9.1	3.9	7.5	3.6	8.2
Under 2000	4.2	7.8	5.2	6.9	2.8	7.3	3.8	7.7	1.3	9.3
2000-3999	3.5	8.6	1.7	11.6	2.9	9.5	4.0	6.8	7.0	9.6
4000-5999	4.2	8.6	2.3	7.2	5.2	10.7	4.0	5.3	3.5	9.6
6000-and Over	3.6	9.1	2.8	9.0	3.1	11.0	4.0	10.7	2.0	0
Not Classified	3.7	9.0	2.7	10.6	2.5	9.9	4.0	7.6	5.3	9.6

Source: Computed from the U.S.D.A. Household Food Consumption Survey, Food Consumption of Households in the United States, 1955.

TABLE 22: Average per capita expenditure of tart cherries and cherry products by period of 1954 to 1958.

Period	Tart Cherries			Tart Cherries		Tart Cherries		Commercial	
	Tart Cherries	Fresh	Canned	Frozen	Mix	Pie	Jam		
1	.016	-	.010	.001	.004	.014	.002		
2	.031	-	.022	.002	.007	.017	.002		
3	.022	-	.014	.002	.006	.018	.003		
4	.022	-	.012	.003	.006	.014	.003		
5	.022	-	.012	.001	.010	.013	.003		
6	.015	-	.009	.001	.004	.015	.002		
7	.036	.022	.006	.003	.003	.012	.004		
8	.055	.030	.007	.013	.004	.014	.003		
9	.027	.003	.008	.011	.002	.015	.004		
10	.019	-	.009	.004	.003	.009	.004		
11	.013	-	.009	.000	.002	.016	.002		
12	.011	-	.007	.001	.003	.011	.002		
13	.014	-	.008	.001	.004	.012	.002		

Source: Michigan State Consumer Panel data.

APPENDIX B - QUESTIONNAIRE

Confidential

We are interested in your comments on several aspects of the pie manufacturing industry. The type of pie we are interested in are your full-sized family pie.

1. What is the outlook for the pie manufacturing industry over the next 5-10 years with respect to:

(a) Consumer demand for commercially produced pie relative to alternative dessert items?

_____	down	_____	no change
_____	down	_____	up less than 5%
_____	down	_____	up 5-10%
_____	down	_____	up 10% or more, specify _____

Comments: _____

(b) Consumer demand for fruit pies relative to non-fruit pies?

_____	down	_____	no change
_____	down	_____	up less than 5%
_____	down	_____	up 5-10%
_____	down	_____	up 10% or more, specify _____

Comments: _____

(c) Consumer demand for tart cherry pie relative to other fruit pie?

_____	down	_____	no change
_____	down	_____	up less than 5%
_____	down	_____	up 5-10%
_____	down	_____	up 10% or more, specify _____

Comments: _____

(d) The willingness and ability of pie manufacturers to adjust to possible changes in consumers' demand? _____

(e) Other relevant comments _____

Some of the information about the pie manufacturing industry is not currently being reported. In order to find this information we must combine information from individual firms. Please fill in the following blanks and add comments when appropriate.

- 1. What part of your pie manufacture is for retail and what part for the institutional trade?

Retail _____
Institutional 9" _____ 10" _____

- 2. What are your five best selling pies and what percent of your total pie output do they make up.

Table with 4 columns: Retail Type of pie, Retail % of total pie output, Institutional Type of pie, Institutional % of total pie output. Includes 5 rows of blank lines for data entry.

The prices for fruit often fluctuates with the changing supply and demand.

How large a charge in the price of tart cherries as an ingredient for pie is necessary before there is a change in:

- (a) Your product output mix (the quantities of cherry, apple, peach, and etc. pies)?

- () no change
() less than 5%
() 6-10%
() 10-15%
() more than 15%, specify _____

Comments: _____

- (b) Your cherry pie recipe or ingredient formula?

- () no change
() less than 5%
() 6-10%
() 10-15%
() more than 15%, specify _____

Comments: _____

(c) The f.o.b. bakery price of a cherry pie?

- () no change
- () less than 5%
- () 6-10%
- () 10-15%
- () more than 15%, specify _____

Comments: _____

Red tart cherries are sold for commercial use in several forms. In what form does your company normally purchase its tart cherries (if more than one form, what are the respective percentages)?

Frozen		
Barrels	_____	%
30 lb. tin	_____	%
Canned - No. 10 can	_____	%
Premixed pie filling	_____	%
Other	_____	%
	100%	

Indicate how many retail and how many institutional sized cherry pies your firm manufactures from the contents of the following?

	30 lb. frozen tin	No. 10 can
retail sized pies	_____	_____
institutional sized pies	_____	_____

The cost of manufacturing pies can be broken down into categories. What percent of the cost of a pie do the following represent for your company?

	Fruit pie	Non-fruit pie	Cherry pie
Pie filling'			
fruit	_____ %		_____ %
other (filler, sugar, & etc.)	_____ %	_____ %	_____ %
Package	_____ %	_____ %	_____ %
Crust	_____ %	_____ %	_____ %
Labor	_____ %	_____ %	_____ %
Other (baking tin, baking cost, etc.)	_____ %	_____ %	_____ %
	100%	100%	100%

Indicate the distribution pattern of your firm

Local	_____ %
Regional	_____ %
National	_____ %

How long after baking for fresh pies or how long after manufacture for frozen pies is the storage life of the following pies:

Fruit pies _____

Non-fruit pies _____

Cherry pies _____

Other general comments about the questionnaire or the study _____

BIBLIOGRAPHY

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- _____. "Consumer Attitudes Towards Frozen Foods", Quick Frozen Foods, October 1960, p. 90.
- Dennis, Carleton C., "Tart Cherry Pricing in the Long Run" Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, 1963 (Mimeographed).
- Franklin, Harold L., "1963 Frozen Food Marketing Guide", Quick Frozen Foods, (March 1963), p. 119-172.
- French, B. C. "Some Economic Aspects of Pie Consumption", Quarterly Bulletin, Michigan Agricultural Experiment Station, Michigan State University, East Lansing, Michigan. Vol. 41, No. 3, February 1959.
- French, B. C. Trends and Characteristics of Red Cherry Consumption. Special Bulletin 414, Agricultural Experiment Station, Michigan State University, East Lansing, Michigan, March 1957.
- _____. "Frozen Foods Almanac", Quick Frozen Foods, 1950-1962.
- _____. "Fruit Pies, French Fries, and Dinners Lead as Potential Top Sellers in 1962," Quick Frozen Foods, February 1962, p. 156.
- Greig, W. Smith. "Market Development for Cherries", Talk given to Cherry growers at Traverse City, Michigan on October 3, 1962.
- Greig, W. Smith and Stuckman, Noel W. Market Potentials for Dehydrofrozen and Dehydrocanned Apple Slices. Agriculture Economics Mimeo 801, Michigan State University, East Lansing, Michigan, September, 1960.
- _____. "Has Frozen Fruit Pie Sales Hit It's Peak", Quick Frozen Foods, January 1958, 91-92.
- Morton Frozen Foods, Rye, N. Y. Information on the volume of cherries used in frozen cherry pie. March 1963.
- National Association of Frozen Food Packers. Frozen Food Pack Statistics. 1950-1961.

National Cannery Association, Division of Statistics and Economics. Canned Red Pitted Cherries, U.S. Supply Stocks and Shipments. Monthly reports, 1950-1962.

National Cannery Association, Division of Statistics and Economics, Packs of Canned Fruit and Berry Pie Fillings. Annual Reports, 1956-1962.

Oldenstadt, Dennis L. Economic Relationships in Red Tart Cherry Marketing, 1957-1961. Department of Agriculture Economics, Michigan State University, East Lansing, Michigan, June 1962.

Oldenstadt, Dennis L. and McManus, George, Jr. "Work Sheets for Federal Marketing Order Study for Red Cherry Industry". Department of Agriculture Economics, Michigan State University, East Lansing, Michigan 1963 (Mimeographed).

Pet-ritz Division, Pet Milk Company, St. Louis, Missouri. Information on the seasonal marketing of frozen cherry pie. April, 1963.

_____. "Price Line Fruit Pies Become Reality as 22 oz. Units Become Widespread", Quick Frozen Foods, September 1959, 109-111.

Quick Frozen Foods. E. W. Williams Publishing Co., Inc., New York, New York. 1950-1963.

Shaffer, James D. Consumer Purchase Patterns for Individual Fresh, Frozen, and Canned Fruits and Vegetables. MSU Consumer Panel Bulletin No. 8, Department of Agricultural Economics, Michigan State University, East Lansing, Michigan, 1962.

_____. "Swing Towards Institutional Frozen Pies Bares Glaring Lack of Market Research", Quick Frozen Foods, September 1958, 75.

Smucker, J. M. Co., Orrville, Ohio. Information on the manufacture of cherry confections. May 1963.

U.S. Department of Commerce, Bureau of the Census. Annual Survey of Manufactures. 1954, 1958, 1961.

U.S. Department of Agriculture, Agricultural Marketing Service. Homemaker Preferences for Pies and Canned and Frozen Cherries, Marketing Research Report No. 116, April 1956.

U.S. Department of Agriculture, Agricultural Marketing Service. Survey of Fruit Use by Preserve Manufacturers. Marketing Research Report No. 123, June 1956.

U.S. Department of Agriculture, Agricultural Marketing Service.
The Use of Frozen Foods by Restaurants. Marketing Research
Report No. 144, November 1956.

U.S. Department of Agriculture, Agricultural Research Service and
Agricultural Marketing Service. Food Consumption of Households.
Household Food Consumption Survey, 1955. Reports No. 1, 2, 3, 4,
5, and 13. December 1956.

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