Prices and Marketing Margins for Washington Delicious Apples Sold in CHICAGO and NEW YORK CITY 1956-1961

Marketing Research Report No. 586

PREFACE

For a number of years, Congress has allocated funds to the U. S. Department of Agriculture specifically for research in the area of farm-retail price spreads. The major objective of this research program is to determine the size and trends of marketing margins and producer returns.

Several studies have been conducted on marketing margins for fruits and vegetables. This report is a contribution to the continuing project.

The author wishes to express appreciation to the Bureau of Labor Statistics, U. S. Department of Labor, and to the Fruit and Vegetable Market News Service, U. S. Department of Agriculture for supplying basic data.

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Washington, D. C. February 1963

SUMMARY

The purposes of this study are: (1) to show the extent and nature of Washington Delicious apple price variations, and (2) to indicate the size of the total marketing margin for Washington Delicious apples and its allocation to the various marketing agencies. Retail prices, auction prices, and marketing margins are presented for Washington Delicious apples sold through auction in Chicago and New York City. Retail prices averaged higher in Chicago than New York City 4 of the 5 seasons studied, but auction prices were higher in New York City during 4 of the 5 seasons. Retail and auction price movements in the 2 markets were in the same direction but usually not in the same amounts. Seasonal prices were closely related (inversely) to the annual production of apples, particularly Washington Delicious. As a consequence of wide variations in production between seasons, prices between seasons varied considerably. Prices over a season, however, tended to be relatively stable at a level determined by the volume of production and other factors.

Total marketing charges per 42-pound carton were lowest in 1956-57 -- $6.31 in Chicago, and $6.03 in New York City. The largest margin in Chicago was $7.06 in 1959-60. In New York City the largest margin -- $7.31 -- occurred in the 1960-61 season. The largest component of the total marketing margin was the wholesale-retail margin. This margin claimed from 37 to 54 percent of the retail dollar in Chicago and from 34 to 48 percent in New York City. In both cities the largest percentage wholesale-retail margin accompanied the lowest auction price and decreased as auction prices rose.

Terminal, transportation, and shipping-point charges increased moderately over the 5-season period. These charges in contrast to prices and the wholesale-retail margin were influenced only to a limited extent by the supply of apples and, consequently, were more stable than prices and the wholesale-retail margin. Packing-house charges were the largest of this group, followed by transportation. Terminal charges amounted to about 2 percent of the retail dollar, and storage charges were only slightly more.

Returns to producers were characterized by wide variations over the 5 seasons. The smallest was 77 cents per carton, or 10 percent of the retail price, for apples sold in Chicago during 1957-58. The largest was $3.28, or 35 percent of the retail price, for apples sold in Chicago in 1956-57.

PRICES AND MARKETING MARGINS FOR WASHINGTON DELICIOUS APPLES SOLD IN CHICAGO AND NEW YORK CITY, 1956-61

by

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INTRODUCTION

Marketing Margins

The marketing margin is the spread between the farm value of a given amount of a commodity and its retail value adjusted for waste and loss incurred in the marketing channel. 1/ It is the total of charges made by all who contribute to the task of moving a commodity from the producer to the consumer.

The term "margin" is also used in reference to the components of the total margin, for example, "retail margin" or "wholesale margin." In this sense it is essentially the difference between the price paid and received by a specific marketing agency. The margin is not profit. It consists of all expenses connected with the commodity plus profit or loss.

Margins are not constant through time. Changes in marketing methods result in redistribution of the consumer's dollar among the marketing agencies. The absolute and percentage margins and the changes they undergo are of interest to many marketing agencies, as well as to the producer and consumer.

The Apple Industry

Revenue from sales of commercial apples in the United States averaged approximately 6 percent of total cash farm sales during the period 1956-61. On a tons-produced basis apples have consistently ranked either second or third among all fruit crops of the United States. Of the 6,636 varieties grown in the United States, about 20 are of significance commercially. Of these, the Delicious variety usually has ranked first in production. 2/ From 1956 to 1961 Delicious apples accounted for 22 percent of the total commercial apple crop (table 1).

1/ The adjustment for waste and loss is usually made at the farm or the retail level. In either case the amount of the commodity valued at the farm must exceed the amount valued at retail by the amount of waste and loss which occurred in the marketing channel.

2/ Includes both Standard and Red Delicious. The Crop Reporting Board does not separate these varieties in its reporting.

Table 1.--Commercial apple production, all varieties and Delicious, United States and Washington, 1956-61

Year	Total commercial crop: United States	Total commercial crop: Washington	Commercial Delicious: United States	Commercial Delicious: Washington
	Thousand bushels	Thousand bushels	Thousand bushels	Thousand bushels
1956	100,623	17,700	19,065	8,992
1957	118,548	33,200	29,929	17,696
1958	126,610	29,800	29,791	16,419
1959	121,787	21,700	27,673	12,487
1960	108,515	19,500	23,554	10,569
1961	125,510	17,500	24,023	8,500
Average	116,932	23,233	25,672	12,444

Washington led all States in the production of apples each year until 1961, when it ranked second. From 1956-61 an average of 23,233,000 bushels per year or nearly one-fifth of the total United States commercial crop was produced in Washington. During the same period, nearly half of the total Delicious crop was produced in the State of Washington. Revenue to Washington producers from sales of these apples amounted to a significant portion of total farm income but was about 20 percent of the sum spent by consumers in purchasing these apples at the retail level. Approximately four-fifths of the consumer's dollar went to the various marketing agencies in payment for the services they performed.

PURPOSE AND METHODS

Objectives

The main purposes of this study are: (1) To show the extent and nature of Washington Delicious apple price variations, and (2) to indicate the size of the total marketing charge on Washington Delicious apples and its allocation to the various marketing agents.

Type and Sources of Data

The basic data used in this study were retail and auction prices, terminal charges, transportation rates, and packinghouse and storage charges. Other prices and margins were calculated from these data. The retail prices were provided by the U. S. Bureau of Labor Statistics. The auction prices were furnished by the Fruit and Vegetable Market News Service of the Department of Agriculture. Prices were for Standard Delicious apples. Red Delicious, a closely related variety, were not included in this report. Red Delicious ordinarily command a premium price over Standard that may vary from a few cents to a dollar or more per carton.

Terminal charges were based on information furnished by personnel directly connected with the Chicago and New York auctions. The railroad transportation and refrigeration rates to Chicago and New York were supplied by the Freight Rate Service Division, USDA, and by apple packers in Washington. Packinghouse charges were estimated by field statisticians of the Statistical Reporting Service. Storage charges were commercial rates obtained from firms in Washington.

Markets Selected for Study

The markets selected were Chicago and New York City. Both are important outlets for Washington apples. From 1956 to 1961 the Chicago market received an average of 1,070 carlots of Washington apples per season and New York 1,200 carlots (table 2). Total sales in the 2 markets were nearly 11 percent of the Washington fresh apple sales. Both markets have fruit auctions which were the sources of prices at that level.

Table 2.--Rail shipments of apples from Washington, and apple unloads in Chicago and New York City, by seasons, 1956-57 to 1960-61 1/

	1956-57	1957-58	1958-59	1959-60	1960-61	Seasons average
	Carlots	Carlots	Carlots	Carlots	Carlots	Carlots
Total carlot apple shipments from Washington.......	15,312	28,685	23,225	20,566	17,974	21,152
Chicago carlot unloads:						
From Washington..	958	1,323	1,225	1,063	779	1,070
From all sources.	1,880	2,613	2,712	2,390	2,095	2,338
New York carlot unloads:						
From Washington..	783	1,617	1,445	1,100	1,056	1,200
From all sources.	4,572	6,443	6,950	6,956	5,414	6,167

1/ Seasons include months of October through April.

PRICES AND MARGINS

Price Variation

Retail and auction price movements in the 2 markets were in the same direction but generally not in the same amount. (See tables 3 and 4 and figure 1.) The one exception was in 1958-59 in New York City. Both prices, but especially auction, bore a close inverse relationship to production of Washington Delicious apples (fig. 2). However, other factors, such as the total production of apples in Washington and the United States, were also closely related to variations in prices of Washington

Table 3.--Washington Delicious Apples: Prices and margins per carton 1/, monthly by seasons, Chicago, 1956-57 through 1960-61

Seasons by months	Prices		Margins or charges											
	Retail 2/	Auction 3/	Wholesale-retail 4/		Terminal 5/		Transportation 6/		Storage 7/		Packer 8/		Total margin	
	Dollars	Dollars	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/
1956-57:														
October...	8.64	5.70	2.94	34	0.20	2	0.88	10	0.20	2	1.34	16	5.56	64
November..	8.93	5.52	3.41	38	.20	2	.87	10	.25	2	1.34	15	6.07	67
December..	9.63	5.95	3.68	38	.21	2	.87	9	.30	3	1.34	14	6.40	66
January...	9.80	5.93	3.87	39	.21	2	.89	9	.35	4	1.34	14	6.66	68
February..	9.71	6.09	3.62	37	.21	2	.89	9	.35	4	1.34	14	6.41	66
March.....	9.54	5.95	3.59	38	.21	2	.90	9	.35	4	1.34	14	6.39	67
April.....	10.29	7.00	3.29	32	.23	2	1.00	10	.35	3	1.34	13	6.21	60
Average...	10/ 9.59	10/ 6.05	3.54	37	.21	2	.90	9	.32	3	1.34	14	6.31	65
1957-58:														
October...	8.64	4.63	4.01	46	.18	2	1.06	12	.20	2	1.34	16	6.79	78
November..	7.99	3.41	4.58	57	.16	2	.98	12	.25	3	1.34	17	7.31	91
December..	8.36	3.75	4.61	55	.16	2	.99	12	.30	4	1.34	16	7.40	89
January...	7.16	3.32	3.84	54	.16	2	.99	14	.35	5	1.34	19	6.68	94
February..	6.66	3.19	3.47	52	.15	2	.90	14	.35	5	1.34	20	6.21	93
March.....	7.41	3.33	4.08	55	.16	2	.91	12	.35	5	1.34	18	6.84	92
April.....	8.27	3.71	4.56	55	.16	2	1.06	13	.35	4	1.34	16	7.47	90
Average...	7.71	3.57	4.14	54	.16	2	.98	13	.32	4	1.34	17	6.94	90
1958-59:														
October...	7.24	4.03	3.21	44	.19	3	.90	12	.20	2	1.35	19	5.85	80
November..	7.49	3.86	3.63	48	.19	3	.87	12	.25	3	1.35	18	6.29	84
December..	7.54	4.17	3.37	45	.19	2	.87	12	.30	4	1.35	18	6.08	81
January...	7.37	3.79	3.58	48	.19	3	.87	12	.35	5	1.35	18	6.34	86
February..	7.37	4.11	3.26	44	.19	3	.87	12	.35	5	1.35	18	6.02	82
March.....	7.86	4.13	3.73	47	.19	2	.87	11	.35	4	1.35	17	6.49	81
April.....	8.60	3.89	4.71	55	.19	2	1.04	12	.35	4	1.35	16	7.64	89
Average...	7.74	4.00	3.74	48	.19	2	.91	12	.32	4	1.35	17	6.51	83
1959-60:														
October...	8.48	5.16	3.32	39	.21	2	.90	11	.20	2	1.40	17	6.03	71
November..	8.52	4.81	3.71	44	.21	2	.87	10	.25	3	1.40	16	6.44	75
December..	8.52	4.82	3.70	43	.21	2	.87	10	.30	3	1.40	16	6.48	74
January...	9.43	5.02	4.41	47	.21	2	.87	9	.35	4	1.40	15	7.24	77
February..	8.89	5.11	3.78	43	.21	2	.87	10	.35	4	1.40	16	6.61	75
March.....	9.63	4.48	5.15	53	.20	2	.87	9	.35	4	1.40	15	7.97	83
April.....	9.34	4.10	5.24	56	.21	2	1.04	11	.35	4	1.40	15	8.24	88
Average...	9.01	4.77	4.24	47	.21	2	.90	10	.31	3	1.40	16	7.06	78
1960-61:														
October...	9.39	6.39	3.00	32	.24	3	.90	10	.20	2	1.40	15	5.74	62
November..	8.64	5.60	3.04	35	.22	3	.88	10	.25	3	1.40	16	5.79	67
December..	8.89	6.01	2.88	32	.23	3	.87	10	.30	3	1.40	16	5.68	64
January...	9.22	5.84	3.38	37	.23	2	.87	9	.35	4	1.40	15	6.23	67
February..	8.98	5.72	3.26	36	.23	2	.87	10	.35	4	1.40	16	6.11	68
March.....	9.80	5.36	4.44	45	.23	2	.88	9	.35	4	1.40	14	7.30	74
April.....	9.63	5.20	4.43	46	.21	2	1.04	11	.35	4	1.40	15	7.43	78
Average...	9.26	5.69	3.57	39	.23	2	.91	10	.31	3	1.40	15	6.42	69

See footnotes on page 6

Table 4.--Washington Delicious Apples: Prices and margins per carton 1/, monthly by seasons, New York, 1956-57 through 1960-61

Seasons by months	Prices: Retail 2/	Prices: Auction 3/	Margins or charges: Wholesale-retail 4/		Terminal 5/		Transportation 6/		Storage 7/		Packer 8/		Total margin	
	Dollars	Dollars	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/	Dollars	Percent 9/
1956-57:														
October	8.19	6.24	1.95	24	0.22	3	1.05	13	0.20	2	1.34	16	4.76	58
November	8.56	5.66	2.90	34	.21	2	1.03	12	.25	3	1.34	16	5.73	67
December	9.09	5.59	3.50	39	.20	2	1.03	11	.30	3	1.34	15	6.37	70
January	9.54	5.89	3.65	38	.21	2	1.05	11	.35	4	1.34	14	6.60	69
February	8.81	5.98	2.83	32	.21	2	1.05	12	.35	4	1.34	15	5.78	65
March	9.75	6.77	2.98	31	.23	2	1.06	11	.35	4	1.34	14	5.96	62
April	9.67	6.55	3.12	32	.22	2	1.17	12	.35	4	1.34	14	6.20	64
Average	10/ 9.23	10/ 6.13	3.10	34	.21	2	1.06	11	.32	3	1.34	15	6.03	65
1957-58:														
October	9.39	4.59	4.80	51	.18	2	1.16	12	.20	2	1.34	14	7.68	81
November	7.37	3.55	3.82	52	.16	2	1.14	15	.25	3	1.34	18	6.71	90
December	7.20	3.81	3.39	47	.17	2	1.13	16	.30	4	1.34	19	6.33	88
January	7.04	3.81	3.23	46	.17	2	1.13	16	.35	5	1.34	19	6.22	88
February	7.20	3.48	3.72	52	.16	2	1.13	16	.35	5	1.34	19	6.70	94
March	7.33	3.89	3.44	47	.17	2	1.14	16	.35	5	1.34	18	6.44	88
April	8.23	4.50	3.73	45	.18	2	1.25	15	.35	4	1.34	16	6.85	82
Average	7.55	3.90	3.65	48	.17	2	1.15	15	.32	4	1.34	18	6.63	87
1958-59:														
October	7.37	4.41	2.96	40	.24	3	1.13	15	.20	3	1.35	18	5.88	79
November	7.69	4.12	3.57	46	.24	3	1.10	14	.25	3	1.35	18	6.51	84
December	7.33	4.24	3.09	42	.24	3	1.10	15	.30	4	1.35	18	6.08	82
January	7.28	4.16	3.12	43	.24	3	1.10	15	.35	5	1.35	19	6.16	85
February	7.41	4.29	3.12	42	.24	3	1.10	15	.35	5	1.35	18	6.16	83
March	7.54	4.55	2.99	40	.25	3	1.10	15	.35	5	1.35	18	6.04	81
April	7.86	4.80	3.06	39	.25	3	1.21	15	.35	4	1.35	17	6.22	78
Average	7.50	4.38	3.12	42	.24	3	1.12	15	.32	4	1.35	18	6.15	82
1959-60:														
October	8.56	5.65	2.91	34	.27	3	1.13	13	.20	2	1.39	16	5.90	68
November	8.19	5.28	2.91	36	.26	3	1.10	13	.25	3	1.39	17	5.91	72
December	8.98	4.88	4.10	45	.25	3	1.10	12	.30	3	1.39	15	7.14	78
January	8.56	5.45	3.11	36	.26	3	1.10	13	.35	4	1.39	16	6.21	72
February	8.89	5.52	3.37	38	.27	3	1.10	12	.35	4	1.39	16	6.48	73
March	9.05	5.21	3.84	42	.26	3	1.10	12	.35	3	1.39	15	6.94	75
April	9.63	5.09	4.45	47	.26	3	1.21	13	.35	4	1.39	14	7.75	81
Average	8.93	5.25	3.68	41	.26	3	1.12	12	.32	4	1.39	16	6.77	76
1960-61:														
October	8.81	6.75	2.06	23	.29	3	1.13	13	.20	2	1.39	16	5.07	57
November	9.30	5.83	3.47	37	.27	3	1.11	12	.25	3	1.39	15	6.49	70
December	9.47	4.63	4.84	51	.25	3	1.10	12	.30	3	1.39	15	7.88	84
January	9.39	5.19	4.20	45	.26	3	1.10	12	.35	4	1.39	15	7.30	79
February	9.71	5.54	4.17	43	.27	3	1.10	11	.35	4	1.39	14	7.28	75
March	10.21	5.57	4.64	45	.27	3	1.11	11	.35	3	1.39	14	7.76	76
April	10.29	4.89	5.40	52	.25	2	1.22	12	.35	3	1.39	14	8.61	83
Average	9.65	5.45	4.20	44	.27	3	1.12	12	.32	3	1.39	14	7.30	76

See footnotes on page 6

Footnotes for tables 3 and 4

1/ Fiberboard carton, billing weight 46 pounds, net weight estimated at 42 pounds.
2/ U. S. Bureau of Labor Statistics reported price for Tuesday, Wednesday, and Thursday of the week preceding the week containing the 15th. (Before 1961, prices were collected on Monday, Tuesday, and Wednesday of the week containing the 15th.) Combination fancy and extra fancy grade, size 163 and larger. Per pound price multiplied by 42 to convert to a carton basis. Reduced by 2 percent to allow for waste and loss.
3/ USDA Market News Service reported price for Washington Delicious apples, extra fancy, all sizes, for the week containing the 8th.
4/ Retail price less auction price.
5/ All charges at the terminal auction including unloading, sorting, displaying, use of facilities, auction selling and broker's fee.
6/ Rail freight plus protective service from Wenatchee, Washington.
7/ Average commercial storage rate. Seasonal averages are monthly charges weighted by Washington apple unloads in the respective markets.
8/ All costs that accumulate between the incoming packinghouse door and f.o.b. local shipping point, such as grading, packing, packing material, inspection fees, selling, and other costs.
9/ The absolute margin expressed as a percentage of the retail price.
10/ Average of monthly prices weighted by monthly carlot unloads of Washington apples.

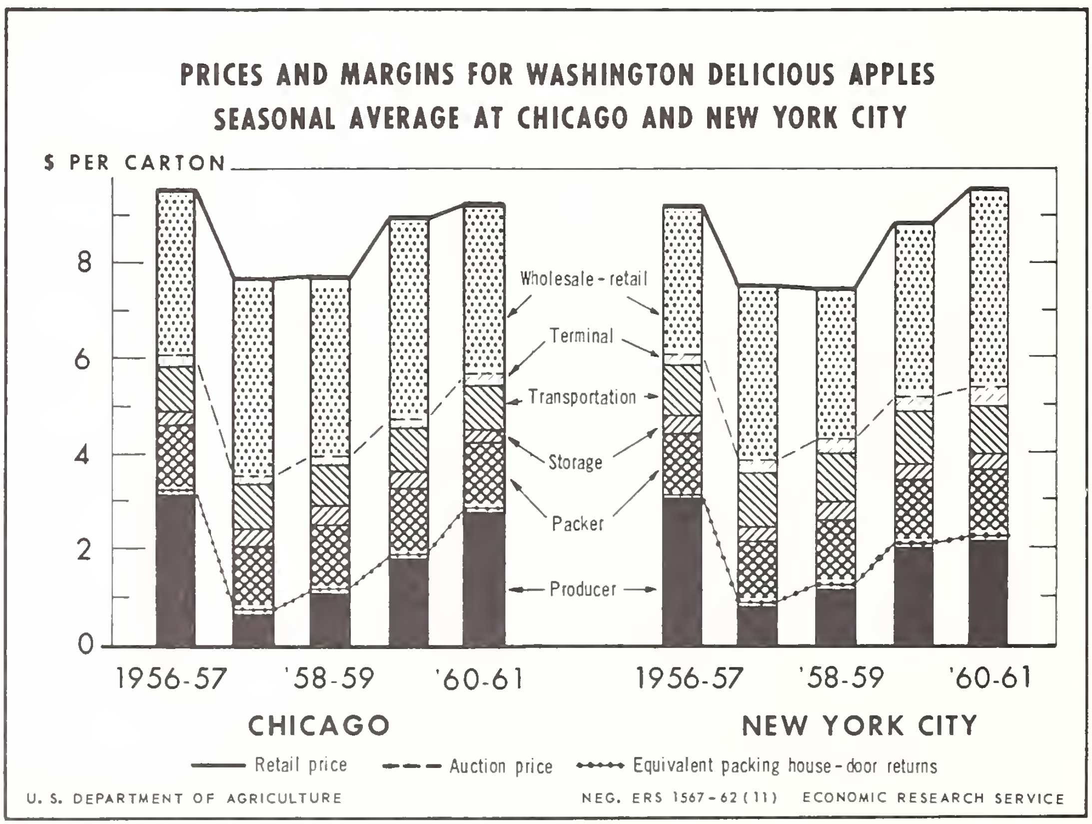

Figure 1

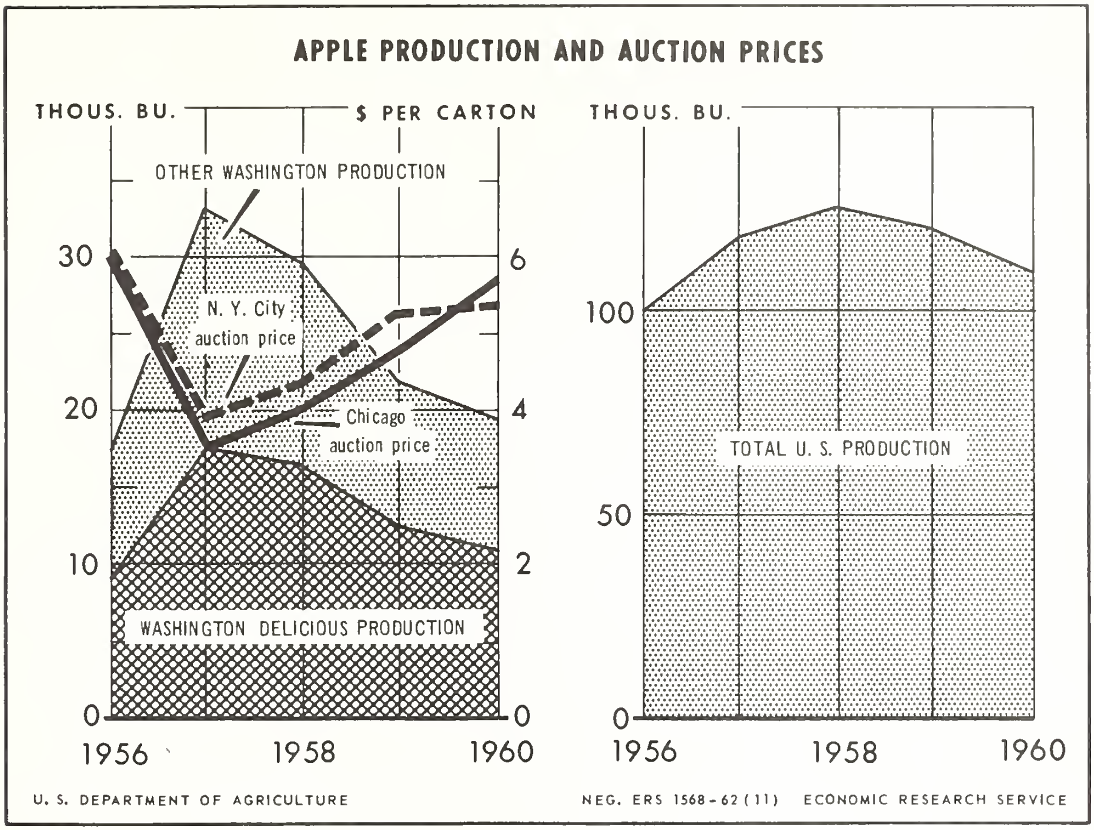

Figure 2

Delicious apples. 3/ For example, during 1956-57 auction prices in both cities and retail prices in Chicago averaged the highest of the 5 seasons. New York City retail prices averaged next to the highest. The United States apple crop for that season was 6 percent smaller than the preceding year and 5 percent below the average of the 10 previous years. The Washington apple crop for that season was the lightest in 40 years, 36 percent below the 10-year average. The Washington Delicious crop was also very light, 38 percent below the 10-year average.

The lowest auction prices in both markets, the lowest retail prices in Chicago, and the next to lowest retail prices in New York City were in 1957-58. The United States apple crop for that season was 18 percent above the previous year and 10 percent over the 10-year average. The Washington crop was the largest since 1950, up 88 percent from the preceding season. The Washington Delicious crop was nearly twice that of the preceding season and 28 percent over the 10-year average. For the remaining 3 seasons included in this report, auction prices in both cities and retail prices in Chicago were consistent in their inverse relationship to total Washington apple production and Washington Delicious apple production. New York City retail prices deviated from this relationship to some extent.

Monthly prices, both retail and auction, varied more between seasons than within seasons (tables 3 and 4). There were several reasons. The volume of production,

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3/ For additional information see Harrington, A. H. 1959 Apple Marketing and Price Situation. Stations Circular 363. Wash. Agr. Expt. Stations, Wash. State Univ., Oct. 1959.

which was primarily responsible for the general level of prices, varied considerably from season to season. Also, month-to-month price variations were reduced by extensive apple storage facilities that made possible both a longer marketing period and more orderly marketing.

Price behavior in the 2 markets was similiar, but there were differences in the level of prices. Seasonal retail prices for Washington Delicious apples were higher in Chicago than in New York City during 4 of the 5 seasons studied (fig. 1). 4/ Seasonal auction prices were higher in New York City 4 of the 5 seasons. 5/ The seasons of lowest auction prices and highest auction prices were the same for both markets, but this was not true of retail prices. The reason was that auction prices were primarily a function of a factor common to both markets -- volume of production -- while retail prices were additionally subject to pricing policy which may have varied greatly between markets.

Marketing Charges

Total marketing margins, both in actual amounts and as a percentage of the retail price, were smallest in 1956-57 for both markets. Also, they were quite similar in size -- \$6.31 per carton in Chicago and \$6.03 in New York City -- both equal to 65 percent of the retail price. The largest total margins were \$7.06 for Chicago in 1959-60 and \$7.30 for New York City in 1960-61. The largest total margins, as a percentage of the retail price, were 90 in Chicago and 87 in New York City, both in the 1957-58 season. In neither city did the largest absolute margin occur in the same season as the largest percentage margin.

Wholesale-Retail Margins

The wholesale-retail margin is the difference between the retail and auction prices. It is remuneration for the marketing activities performed from the time the apples are sold at auction until sold at retail. These are the functions usually designated as wholesaling and retailing but may actually involve from one to several agencies. That is, a retail store may purchase direct at auction, or one or more intermediate agents may be involved before the apples reach the retail outlet. The data used in this report did not permit a more complete breakdown of this margin.

The wholesale-retail margin for Washington Delicious apples was the largest component, averaging more than half of the total marketing margin. In Chicago the range was from \$3.54 to \$4.24 per carton (fig. 1). The New York City range was from \$3.10 to \$4.20. As a percentage of the retail price the range in Chicago was from 37 to 54 percent, and in New York City from 34 to 48 percent.

The size of the wholesale and retail margin was established by the pricing policies of the firms concerned. Those policies undoubtedly varied considerably. It was neither the purpose of this report nor possible with the data used to determine pricing policies of individual wholesalers and retailers. However, the net result of their actions are shown. The smallest wholesale-retail margins were in 1956-57, the season of highest auction prices. The largest percentage margins occurred

4/ Monthly average retail prices, October through April, weighted by monthly carlot unloads of Washington apples in the respective markets.

5/ Monthly average auction prices, October through April, weighted by monthly carlot unloads of Washington apples in the respective markets.

during the season of lowest auction prices, 1957-58. This pattern of decreasing percentage margins as auction price increased was followed consistently in Chicago and in New York City except for the 1960-61 season (table 5). As a result retail prices were leveled or smoothed out somewhat, compared to auction prices. For example, auction prices in Chicago varied $2.48 or 69 percent over the 5 seasons, while retail prices varied $1.88 or 24 percent. New York City auction prices varied $2.23 or 57 percent during the period, compared to $2.15 or 29 percent for retail prices. Discovery and explanation of the rationale underlying the actions which produced these results requires further and more detailed study.

Table 5.--Washington Delicious Apples: Auction price, wholesale-retail margin and percentage markup, Chicago and New York City, 1956-57 to 1960-61

Year 1/	Chicago			New York City		
	Auction price	Wholesale-retail margin 2/	Markup over auction price 3/	Auction price	Wholesale-retail margin	Markup over auction price
	Dollars	Dollars	Percent	Dollars	Dollars	Percent
1957-58...	3.57	4.14	116	3.90	3.65	94
1958-59...	4.00	3.74	93	4.38	3.12	71
1959-60...	4.77	4.24	89	5.25	3.68	70
1960-61...	5.69	3.57	63	5.45	4.20	77
1956-57...	6.05	3.54	58	6.13	3.10	51

1/ Arranged in ascending order of auction prices.
2/ Retail less auction price.
3/ Wholesale-retail margin divided by auction price.

Terminal Charges

Terminal charges covered the services of unloading, sorting, and displaying the commodity at the railway terminal, a charge for using the terminal facilities, an auction selling charge, and a broker's commission. Some of these charges were a flat rate per carton or car, others a percentage of the auction price. Therefore, terminal charges varied somewhat with the auction price. The basic rate for terminal services increased moderately over the 5 seasons. Total terminal charges ranged from 16 to 23 cents per carton in Chicago and from 17 to 27 cents per carton in New York City. This was about 2 percent of the retail price in Chicago and close to 3 percent in New York City.

Transportation Charges

Transportation charges covered rail freight plus a protective service. The protective services used were: (1) initial ice only, (2) initial ice with one reicing, (3) standard refrigeration, and (4) carrier protective service. The service used was primarily a function of weather (temperature) and, consequently, varied somewhat from season to season. In general, initial ice plus one reicing was used in October, initial ice only in November and March, carrier protective service during December, January, and February, and standard refrigeration in April. Because there was considerable difference in the costs of the protective services, monthly transportation charges varied according to which service was used. Some increases in the basic freight rate occurred during the 5 seasons. However, these were partially offset by the elimination on August 1, 1958, of a 3 percent Federal excise tax on freight. For Chicago transportation charges ranged from 90 to 98 cents per carton, and for New York City from $1.06 to $1.15. As a percentage of the retail price, transportation claimed from 9 to 13 percent for Chicago and from 10 to 15 percent for New York City.

Shipping-Point Charges

Charges at the shipping point were for packinghouse services and cold storage. The cold storage charges were based on average commercial rates of 20 cents into storage and first month, plus 5 cents for each additional month, up to 35 cents for the season. The average storage charge for a season was obtained by weighting the accumulated monthly charge by the unloads in the respective markets. The weighting procedure caused a slight difference between the 2 markets. Cold storage charges averaged 31 or 32 cents per carton per season. A recent innovation in the apple industry is controlled atmosphere storage. Controlled atmosphere facilities are limited, so only a small part of the crop can be accommodated. Storage by this method, which costs 65-75 cents per carton per season, was not included in the cost calculations for this report.

Packinghouse charges were for receiving, washing, sizing, packing, delivery to storage or rail shipping point, plus materials required. This charge was the second largest component of the total marketing margin. Over the 5 seasons packing charges increased from $1.34 to $1.40 per carton, or 4 percent. These charges claimed from 14 to 17 percent of the retail dollar for apples marketed in Chicago and from 14 to 18 percent in New York City.

Returns to Producer

Returns to producer was the retail price less the total marketing charge (fig. 1). It was the amount received at the packinghouse door for the activities of growing, picking, and hauling. For apples sold in Chicago, producer returns ranged from 77 cents per carton, or 10 percent of the retail price, to $3.28 per carton, or 35 percent of the retail price. For those sold in New York City, the variation was less -- from 92 cents to $3.20 per carton, or 13 and 35 percent of the retail price, respectively. Producer returns were characterized by wide variations over the 5 seasons -- greater than either retail or auction prices and all the margin components. This relative inflexibility of the margin components compared with producer returns is due, in some cases, to charges that are set independent of price or, in other cases, charges that are more or less subject to administration.

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