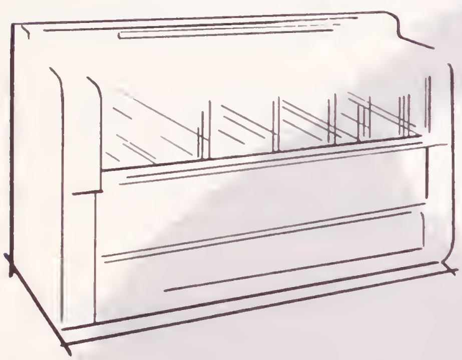
PRODUCTION OF *Frozen Prepared Foods*

1954-55



Marketing Research Report No. 170

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
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SUMMARY

Frozen prepared foods make up a rapidly growing segment of the food industry. Reported production during 1955 exceeded one-half billion pounds, excluding all fish and shellfish items except fish sticks. This was about 60 percent greater than in 1954.

About 170 items are being produced commercially--ranging from hors d'oeuvres and soups to desserts, and from breaded veal cutlets to complete dinners. However, 4 product groups--french-fried potatoes, poultry and meat potpies, fish sticks, and dessert pies accounted for about two-thirds of the total output.

Currently, frozen prepared foods constitute a relatively small portion of all foods--about 3 pounds--out of more than 1,500 pounds consumed per capita. However, the rapid expansion of this industry, the range of products being developed and marketed, and the increasing demand for built-in services all focus attention upon frozen prepared foods and their potential implications to food marketing. This study was made to determine the current status of this industry and to evaluate its potential development.

The bulk of frozen prepared foods is consumed in the home. Over 80 percent of the pack was sold in retail food stores; however, rapidly increasing quantities are being used by restaurants, cafeterias, and other institutional feeding establishments. During 1955 about 85 million pounds were packed for this outlet. This volume consisted primarily of prepared frozen meats and poultry products, french-fried potatoes, dessert pies and other bakery products. The retail and institutional markets each appear to hold considerable potential demand for frozen prepared foods.

During 1955 about 80 percent of frozen prepared foods were marketed under the packer's label. An additional 10 percent was packed for other firms engaged in processing frozen prepared foods. The remaining 10 percent was reported to be packed under the private labels of retail store operators, distributors, and other nonprocessing firms. Private label operations were restricted generally to volume items, such as potpies and french-fried potatoes.

Frozen food distributors appear to be handling over half of the frozen prepared food pack, including large volumes moving into both retail and institutional channels. However, a large segment of the pack--about 38 percent--was reported to be sold to chain stores and other retail store group purchasing agencies.

This new industry is in a phase of rapid expansion and is facing production and marketing problems generally inherent with this stage of development. Trade groups and individual processors are working toward resolution of many of these problems.

Products of good and consistent quality must be available if optimum development of this market is to occur. This requires effective product handling through all stages of marketing.

Shortage of freezer cabinet capacity in retail stores is a difficult marketing problem. New frozen prepared foods must have almost immediate and continued consumer acceptance if they are to gain and retain freezer space. This accentuates the need for consumer education and sound product and market analysis.

Transportation is another problem facing the frozen prepared food manufacturer. Existing facilities were reportedly not geared for frequent, small-volume shipments to numerous markets. The average manufacturer in 1955 produced around a quarter million pounds of a limited number of frozen prepared food items. Less than 10 percent of the

firms reported an output of 5 million pounds or over. The current level of production will not support, for many firms, a national or regional distribution system based upon full trucklot or carlot shipments. The industry appears to need an effective less-than-trucklot service or consolidated facilities for frozen freight.

PRODUCTION OF FROZEN PREPARED FOODS, 1954-55

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BACKGROUND OF STUDY

Frozen prepared foods are one of the fastest growing segments of the frozen food industry. More than 170 different items are being produced, ranging from appetizers to desserts and from individual items to complete dinners. New frozen prepared foods continually are entering the market, and some items are disappearing.

Increasing quantities of agricultural products are being marketed as frozen prepared foods; however, little information is available as to production and marketing patterns in this industry. This study aimed to answer the following questions:

1. What is the current production level of frozen prepared foods?
2. What is the relative importance of the marketing outlets used?
3. What are the major problems facing this industry?

This survey is one of several studies being conducted by the Agricultural Marketing Service to measure the relative size and nature of markets for frozen foods.

Efforts were made to contact all frozen prepared food manufacturers by mail questionnaire or personal interview. Basic lists were compiled from published trade directories, and these were supplemented by industry sources in each major production area. Responses have been obtained from 237 firms, or more than 70 percent of all firms contacted. It is estimated that production reported in this survey represents between 80 and 90 percent of total frozen prepared food production during 1954 and 1955.

PRODUCTION OF FROZEN PREPARED FOODS

Definition

For this survey frozen prepared foods were defined as foods sold in frozen form and which have received one or more preparatory operations customarily performed in the home, such as: (1) Cooking or partial cooking; (2) blending or combining two or more food items. This study does not include considerable amounts of bakery products or other food items which are prepared and frozen, but are sold in nonfrozen form. It excludes foods that may be frozen by public eating establishments and used by them in the serving of meals.

Most frozen prepared items clearly met the qualifications set forth in the definition; however, several borderline areas existed to which a rule of reason was applied. Foods were excluded if only a single preparatory operation was involved (such as mixing, cutting, or butchering), and the product has been available readily in nonfrozen form. Examples of excluded items are frozen mixed vegetables (such as succotash, carrots, and peas), frozen cut-up poultry, and bulk hamburger.

Listing of Products

On the following pages, there is a list of 173 frozen prepared foods--individual items or product classes--for which commercial manufacture has been reported. Even this list is incomplete as new products are being introduced at a rapid rate, and some items are being withdrawn.

LIST OF FROZEN PREPARED FOODS REPORTED IN COMMERCIAL PRODUCTION

1. Hors d'oeuvres

2. Soups
   - Fish or shellfish based
   - Vegetable or meat based
   - (For Chinese soups, see #7)

3. Meat dishes
   - Meat dinners
   - Meat potpies
   - Beef steaks, buttered
   - Cheeseburgers
   - Meat patties
   - Other meat dishes
     - Beef barbecued
     - Beef cooked
     - Beef crisp
     - Beef croquettes
     - Beef, dried, creamed
     - Beef roasts, cooked
     - Beef steaks, fabricated, breaded
     - Beef steaks, fabricated with potatoes
     - Beef sticks, breaded
     - Chitterlings, cooked
     - Corned beef and cabbage
     - Frankfurters and sauerkraut
     - Ham, cooked
     - Ham loaf
     - Ham sticks
     - Hash
     - Lamb, cooked
     - Lamb sticks, breaded
     - Meat sticks
     - Ponchos
     - Pork spareribs, cooked
     - Pork sticks, breaded
     - Sausage and potatoes
     - Sausage patties and rolls
     - Sausage and spaghetti
     - Steak sticks, breaded
     - Stuffed cabbage
     - Stuffed peppers
     - Veal cutlets, breaded
     - Veal sticks, breaded

4. Poultry dishes
   - Poultry dinners
   - Poultry potpies
   - Breaded chicken
   - Other poultry dishes
     - Brunswick stew, chicken
     - Chicken a la king
     - Chicken, cooked
     - Chicken croquettes

4. Poultry dishes--Continued
   - Other poultry dishes--Continued
     - Chicken dishes
     - Chicken, fried
     - Chicken livers, cooked
     - Chicken and noodles
     - Chicken, roasted
     - Chicken steaks, cooked
     - Chickenburgers
     - Turkey a la king
     - Turkey dishes
     - Turkey sticks

5. Fish dishes
   - Fish dinners
   - Fish potpies
   - Fish sticks
   - Cooked fish fillets and steaks
   - Fish cakes or patties
   - Other fish dishes
     - Fish and chips
     - Fish, breaded
     - Fish, cooked
     - Salmon croquettes
     - Smelts, breaded
     - Tuna turnovers

6. Shellfish dishes
   - Shrimp
     - Shrimp, breaded
     - Shrimp cocktail
     - Shrimp sticks
     - Shrimp a la Newburg
     - Shrimp cakes
     - Shrimp creole
     - Shrimp croquettes
     - Shrimp rolls
   - Lobster, total
     - Lobster a la Newburg
     - Lobster cakes
     - Lobster cocktail
   - Oyster
     - Oysters, breaded
     - Other oyster dishes
       - Oyster cakes
       - Oysters, cooked
   - Crab, total
     - Crab cakes
     - Crab cocktail
     - Crab deviled
     - Crab loaf
     - Crab patties
     - Crab rolls
     - Crab sticks
   - Clam, total
     - Clam patties

6. Shellfish dishes--Continued
    - Clam, total--Continued
        - Clams, deviled
        - Clams, fried
    - Other shellfish, total
        - Abalone
        - Conch, cooked
        - Scallops, breaded
        - Scallops, cooked

7. Nationality foods
    - Italian
        - Pizza
        - Ravioli
        - Other Italian foods
            - Cavatelli
            - Lasagna
            - Manicotti
            - Pasta fagiola
            - Spaghetti
            - Spaghetti and meat balls
            - Spaghetti sauce
    - Middle European foods[1]
        - Blintzes
        - Knishes
        - Kreplach
        - Other Middle European foods
            - Knedliky
            - Kashas
            - Kosher foods
            - Latkes
            - Pirogen
    - Mexican, total
        - Chili con carne
        - Enchiladas
        - Tacos
        - Tamales
        - Tortellinis
    - Oriental
        - Chop sueys
        - Chow meins
        - Egg rolls
        - Chinese soups
        - Other Oriental foods
        - Egg foo young
        - Fried rice dishes
        - Sukiyaki
    - Other nationality dishes
        - Goulash
        - Hungarian foods
        - Swedish foods

8. Potato products
    - French-fried potatoes
    - Potato puffs

[1] Includes some Near Eastern dishes.

8. Potato products--Continued
    - Baked potatoes
    - Mashed potatoes
    - Potato patties or cakes
    - Other potato products
        - Potatoes, diced
        - Potatoes, escalloped
        - Potatoes, hashed brown
        - Potatoes, stuffed baked
        - Sweet potatoes, candied
        - Yams

9. Side dishes
    - Onion rings
    - Sauces and gravies
    - Other side dishes
        - Beans, pinto cooked
        - Eggplant, cooked
        - Cranberry-orange relish
        - Wild rice

10. Baked products (other than pies)
    - Waffles
    - Cheesecake
    - Cookies
    - Eclairs
    - French toast
    - Other bakery products
        - Cobblers
        - Coffee cakes
        - Coffee rings
        - Cookie dough
        - Cornbread sticks
        - Doughnuts
        - Dumplings
        - English muffins
        - Macaroons
        - Pancakes
        - Pastries
        - Pastry dough
        - Pie crusts
        - Rolls
        - Shells
        - Shortcake
        - Spoonbread
        - Stuffing

11. Dessert pies
    - Fruit

12. Miscellaneous
    - Fruit salad
    - Toppings
    - Other miscellaneous
        - Macaroni and cheese
        - Rice dishes
        - Sandwiches

Frozen prepared foods are available as combination platters or individual dishes. They include items for almost every course of a meal from appetizer and soup to dessert. Nationality foods and regional specialties are included along with foods in common usage. Some are cooked, others are ready for the oven, or otherwise partially prepared. Thus, there are wide variations in the amount of "built-in" services as well as in the types of foods included in this broad category.

Nearly all major agricultural food products are used in manufacturing frozen prepared foods. Some of these products have counterparts which have been distributed widely in fresh or canned form, while others formerly were available only in restaurants or delicatessens. The wide varieties of frozen prepared foods have one characteristic in common--a part of the preparation has been transferred from the kitchen to the factory.

Quantities Produced

Reported production of frozen prepared foods during 1955, excluding frozen prepared fish and shellfish dishes other than fish sticks, was almost 512 million pounds.[1] Similar production in 1954 amounted to less than 320 million pounds. Thus, a gain in production of 60 percent was registered during 1955. This is shown in table 1.

It is evident that important production increases occurred in every category of frozen prepared foods during 1955. The smallest reported increase was 23 percent. Only three categories (fish sticks, bakery products other than dessert pies, and miscellaneous) showed gains of less than 50 percent. Production more than doubled for hors d'oeuvres, meat potpies, poultry dishes (other than potpies), and "side" dishes.

Figure 1 shows 1954-55 production of frozen prepared foods broken down into major categories based upon principal ingredients or characteristics--potatoes, meats, poultry, bakery products, fish, nationality foods, and miscellaneous. This figure shows the relative importance of these product categories and the extent of increases in 1955 production over 1954 levels.

During 1955, frozen prepared potato products led in quantities produced with over 160 million pounds. Meat and poultry items were about equal in volume during 1955, each over 91 million pounds. Bakery products aggregated over 68 million pounds, or an amount slightly greater than the production of fish sticks. Nationality foods, such as Italian, Mexican, etc., accounted for over 28 million pounds of frozen prepared foods.

If 1955 data were available for all frozen prepared fish and shellfish items, it is probable that the combined production of these items would exceed that of all other categories except potato products. During 1954, production of fish and shellfish products other than fish sticks was over 42 million pounds. Such a volume in 1955, when combined with a reported production of 65 million pounds of fish sticks, would result in a figure slightly larger than the production of either frozen prepared meat or poultry dishes.

Although many different frozen prepared foods are manufactured, a relatively few items constitute the bulk of production. Ten food items had a production of over 10 million pounds each (table 2). These products accounted for more than 80 percent of total production.[2] The combined output of 4 items--frozen french-fried potatoes, meat and poultry potpies, and dessert pies--constituted about 54 percent of total frozen prepared food production in 1955. These 4 products alone showed a production gain of more than 110 million pounds during 1955 and represented about 55 percent of the total gains (in pounds) recorded by the industry during that year.

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[1] Data obtained in this survey have not been expanded to include production of nonrespondents, estimated to be from 10 to 20 percent of total output.

[2] Excluding frozen prepared fish and shellfish products, other than fish sticks.

Table 1.--Frozen prepared foods: Production reported for 1954-55 and portion of firms reporting

Category and class[1]	Production[2]		1955 compared with 1954	Percent of firms reporting
	1954	1955		
	1,000 pounds	*1,000 pounds*	*Percent*	*Percent*
Hors d'oeuvres..................	210	462	+120	83
Soups...........................	([3])	([3])	--	--
Meat dishes.....................	--	--	--	77
Potpies.........................	9,943	21,727	+119	--
Other...........................	45,613	69,670	+53	--
Poultry dishes..................	--	--	--	78
Potpies.........................	43,739	83,179	+90	--
Other...........................	3,482	8,146	+134	--
Fish items......................	--	--	--	([4])
Fish sticks.....................	49,962	65,409	+31	--
Other...........................	11,245	([5])	--	--
Shellfish items.................	--	--	--	([4])
Shrimp..........................	22,955	([5])	--	--
Other...........................	8,019	([5])	--	--
Nationality foods...............	16,911	28,869	+71	64
Potatoes........................	--	--	--	90
French-fried....................	84,102	127,083	+51	--
Other...........................	12,622	33,140	+50	--
Side dishes.....................	1,312	3,683	+181	81
Bakery products				
Dessert pies....................	27,228	44,797	+65	83
Other...........................	19,207	23,644	+23	65
Miscellaneous...................	1,507	2,105	+40	78
Total...........................	358,057	511,934	([6])	73
Subtotal of items with comparable 1954 and 1955 production data....................	315,838	511,934	+60	--

[1] See pages 2 and 3 for types of items included.
[2] Data on fish and shellfish items obtained from Fish and Wildlife Service, U. S. Dept. of Interior. Production of other items as reported by 73 percent of firms reported to be manufacturing frozen prepared foods. These firms are estimated to represent 80 to 90 percent of total production although coverage will vary among individual food categories. Production for 1955 is based on estimates made during fourth quarter 1955.
[3] Inadequate data. Totals reported are included in miscellaneous category.
[4] Data not available.
[5] Data in process of collection.
[6] Data not comparable, since 1955 data do not include quantities of frozen prepared fish and shellfish products other than fish sticks.

Current Changes in Production

This is a growing industry and changes in production levels between 1954 and 1955 are significant. As shown in figure 2, production increases are not uniform, but vary widely between individual products even in the same class. For example, mashed potatoes, potato patties, cakes, and french-fries all registered large percentage gains;

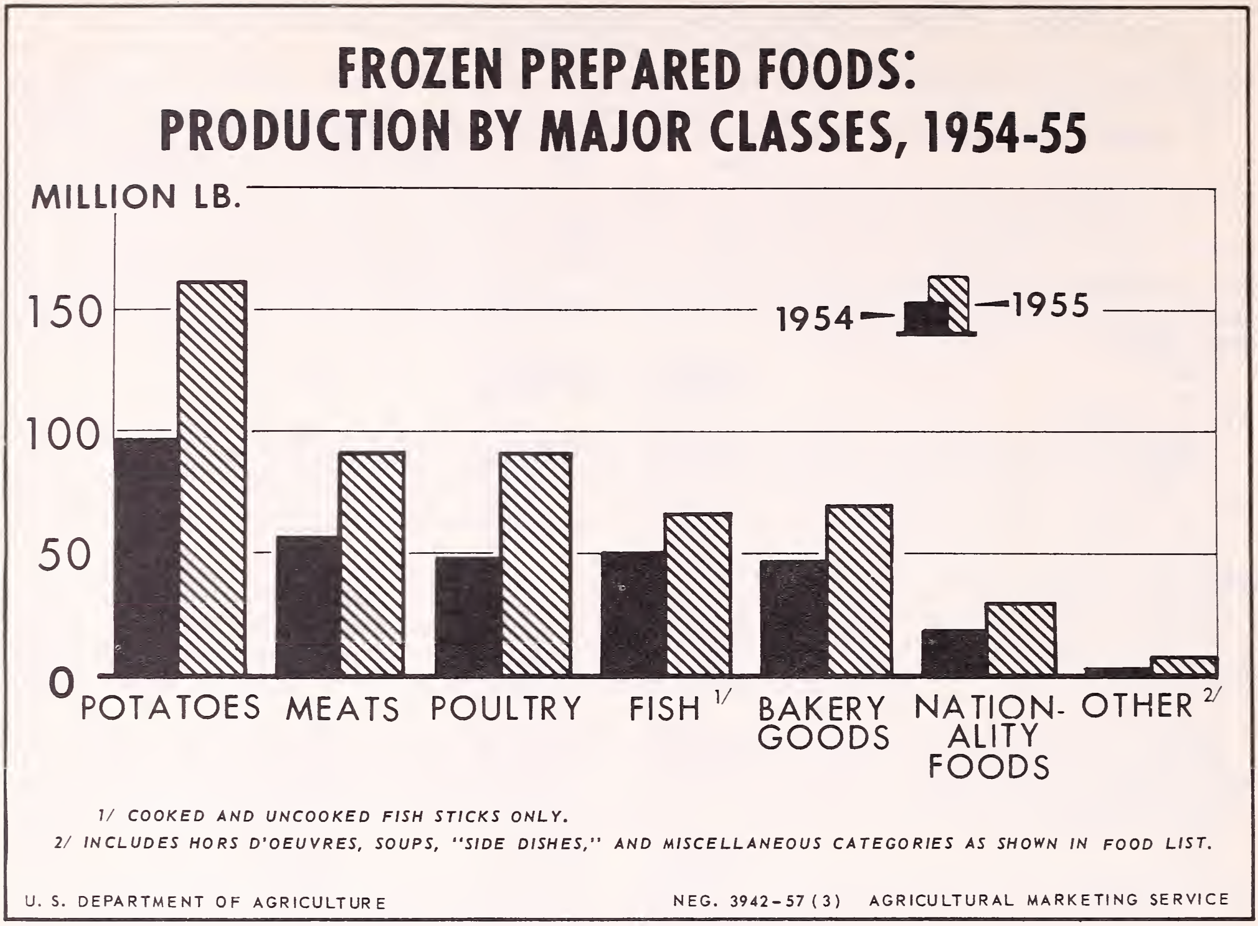

Figure 1

Table 2.--Production of 10 selected frozen prepared foods, 1955

Frozen prepared products	1955 production	
	1,000 pounds	*Percent of total*
Potatoes, french-fried	127,083	24.8
Poultry potpies	83,179	16.3
Fish sticks	65,409	12.8
Dessert pies	44,797	8.8
Beefsteak[1]	25,158	4.9
Meat potpies	21,727	4.2
Potatoes, mashed	15,347	3.0
Meat patties	11,244	2.2
Potatoes, patties or cakes	10,433	2.0
Waffles and pancakes	10,089	2.0
Total	414,466	[2] 81.0

[1] Includes buttered, sandwich, fabricated, and "other."

[2] Total production, excluding fish and shellfish items other than fish sticks. See table 1.

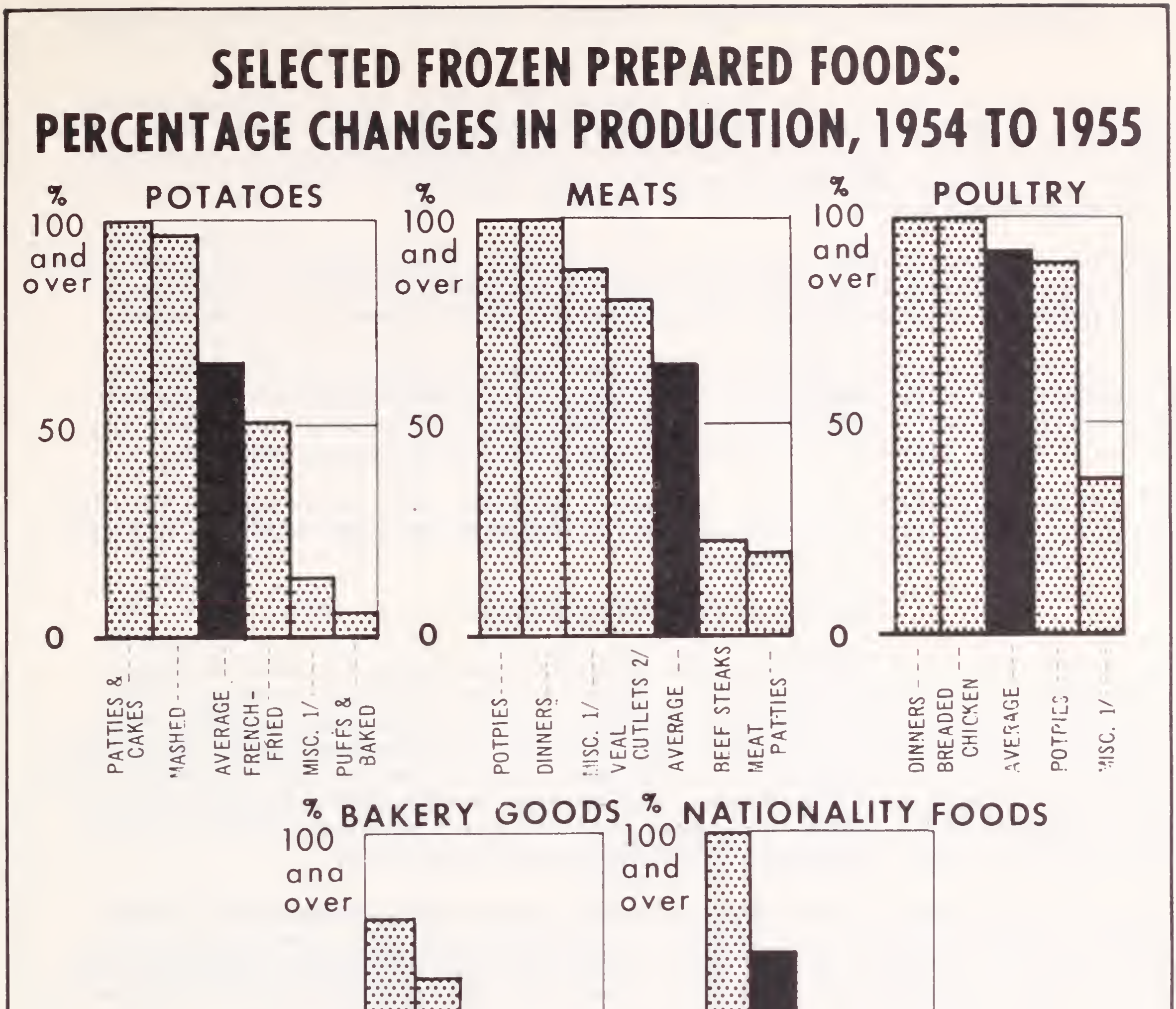
SELECTED FROZEN PREPARED FOODS:
PERCENTAGE CHANGES IN PRODUCTION, 1954 TO 1955
POTATOES
MEATS
POULTRY
%
100 and over
50
0
PATTIES & CAKES
MASHED
AVERAGE
FRENCH-FRIED
MISC. 1/
PUFFS & BAKED
POTPIES
DINNERS
MISC. 1/
VEAL CUTLETS 2/
AVERAGE
BEEF STEAKS
MEAT PATTIES
DINNERS
BREADED CHICKEN
AVERAGE
POTPIES
MISC. 1/
BAKERY GOODS
NATIONALITY FOODS
CAKES 3/
PIES
AVERAGE
MISC. 1/
WAFFLES 4/
MEXICAN
AVERAGE
ITALIAN
ORIENTAL
OTHER 5/
1/ INCLUDES MISCELLANEOUS AND NONSPECIFIC ITEMS. 2/ INCLUDES BREADED VEAL STEAKS.
3/ ALSO CHEESECAKE. 4/ ALSO PANCAKES. 5/ INCLUDES SOME MIDDLE EUROPEAN, MIDDLE EAST AND JEWISH FOODS.
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Figure 2

whereas, combined production of baked potatoes and puffs increased at a lesser rate.

Among frozen prepared meat products, production of beef steaks and meat patties, including cheeseburgers, advanced around 20 percent--an important rise for these relatively high volume items. However, production of meat potpies and dinners more than doubled during the same period and heavy gains were registered for breaded veal products and miscellaneous items.

Production of frozen chicken and turkey dinners more than doubled, as did the output of breaded chicken. About 90 percent more chicken and turkey potpies were produced. Combined production of other frozen prepared poultry products rose over one-third.

The greatest percentage of gain among frozen bakery products was for cakes, including cheesecake. Production of these items in 1955 was almost 80 percent greater than in the previous year. Frozen dessert pie production was up about 65 percent. Significant, but smaller, gains were recorded among other frozen bakery products.

Among frozen nationality foods, production of Mexican items more than doubled in 1 year. Gains of over 40 percent were recorded for Italian foods. Other foods in this category showed sizable, but smaller, gains.

Changes in Food Items Produced

What items were added to, or taken out of, production during the past 18 months? Answers indicated a considerable expansion in the numbers of frozen prepared foods being manufactured. Although no measure was obtained as to quantities involved, meats and meat dishes constituted the greater share of product introductions during this period. These ranged from uncooked breaded beef and veal steaks to cooked specialties--such as corned beef and cabbage, veal cacciatore, and complete dinners. The number of firms producing fruit pies, potato patties and cakes, and various "casserole" dishes (such as macaroni and cheese) also increased significantly within this period.

Poultry and meat potpies, fruit pies and other bakery goods constituted a sizable portion of the frozen prepared foods taken out of production by individual firms. Since these same items were being added by other firms, and total production was expanding, it is apparent that competition or other factors affecting the individual firms would be the primary cause of such deletions from the product line rather than the level of overall consumer acceptance for the product. Thus, the reported production cancellations did not provide a measure of lack of consumer acceptance for any single item or product category.

Institutional Pack

Although frozen prepared foods have been marketed primarily through retail outlets, institutional use has been increasing rapidly. As shown in table 3, almost 50 million pounds of these products were reported packed during 1954 for institutional use--mostly in restaurants, cafeterias, and public eating places. During the next year, production for this outlet had risen to about 85 million pounds, an increase of around 74 percent. In 1954, institutional users took about 13 percent of these products, whereas their share had risen to about 20 percent in 1955.[3]

Table 4 shows the estimated breakdown of 1955 production into retail and institutional packs. This indicates the predominant position currently held by the retail market. Although only 20 percent of the total output moved into institutional channels, this outlet was considerably more important for several categories of frozen prepared foods. For example, about 28 percent of the frozen prepared meats, other than potpies, appear to be going into the institutional market. This includes heavy volumes of breaded or fabricated

[3] This excludes production of fish and shellfish items for which data were not obtained.

Table 3.--Frozen prepared foods: Estimated institutional pack for 1954-55

Category and class	Institutional pack		Increase
	1954	1955	
	1,000 pounds	*1,000 pounds*	*Percent*
Hors d'oeuvres.........	77	131	+70
Soups..................	([1])	([1])	--
Meat dishes			
Potpies..............	9	47	+522
Other................	11,461	19,157	+67
Poultry dishes			
Potpies..............	255	438	+72
Other................	1,220	2,546	+109
Fish items.............	([2])	([2])	--
Fish sticks..........	--	--	--
Other................	--	--	--
Shellfish items........	([2])	([2])	--
Shrimp...............	--	--	--
Other................	--	--	--
Nationality foods......	1,139	1,347	+18
Potatoes...............			
French-fried.........	24,427	49,608	+103
Other................	5,091	4,178	-18
Side dishes............	150	500	+333
Bakery products........	--	--	--
Dessert pies.........	2,163	3,704	+71
Other................	2,544	2,783	+9
Miscellaneous..........	346	456	+32
Total................	48,882	84,895	+74

[1] Included in miscellaneous category.
[2] Data not available.

steaks, cutlets, preformed meat cakes and patties, as well as some cooked meat items.

The rate of change, however, has varied between product classes. Production for institutional use of such major frozen items as prepared meat and poultry dishes (other than potpies) have shown significant increases. Considerable percentage increases also were shown for hors d'oeuvres, meat and poultry potpies, and side dishes--such as onion rings. However, these represented a smaller share of the total increase in volume moving into institutional channels.

Over 30 percent of the frozen prepared poultry products--other than potpies--appears to be moving to institutional outlets. Included are sizable quantities of breaded chicken. In the case of both poultry and meats, these computations were designed to exclude such frozen items as cut-up chicken parts, steaks, roasts, and other meat items where prefabrication was essentially a cutting operation.

Almost 40 percent of the frozen french-fried potatoes appeared to be destined for institutional use. A smaller percentage, about 13 percent, of other frozen potato products--including cakes, patties, and mashed--were included in the institutional pack.

Table 4.--Frozen prepared foods: Estimated pack for retail and institutional use, 1955

Category and class	1955 pack			Retail share
	Total	Retail	Institutional	
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*Percent*
Hors d'oeuvres..............	462	331	131	71
Soups[1]	--	--	--	--
Meat dishes				
Potpies....................	21,727	21,680	47	99
Other......................	69,670	50,513	19,157	72
Poultry dishes				
Potpies....................	83,179	82,741	438	99
Other......................	8,146	5,600	2,546	68
Fish items				
Fish sticks................	65,409	([1])	([1])	([1])
Other......................	([1])	([1])	([1])	([1])
Shellfish items				
Shrimp.....................	([1])	([1])	([1])	([1])
Other......................	([1])	([1])	([1])	([1])
Nationality foods...........	28,869	27,522	1,347	95
Potatoes				
French-fried...............	127,083	77,475	49,608	61
Other......................	33,140	28,962	4,178	87
Side dishes.................	3,683	3,183	500	86
Bakery products				
Dessert pies...............	44,797	41,093	3,704	91
Other......................	23,664	20,881	2,783	88
Miscellaneous...............	2,105	1,649	456	78
Total......................	511,934	361,630	84,895	--
Comparable items..........	446,525	361,630	84,895	80

[1] Data not yet available.

Less than 10 percent of the frozen dessert pies and about 12 percent of other bakery items were reported in the institutional pack. Large portions of the varied group of items included in the hors d'oeuvres, side dishes, and miscellaneous categories were marketed through restaurants, cafeterias, and other institutional feeding establishments.

In contrast, a relatively small volume of meat and poultry potpies and nationality foods were reported packed in institutional size containers or packages.

It is possible that restaurants and cafeterias, for example, may use some frozen prepared foods obtained in retail size containers. Also, some of these items in the institutional pack may find their way into home consumption.

Relationship to Consumption of Other Foods

During 1955 the reported production of frozen prepared foods per capita was slightly more than 3 pounds. This is a relatively small portion of the more than 1,500 pounds of foods consumed per capita during that year. However, many pounds of fluid milk and other foods with high water and cellulose content are included in this figure.

The relative volume of frozen prepared foods may be measured best by comparisons with other well-known processed foods. The following are estimated per capita consumption rates for selected processed foods during 1954.

Processed foods	Pounds (product weight)
Canned fruits	19.2
Canned juices (single strength)	13.4
Canned vegetables	40.9
Canned meats	9.6
Frozen fruits (including citrus juices)	7.3
Frozen vegetables	5.9

During 1955 frozen prepared foods accounted for around 11 percent of all frozen foods, based upon product weight. The rapid expansion of the frozen prepared food industry, the range of products being developed and marketed, and the increasing demand for built-in services in food products all focus attention upon frozen prepared foods and their potential implications to food marketing.

FROZEN PREPARED FOOD INDUSTRY

Years of Operation

Frozen prepared foods are primarily a postwar development, although frozen french-fried potatoes and some other items have been marketed for longer periods. The rapid expansion of this industry is indicated by information in figure 3. Of 222 firms answering this question only about 10 percent have been engaged in the manufacture of frozen prepared foods more than 10 years. About one-half of these firms have been conducting such operations less than 5 years.

Numerous firms have entered and departed from this industry during the past decade; however, a definite age distribution pattern exists for firms in operation during 1955. During the years 1945-50, the number of manufacturers entering this industry rose rapidly to a peak of 46 in about 1949-50. During the next several years new firms entered at a high, but steady, rate. During 1955, however, it would appear that the rate of ingress has tended to lag behind previous levels.

Many of these firms had been engaged in food processing or preparation prior to entry into the frozen prepared food field. Restaurants, delicatessens, bakers, meat and poultry processors, frozen fruit and vegetable manufacturers, among others, have expanded their operations into this industry. In many cases, freezing expanded the market for products being produced and marketed in fresh or canned form. During recent years, numerous large firms--food processors and marketers--have entered the industry either by developing frozen prepared food divisions, subsidiaries, or by the merger route.

Size of Operation

Among 237 firms reporting, the average operator appears to have had an output of around a quarter million pounds during 1955. As shown in table 5, the number of firms in each size category drops steadily as production rises through the 1 million pound production level; thereupon, a sizable increase in number of firms is noted in the 1 to 2.5 million pound output group. Less than 10 percent of the firms reported a production of 5 million pounds or over.

The size distribution of operators appears to vary widely among the type of products manufactured. The scale of operations found for manufacture of potato products, as

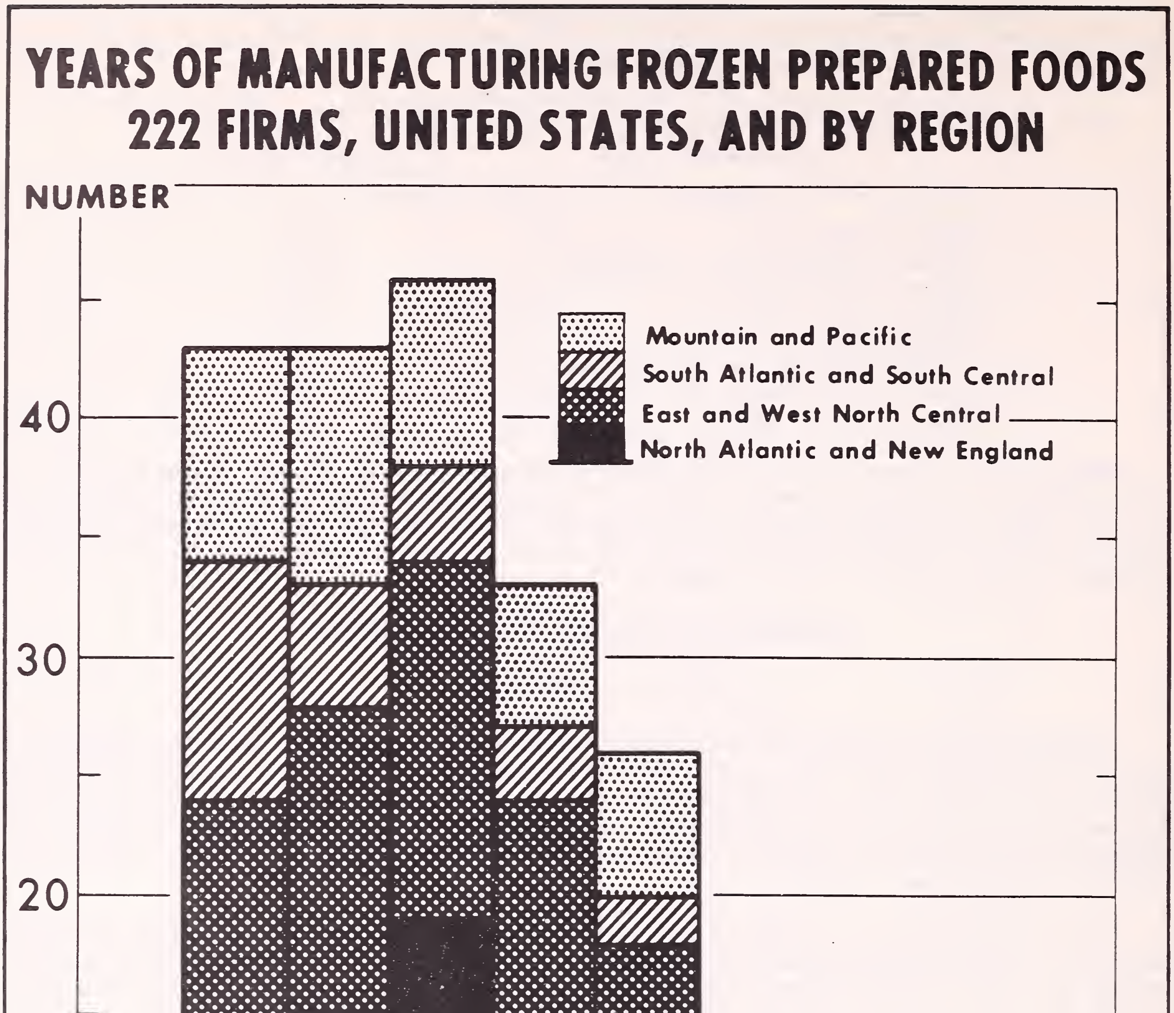
YEARS OF MANUFACTURING FROZEN PREPARED FOODS
222 FIRMS, UNITED STATES, AND BY REGION
NUMBER
40
30
20
10
0
Mountain and Pacific
South Atlantic and South Central
East and West North Central
North Atlantic and New England
Less than 1
1-2
3-4
5-6
7-8
9-10
11-12
13-14
15 and over
YEARS
U. S. DEPARTMENT OF AGRICULTURE
NEG. 3944-57 (3) AGRICULTURAL MARKETING SERVICE

Figure 3

Table 5.--Number of frozen prepared food manufacturers: Output by selected product classes, 1955

Product classes[1]	1955 production (1,000 pounds)							
	Under 100	100-249	250-499	500-999	1,000-2,499	2,500-4,999	5,000 and over	Total
	Number	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*	*Number*
Meats..............	14	13	6	4	11	4	3	55
Poultry............	7	3	1	3	1	--	1	16
Nationality foods..	29	15	4	4	7	1	--	60
Potatoes...........	2	1	--	--	3	1	7	14
Bakery items.......	12	5	5	1	7	2	3	35
Miscellaneous[2].....	5	2	1	--	--	--	--	8
2 or more of above classes..........	7	8	5	6	7	9	7	49
Total.........	76	47	22	18	36	17	21	237

[1] Firms listed in specific product classes reported 90 percent or more of total production within this single category.
[2] Includes firms reporting 90 percent or more of production in following single categories--hors d'oeuvres, soups, "side dishes" and "miscellaneous" (see table 1). Data on firms producing fish or shellfish items not available.

would be expected, tends to be larger generally than that found in the production of nationality foods or bakery products. Likewise, a larger portion of those firms manufacturing more diversified lines of products tends to have greater production than those specializing upon a single item or product group.

Relatively few firms report production of a wide variety of foods. Around 80 percent of the reporting firms were engaged primarily in the manufacture of a single class of products[4] (such as frozen meat products, poultry items, or bakery products). Of the balance, several firms showed a predominant interest in a single product class. Several others were primarily pie bakers (meat and poultry potpies, dessert pies), but, under this classification, fell among the multiple-product class operators.

There were numerous firms that produced a single item within a single product class. Others produced a line of products within a specialty area, such as oriental foods. Particularly in the bakery category, some firms reported producing a broad variety of items. Generally, however, production has tended toward specialization.

Although less than one-tenth of the firms produced 5 million pounds or more, they accounted for around two-thirds of total output measured in pounds. Manufacturers with a volume of 2.5 million pounds and over represented about 80 percent of production. Volume figures, however, may tend to overemphasize the extent of concentration within this industry. Much of this volume is accounted for by relatively few commodities--frozen french-fried potatoes, meat and poultry potpies. Also, value per pound varies considerably among these frozen prepared products.

Location of Production

Figure 4 shows the location of headquarters of 243 firms reporting production of frozen prepared foods--other than fish or shellfish items--during 1955. This does not include branch units of multiplant operators. It is apparent that these manufacturers tend to be located near the market for their products. The following metropolitan areas are

[4] The single class amounted to 90 percent or more of total production.

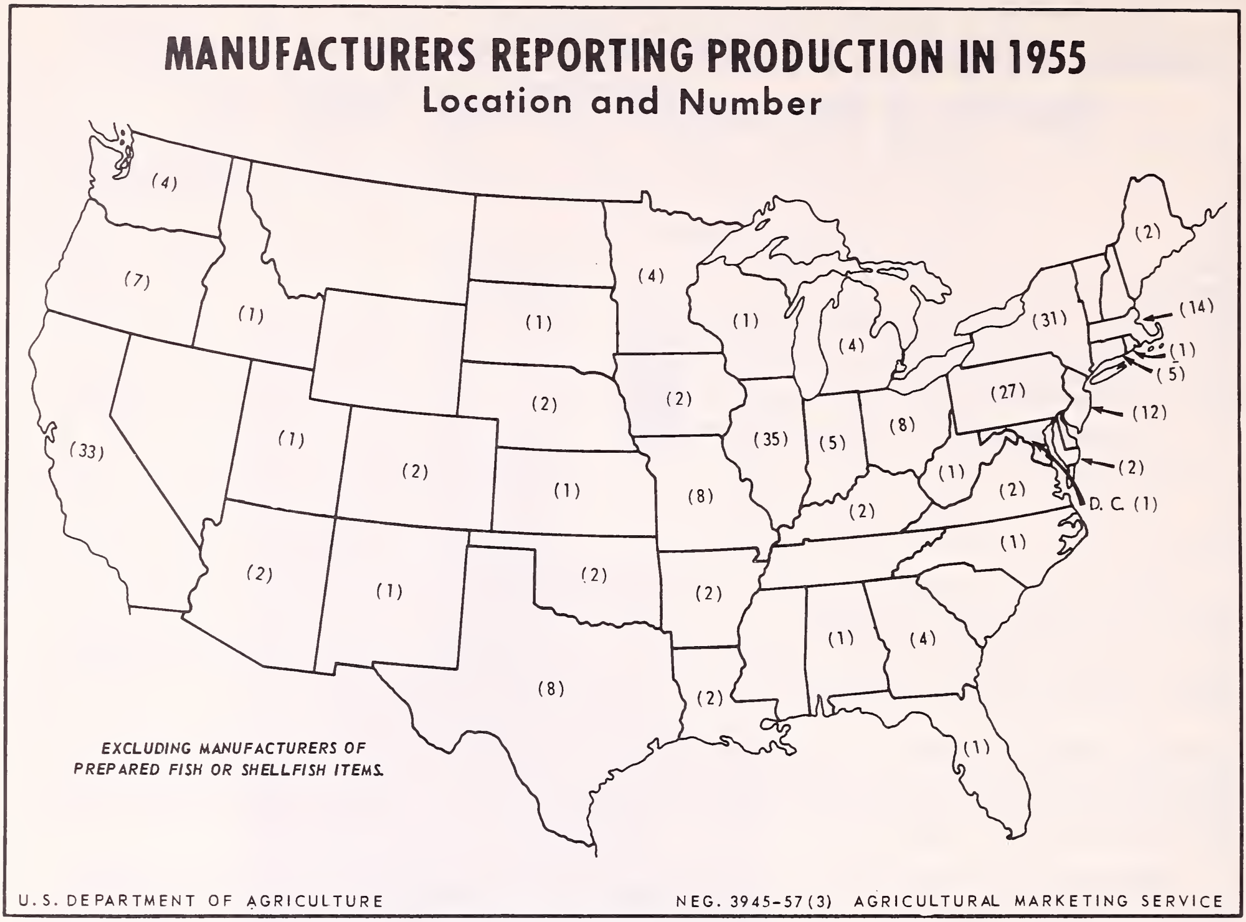

Figure 4

current production centers: New York City, Philadelphia, Boston, Chicago, San Francisco, and Los Angeles.

In some cases, however, production appears to be related closely to the source of supply of the major raw product utilized. Most frozen potato products, for example, are manufactured near the Oregon-Washington-Idaho or Maine potato production areas. Large volumes are produced and considerable weight reduction occurs in the processing operation. Processing of frozen prepared meat and poultry items also tends to be located near a supply of these products.

DISTRIBUTION OF FROZEN PREPARED FOODS

What percentage of 1955 production moved through the following market outlets?

1. Frozen food distributors
2. Chain stores or retail store groups
3. Other packers
4. Other outlets.

Replies to these questions are given in table 6. The total volume for which specific outlets were reported aggregated around 344 million pounds, excluding all fish and shellfish items.[5]

These data provide an indicator of the relative importance of the various marketing channels used in distributing frozen prepared foods. About 38 percent of the reported volume, or around 130 million pounds, was sold to chain stores, voluntary chains, and other retail store group purchasing operations. Frozen food distributors or other wholesalers or jobbers handling frozen foods probably handled about one-half of the output--

[5] The 344 million pounds includes over 80 percent of production reported in survey.

Table 6.--Frozen prepared foods: Estimated share of production moving through various outlets, 1955

Product class[1]	Quantity[2]	Market channels: Sales to retail store groups[3]	Frozen food distributors: Retail[4]	Frozen food distributors: Institutional[5]	Other packers	Total
	Million pounds	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Meat items...........	81	42	30	26	2	100
Poultry items........	70	48	35	5	12	100
Nationality foods....	19	46	46	6	2	100
Potatoes.............	104	28	14	41	17	100
Bakery items.........	65	37	54	6	3	100
Miscellaneous........	5	49	37	11	3	100
Total or average	344	38	32	21	9	100

[1] For more detailed itemizing, see figure 1.

[2] Quantity for which distribution data were obtained. Does not represent total production (see table 1). Volume represents the following percentages of total reported production:

Meat items................	89 percent	Potatoes...............	74 percent
Poultry...................	77 percent	Bakery items...........	95 percent
Nationality foods.........	66 percent	Miscellaneous..........	99 percent

[3] Includes chain stores and other group buying agencies for retail food stores.

[4] Includes limited retail distribution through manufacturer-controlled outlets.

[5] Also small quantity handled by processors' delivery routes and other operations.

or most of the balance of products moving into retail trade and the institutional market. Limited quantities reported as sold through outlets controlled by the manufacturer have been listed, as appropriate, under retail and institutional categories. These include retail outlets, bakery and other delivery routes operated by the manufacturer. About 9 percent of frozen prepared food products were packed for other packers and distributed by them. No data were obtained as to the outlets through which these items moved.

Although these figures point up the importance of sales to retail store groups in this industry, they do not provide a close indicator as to the quantities moving into specific types of outlets--such as chain stores, retail stores which are members of voluntary purchasing groups, independent stores, or others. For example, chain stores may receive considerable quantities of frozen prepared items through frozen food distributors. Likewise, institutional users may purchase some supplies through other than the institutional marketing pattern.

The market channels used tend to vary in importance among product classes. For example, the portion of frozen meat items and potatoes distributed through the institutional outlet was considerably greater than that for other categories. The largest percentages of frozen poultry items and potatoes were packed for other packers. Relatively little copacking appeared among the other product classes.

The percentages of total volume represented by sales to retail store groups appeared to be most consistent among product classes. Between 40 and 50 percent of nationality foods, meat, poultry, and miscellaneous items were sold in this manner.

Only slightly less, about 37 percent, of frozen bakery products moved through this channel. Frozen potato products was the only group that appeared to deviate widely from this pattern. Here, copacking and institutional distribution accounted for relatively larger portions of total output.

The shares of these product classes moving into the retail market through distributors and other wholesalers appear to vary more widely--from about 54 percent of frozen bakery goods to around 14 percent of frozen french-fries and other potato products. During 1955 at least 110 million pounds of frozen prepared foods appear to have gone through these channels to the retail store.

Packer's Label

The bulk of frozen prepared foods--more than 80 percent--appears to be sold under the packer's label. The average as reported, however, varies widely among commodity groups, as follows:

Product class	Percent under packer's label
Meat items............................	85
Poultry items.........................	84
Nationality foods.....................	96
Potato products.......................	69
Bakery items..........................	96
Miscellaneous.........................	87
All categories....................	82

As anticipated, the share moving under packer's label was greatest in the food items with comparatively low production levels. A smaller percentage of high-volume items, such as frozen french-fried potatoes, appears to be distributed under the processor's label.

PROBLEMS FACING THE INDUSTRY

The question was asked: "Other than shortage of retail cabinet space, what are the most important problems facing your industry?" Based upon frequency of response, transportation appears to constitute the leading problem. This stems from the reported inability to obtain adequate zero degree less-than-trucklot (LTL) or less-than-carlot (LCL) rail shipping facilities. One respondent stated: "Group action was needed so that small packers could warehouse their products at the same point with weekly service to principal outlets. If existing carriers are uninterested in working out the transportation problem, then public convenience and necessity applications should be required by ICC so that every region can have at least one LTL operation covering principal outlets."

During 1955, reported production of frozen prepared foods was slightly more than 3 pounds per capita. This represents around 170 individual items. The average operator had an output of around 250,000 pounds of frozen prepared foods during 1955. It is apparent that the current level of production will not support, for many firms, a national or regional distribution system based upon full trucklot or carlot shipments.

Frozen prepared foods are gaining wider consumer acceptance, and some firms are expanding their line of products. These factors will be expected to increase the quantities available for individual shipment. However, other considerations may tend to hold these volumes below full trucklot and carlot levels. For example, further product differentiation in the industry may increase the number of similar items manufactured so that an overall increase in demand may be splintered between a greater number of separate food items. Also, any tendency toward more rapid turnover of inventory by distributors and retailers would tend to accentuate demands upon manufacturers for frequent deliveries. Thus, an effective less-than-trucklot service or consolidating facilities for frozen freight would appear to meet a relatively long-term need of this industry.

The problem of maintaining quality in frozen prepared food was frequently mentioned. This problem was reported in many ways. One respondent stated that in some cases price was being substituted for quality. Another reported that any specific instance of an inferior product would give the industry as a whole an unfavorable customer reception. Suggestions for maintaining or improving quality included: (1) Strict sanitary laws; (2) close plant inspection; (3) standardization of quality; (4) standardization of package weights; (5) proper labeling; and (6) improved handling in the markets. The education of consumers with respect to familiarity and use of the product was also mentioned as a need. Lack of standards of identity and variation in net package weights were suggested as reasons for consumers' inability to relate quality to price of products.

Comments received from manufacturers indicated that research was needed as to what type of quality standards would be meaningful to consumers. This raises corollary questions:

1. What are consumer marketing habits and preferences on a regional basis?
2. To what extent are consumers able to relate quality to price?
3. To what extent might inferior products delay this industry in reaching its market potential?

The third most frequently mentioned problem had to do with the shortage of capital. In an industry growing at the rate of 60 percent per year many of the processors reported difficulty in obtaining sufficient funds for both working capital and plant expansion. Other problems mentioned related to shortage of skilled labor, obtaining cabinet space at the retail level, and costs of inspection for the small packer.

Many of these problems are comparable with those found in other new and rapidly expanding industries. Some pertain to scale of production; others are related to the complex facilities and services that are required at each stage of marketing. There are also problems involved in developing new food products and obtaining market acceptance. However, trade groups and individual processors are working toward resolution of many of these problems.

CURRENT POSITION AND FUTURE PROSPECTS FOR FROZEN PREPARED FOODS

Overall production of frozen foods has been increasing at the rate of about 17 percent each year since World War II. The rapid expansion of the frozen food industry represents cumulative changes in a series of frozen products, the rate of growth of which increased rapidly then tended to level off in a normal growth-curve fashion. Production of frozen fruits and vegetables had risen rapidly during the years near the end of World War II. Except for strawberries, there has been limited expansion in the production of fruits and berries during the postwar years. Also, production of frozen vegetables has risen at a more rapid rate, though below the 17-percent average for the frozen food industry.

Frozen orange juice concentrate began its rapid growth phase around 1949, and it is only now that percentage increases in production of frozen juice concentrates as a whole (orange, lemon, and grape) are less than the average industry rate for all frozen foods. Frozen prepared foods appear to be beginning their period of rapid growth (fig. 5).

In 1946 frozen prepared foods accounted for about 3 percent of total frozen food production. At that time a relatively small number of items were being produced. During 1955 the combined production of more than 170 frozen prepared foods accounted for about 11 percent of frozen foods (product weight). This survey shows that during 1955 the production of frozen prepared foods increased around 60 percent. Already this production approximates the total output of frozen fruits and berries, and is about half as large as the frozen vegetable pack. If frozen prepared food production were to increase at the current rate, it could approach the combined production level for frozen fruits and vegetables in about 3 years.

Prospects are that frozen prepared foods will continue their rapid growth during the next several years. Increased freezer cabinet space in retail stores and storage facilities in the home should make many of these products more readily available. Consumer education in the use and handling of these products may contribute also to market expansion. However, the increasing demand for "built-in" services may provide the strongest force for continuing expansion.

The number of employed married women has been rising rapidly. According to data from the Bureau of Census, the percentage of married women employed during the 8-year period--1947 to 1955--rose at the rate of around 1 percent per year to a total of about 29.4 percent in 1955. As of April 1955 this force aggregated over 11.8 million persons.

During recent years, the number of men and women engaged as private household workers has declined. In 1950 there were slightly more than 1.4 million persons (women and men) working in this field, in 1940 there had been almost 2.1 million. This is a reduction of almost one-third.

This increase in numbers of employed married women, and concurrent reduction in numbers of private household workers, indicate the increasing importance of labor-saving devices and services in the home. Prepared foods, including frozen, provide one source of labor savings for the household.

An indication of the extent of labor savings resulting from use of partially prepared and ready-to-serve meals is obtained from an earlier report.[6] This study was limited in scope, and contained few frozen prepared food items; however, the principles involved should be applicable, generally, to such products.

Figure 6 shows the time spent and cost of preparing similar meals involving home preparation, use of partially prepared, and ready-to-serve items. The home-prepared meals required 5.5 hours, compared with 3.1 hours, and 1.6 hours for meals using partially prepared and ready-to-serve foods, respectively. As expected, the cost of meals rose with the degree of built-in services involved.

How much did this time-saving cost the housewife? With the menus used, a shift from home-prepared to partially prepared foods resulted in a saving of 2.4 hours at an additional cost of 90 cents. This is the equivalent of 37 1/2¢ per hour for the extra labor involved in full home preparation. Similarly, a change from home preparation to ready-to-serve foods would save 3.9 hours of labor, but cost about $1.80 more--equivalent to 46¢ for each hour of labor saved. A comparison of costs and time savings between use of partially prepared and ready-to-serve foods indicates that the ready-to-serve meals cost 90¢ more, and saved 1.5 hours. The cost of the labor savings between these categories was around 60¢ per hour.

Another reason for growth of the frozen prepared food industry is the fairly steady increase in consumer income during the postwar decade. In 1955 per capita disposable personal income (after income taxes) was about 15 percent above the 1948 level, on a constant dollar basis. After adjusting for increases in general price levels, the average person had $1.15 available for spending in 1955 for each $1 he received during 1948.

Previous surveys indicate that families with middle and higher incomes tend to purchase considerably more frozen foods than do families in the low income levels. The rise in average incomes has been accompanied by a shift of many lower income families into middle income categories. This has resulted in an expanded market for frozen foods.

[6] G. S. Weiss, "Time and Money Costs of Meals Using Home and Prekitchen Prepared Foods." Journ. Home Econ., Feb. 1954., p. 98.

An indicator of the extent of such shifts is obtained by comparing the percent of families and unattached individuals with $4,000 incomes (before tax--1950 dollars) in 1947 and 1953. In 1947 around 41 percent had incomes of $4,000 or more. By 1953 this figure had risen to 50 percent.[7]

Data from the 1955 Household Food Consumption Survey[8] provide a measure of the effect of family income levels upon purchases of frozen potato products (chiefly french-fries). The following figures show the percent of urban housekeeping families of 2 or more persons, in varying income levels, who used frozen potato products during a week (April-June 1955). The family incomes reported are money incomes (after income taxes) during 1954.

Family income groups	Families using
Dollars	*Percent*
Under 1,000	1.7
1,000-1,999	0.6
2,000-2,999	2.2
3,000-3,999	3.1
4,000-4,999	6.8
5,000-5,999	7.0
6,000-7,999	9.2
8,000-9,999	6.8
10,000 and over	16.2

Although percentage levels differ, similar relationships between family income and percent of urban families using were found for frozen fruits and vegetables other than potatoes.

Frozen potato products constitute an important segment of frozen prepared foods. Similar data have not been tabulated separately for other individual frozen prepared food categories. However, the relationships found for these frozen fruits and vegetables indicate that family income levels will be a major consideration in expansion of the market for frozen prepared foods.

These developments provide a climate favorable to an expanding market for convenience foods, including frozen prepared items. They provide an improved base for marketing foods which afford variety, quality, and convenience.

It should not be assumed that production of all varieties of prepared frozen foods will expand equally in the future. Some trade sources indicate use of the following criteria in calculating acceptance of new frozen prepared items:

1. Is product quality equal to or better than that for similar foods prepared in the home?
2. Is it priced competitively with similar products?
3. Is it an item which will have general acceptance and is used frequently in the markets where it is being offered?

[7] Data for 1947 and 1953 derived from "Income Distribution in the United States, by Size, 1950-53," by Selma Goldsmith, Survey of Current Business, March 1955.

[8] Food Consumption of Households in the United States. Household Food Consumption Survey 1955, Report No. 1, Agr. Res. Serv. and Agr. Mktg. Serv., Washington, D. C., Jan. 1957, pp. 108 and 134.

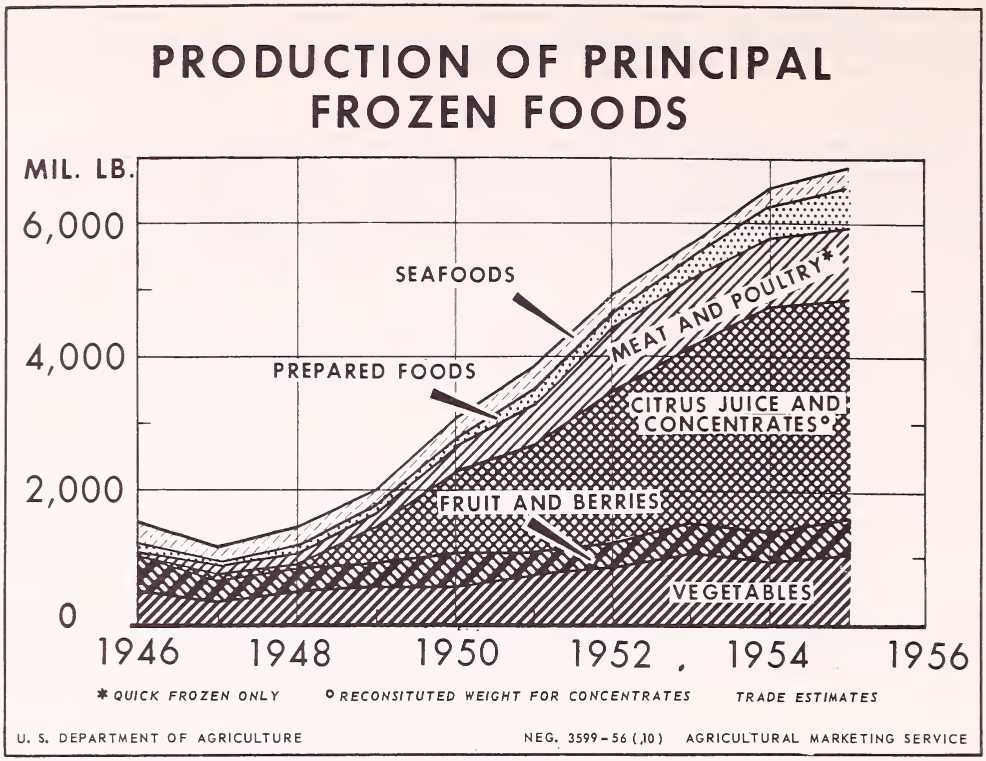

Figure 5

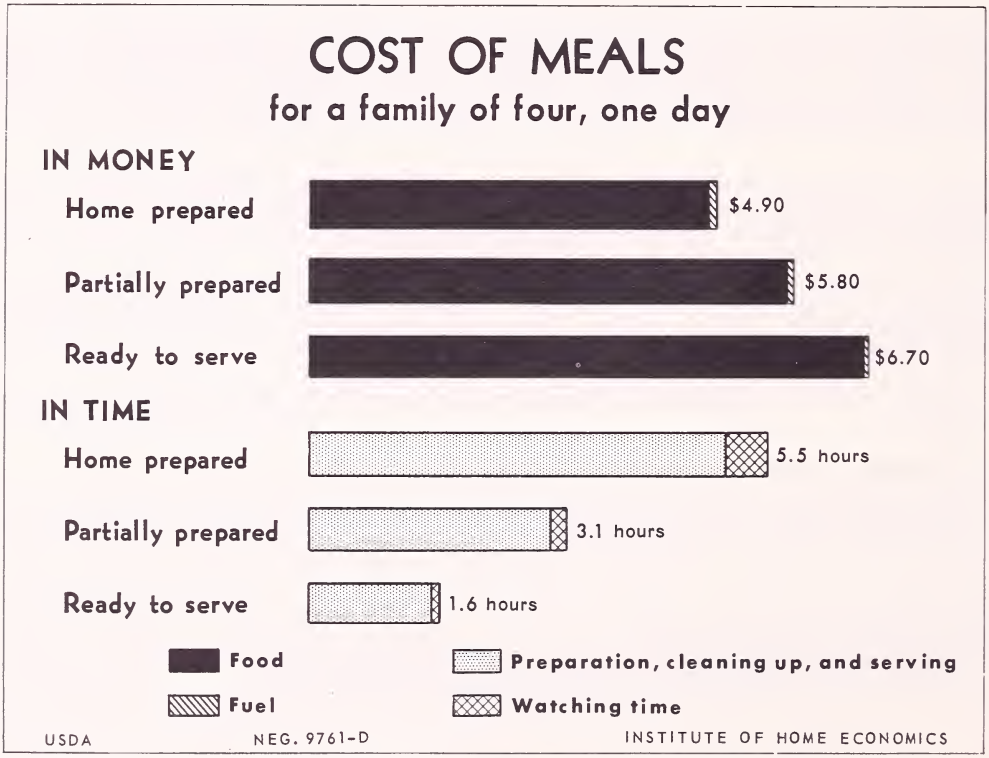

Figure 6

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