

The Adequacy of Price Quotations at Ohio Terminal Markets in Reflecting True Market Conditions

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Terminal Markets in Reflecting True
Market Conditions*

W. R. Luckham, R. E. Cray and P. C. Clayton**

Egg price determinations in both Ohio and the nation, have been and still are, going through a period of readjustment and change. Terminal wholesale egg markets no longer handle the bulk of the eggs sold and not only has the volume of eggs handled in the terminal markets decreased, but also those eggs that they do handle usually contain a low percentage of high quality eggs.

One of the chief reasons for the decrease in the volume of eggs going through wholesale markets has been the establishment of country egg buying plants by chain stores and large independent retailers, or the purchase of eggs graded and packed for retail distribution from other country assembly plants. This has greatly reduced the quantity of high quality eggs being traded on the exchange in the terminal markets.

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While the total yearly egg production in the North Central states, during the period 1950-54 increased 16 percent over the total yearly egg production during the period 1940-44, the volume of egg receipts in Chicago decreased 26 percent during the same period.

A few years ago, a large part of the volume of eggs produced in the North Central States was shipped into Chicago to be sold on the Mercantile Exchange and then re-routed to the final destination. Today, eggs shipped out of the Mid-west are usually sold by telegraph or telephone before the eggs leave the country assembly plant, and move directly from the plant to the final destination.

The decrease in volume of eggs sold on the Mercantile Exchange and the fact that a large part of this volume is not of the highest quality, raises a serious question as to whether the price quotations established on the Exchange are an accurate appraisal of either the volume of eggs moving to market or the value of high quality eggs.

The price quotations are further confused by the purchasing of eggs on many different bases, which results in a wide range of prices paid to producers. Part of this range is caused by the different marketing services rendered by the buyer. Some buyers perform such market-

ing services as supplying the cases to the producer, picking the eggs up at the farm, and cleaning the eggs; while in other areas, all of these services are performed by the producers.

The changes in the method of marketing eggs have decreased the value of the Ohio terminal markets as a price making mechanism.

This study was undertaken to evaluate these changes and their effect on the adequacy of the price quotations at Ohio Terminal markets.

Procedure:

In studying the adequacy of price quotations at Ohio terminal markets in reflecting true market conditions, four country egg buying plants were selected to geographically represent the marketing of eggs in Ohio.

The plants are producer owned cooperatives. They buy eggs on a graded basis. They sell eggs with prices based on both wholesale and consumer grades.

Three of the four plants studied handled from 1,000 cases per week at the low production season to 2,000 cases per week at the peak. The remaining plant had the largest weekly volume of receipts of all the plants studied and ranged from 4,000 to 7,000 cases per week.

Data were secured on the weekly volume of eggs sold and the prices paid producers for the various grades by each of these four plants. These prices are determined after the eggs are sold by deducting operating costs from the actual sales value.

Comparisons were made of the average weekly and yearly prices per dozen quoted in the daily market reports for Grade "A" Large white eggs by the Cleveland wholesale egg market, and the prices quoted in the daily market reports by the Chicago and New York wholesale markets for the same classifications. These data were then analyzed to determine if the prices in these markets move in the same general pattern, or if there is a lead or lag in price changes.

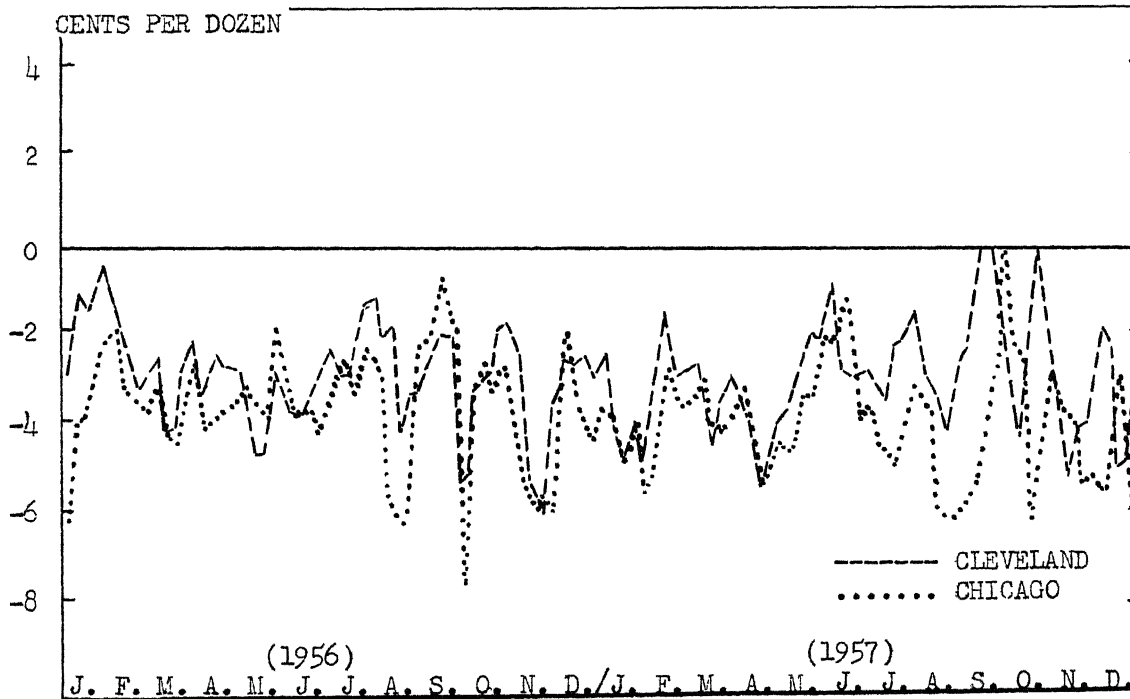
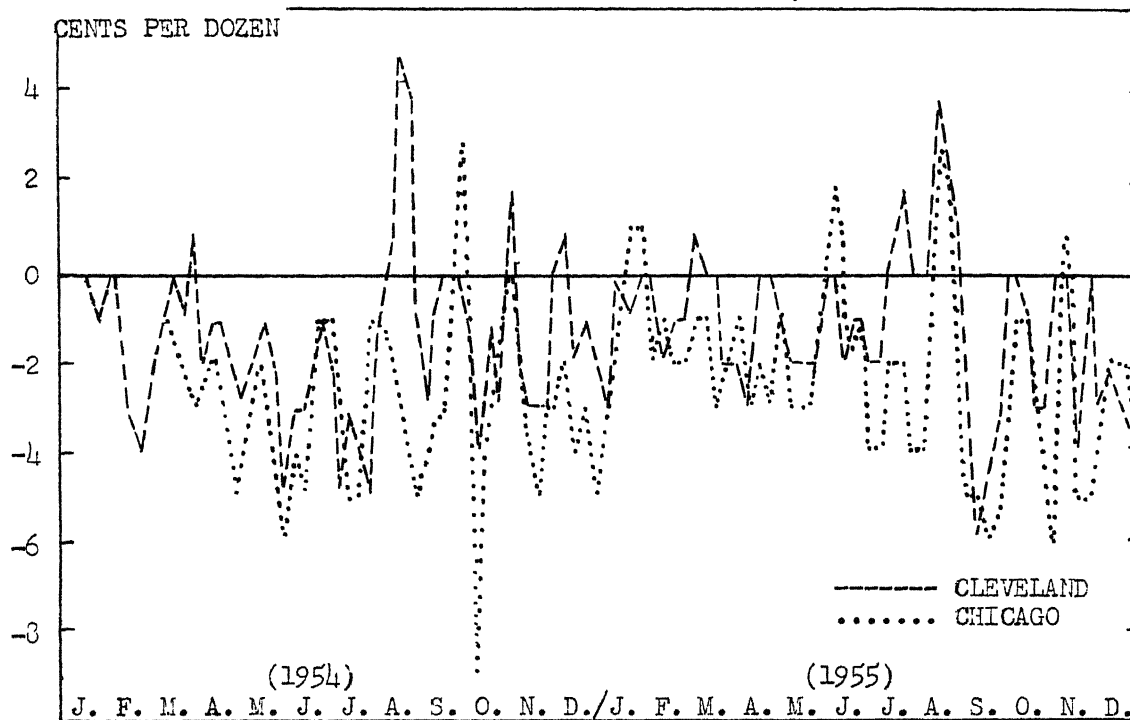
The weekly average net price per dozen paid to producers for Grade "A" Large white eggs by each of the four Ohio country plants was also compared with weekly average New York and Cleveland wholesale market quotations for the same grade of eggs. This was done in two ways: (1) direct comparison; and (2) the relationship of the prices as indicated by the spread between the New York market quotation and the price paid by the country egg buying plant.

Results and Discussion:

Comparison of Price Quotations on Major Terminal Markets. Both the Cleveland and the Chicago wholesale market quotations followed the same general seasonal price pattern as the New York wholesale quotation for the same grade of eggs. However, the average weekly wholesale quotation for Cleveland and Chicago differed markedly from the average weekly New York wholesale quotation for the same grade of eggs (Chart 1).

RELATION OF THE PRICES QUOTED FOR EGGS AT CLEVELAND AND CHICAGO¹
TO THE NEW YORK QUOTATION, 1954-1957

(NEW YORK WHOLESALE QUOTATION = 0)



1/ Average weekly wholesale quotation per dozen for Grade "A" Large white eggs.

(CHART I)

Variations in the terminal market quotations were analyzed by calculating their respective coefficients of determinations (r^2) as well as by computing the percent of the price changes in one terminal market that agreed with the direction of change of the quotation on another terminal market. Both of these methods gave very similar results (Table 1).

Table 1
Relation of Price Changes Among Terminal
Wholesale Egg Markets

Terminal Markets	Percent Agreement of observed price changes	Coefficient of Determination
New York / Chicago	68.5	0.6213
New York / Cleveland	70.44	0.7004
Cleveland / Chicago	69.03	0.6678

The coefficient of determination (r^2) which is the proportion of the total sum of squares which has been explained by the linear regression, indicates, for example, that 70 percent of the price changes observed on the Cleveland market quotation for eggs can be explained by similar changes on the New York city wholesale egg market. This agrees with the observed changes between the Cleveland and New York wholesale egg market quotations.

Similarly, 67 percent of the price changes on the Chicago wholesale egg market can be explained by similar price changes on the Cleveland market. This also agrees with the observed price quotation changes.

Thus it is evident that the terminal market agrees in the direction of their price changes approximately 70 percent of the time, and disagrees about 30 percent of the time.

The yearly average quotations for Grade "A" Large white eggs (Table II) for Cleveland are below those for New York and those for Chicago are below the quotations for Cleveland.

These differences may be partially accounted for by the transportation cost between the various terminal markets. However, the changes in the spread of these differentials throughout the year indicate that the Cleveland and the Chicago wholesale egg market quotations are not closely dependent upon the New York wholesale egg quotation.

The Yearly Average Quotations for Grade "A"
Large White Eggs on the Cleveland, Chicago
and New York Wholesale Egg Markets

Year	Terminal Markets			Difference in Yearly Average Quotation be- tween New York and:	
	New York	Cleveland	Chicago	Cleveland	Chicago
	¢ doz.	¢ doz.	¢ doz.		
1954	43.2	41.9	39.4	-1.3	-3.8
1955	45.5	44.6	43.3	-0.9	-2.2
1956	44.9	42.0	41.2	-2.9	-3.7
1957	42.1	39.4	38.4	-2.7	-3.7

The Relationship of the Cleveland and the New York
Wholesale Egg Market Quotations

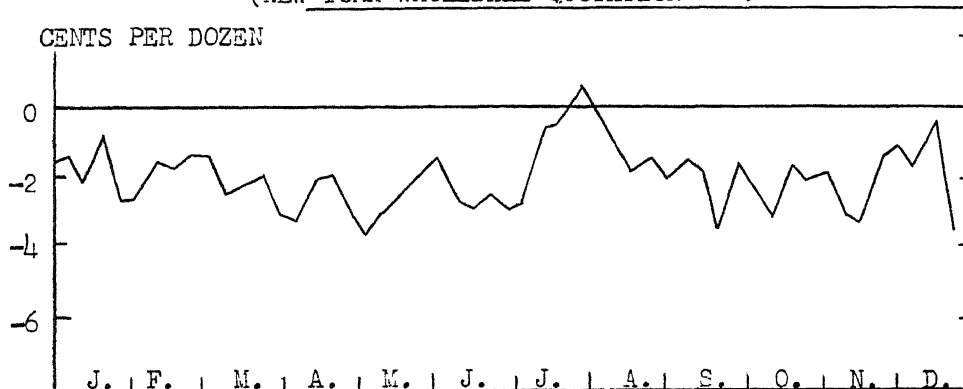
The relation between the combined four-year average weekly wholesale quotations for Grade "A" Large white eggs on the Cleveland and New York wholesale market (Chart II) provides further evidence that the Cleveland wholesale market quotations do not closely follow the New York quotations.

Ohio Farm Prices in Relation to Terminal Market

Quotations: The variation in week to week differences between the paying prices for Grade "A" Large white eggs by all four country egg buying plants and the New York quotation on the same grade of eggs (Chart III) indicates that the New York quotation does not determine the week to week paying prices.

RELATION OF THE 4-YEAR AVERAGE WEEKLY PRICE QUOTATION FOR EGGS AT
CLEVELAND AND NEW YORK CITY, 1954-1957¹

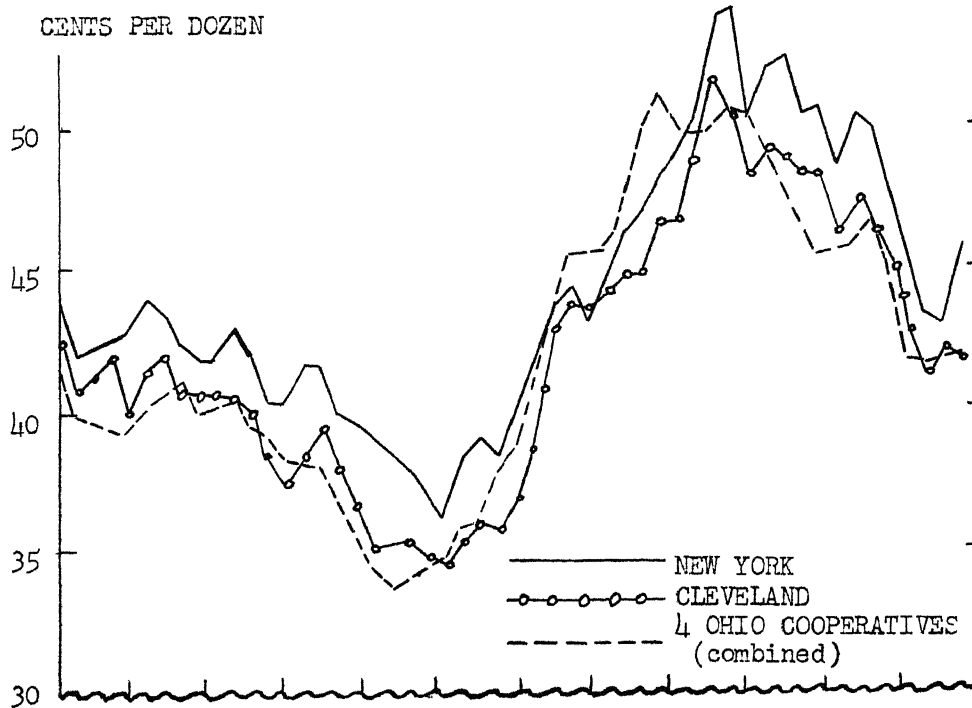
(NEW YORK WHOLESALE QUOTATION = 0)



1/ Combined 4-year average weekly wholesale quotation per dozen for Grade "A" Large white eggs at Cleveland and New York.

(CHART II)

COMPARISON OF THE 4-YEAR AVERAGE WEEKLY PRICE QUOTATION FOR EGGS AT
CLEVELAND AND NEW YORK WITH THE COMBINED PRICE PAID TO PRODUCERS²



1/ Combined 4-year average weekly wholesale quotation per dozen for Grade "A" Large white eggs at Cleveland and New York.

2/ Combined 4-year average weekly price paid to producers for Grade "A" Large white eggs by the four Ohio cooperatives (combined).

(CHART III)

The variations in the week-to-week differences between the paying prices for Grade "A" Large white eggs by all four country plants combined and the terminal market quotations were also analyzed by calculating their respective coefficients of determinations as well as by computing the percent of the changes in the prices paid to producers that agreed with the direction of the change of the terminal market quotations. Both of these methods yielded very similar results.

Table III

Comparison of Changes in Prices Paid to Producers
with the Corresponding Wholesale
Egg Market Quotations*

Terminal Market	Four Ohio Egg Buying Plants	
	Coefficient of Determination	Percent Agreement of Observed Price Changes
New York	0.5424	56.86
Chicago	0.4057	55.33
Cleveland	0.5164	56.15

*Weekly average prices paid to producers and terminal market quotations.

It appears from the above table that there is little relationship between the prices paid to producers and the terminal market wholesale egg quotations. Only 51.6 percent of the changes in the price paid to producers can be explained by similar price changes on the Cleveland wholesale egg market.

If there is no relationship between the prices paid to producers by the country egg buying plants and the terminal market quotations on eggs, a random choice of country paying prices would, in the long run, agree with the changes in the terminal market wholesale quotation 50 percent of the time, and disagree 50 percent of the time. The fact that changes in the price paid to producers agreed 51.6 percent and disagreed 48.4 percent of the time with the Cleveland wholesale egg market quotations indicates that the country egg buying plants determine the paying prices to producers by stressing other sources of market information. These sources may include the following:

1. The local market supply in the immediate areas of production.
2. The supply situation in nearby areas served by other country egg buying plants.
3. The consumer demand as measured by the volume of eggs cartoned for large retail organizations.
4. The trend in supply and price at the major terminal markets.
5. An estimation by the manager of the competitive situation (will the market bear a price increase or decrease?).

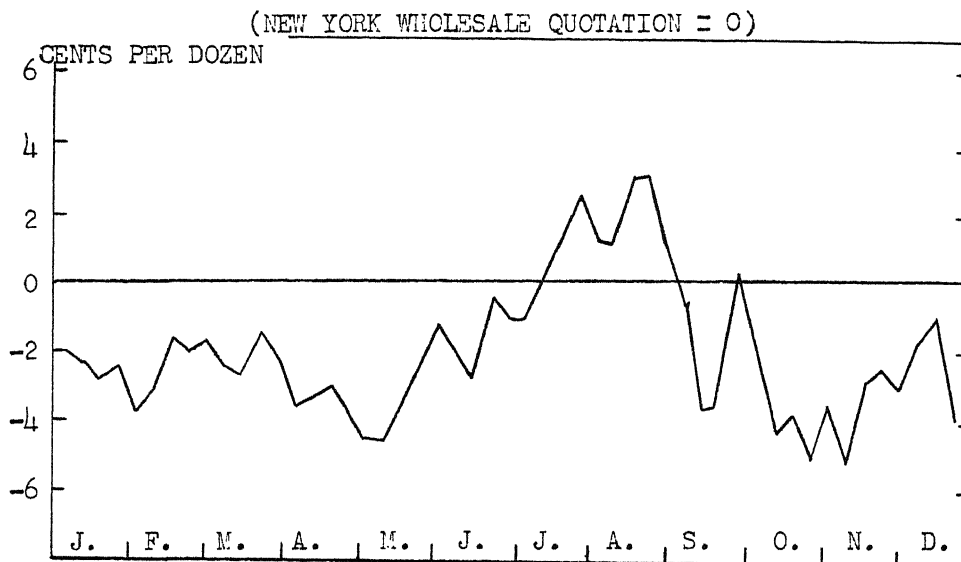
Data in Chart III indicate that while the cooperatives tend to follow the same seasonal pattern as indicated by the Cleveland and New York terminal market wholesale quotation for eggs, they appear to lead the price rises and declines, rather than following the terminal market. This fluctuation may be caused by the fact that a sample of only four cooperatives was used in this study.

Data in Chart IV indicate that little relationship exists between the prices paid to producers and the New York wholesale quotation for the same grade of eggs. The same conclusion can be made for the relationship between prices paid to producers and the Cleveland wholesale egg market quotations for the same grade of eggs (Chart V).

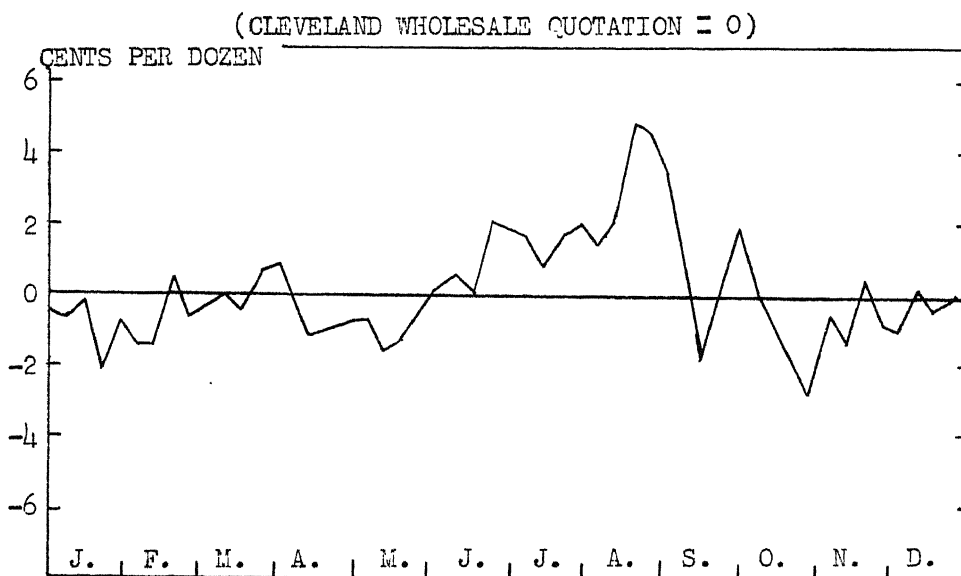
Thus it appears that the terminal wholesale market quotations play a minor role in the determination of prices paid to producers. Their only use is for a guide or reference to help appraise the general market conditions.

RELATION OF THE COMBINED 4-YEAR AVERAGE WEEKLY PRICE PAID TO PRODUCERS¹

TO THE NEW YORK AND CLEVELAND QUOTATIONS FOR EGGS²



(CHART IV)



1/ Combined 4-year average weekly price paid to producers for Grade "A" large white eggs by the four Ohio cooperatives (combined).

2/ Combined 4-year average weekly wholesale quotation for Grade "A" large white eggs at New York (Chart IV), and Cleveland (Chart V).

(CHART V)

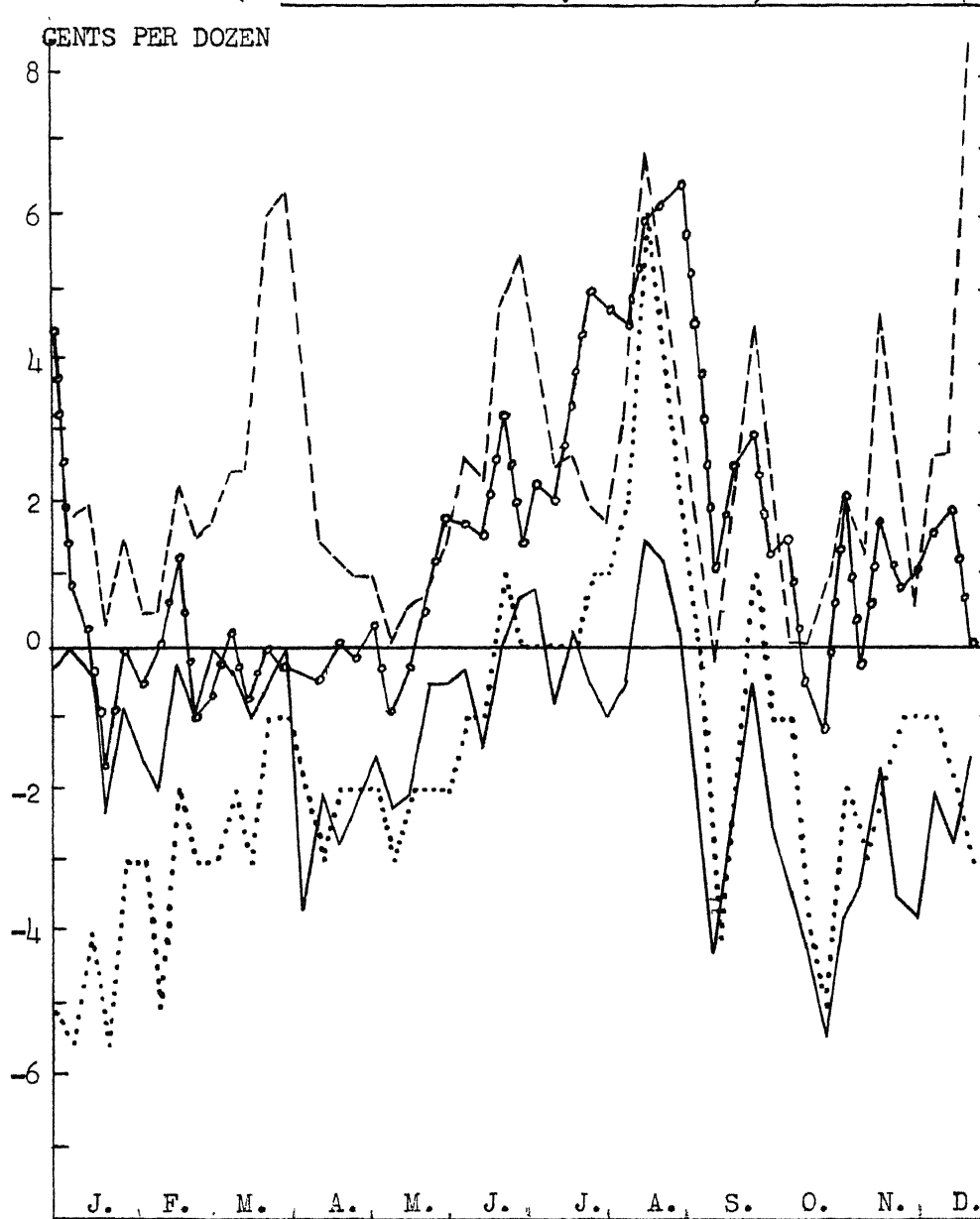
Variation in Prices Paid to Producers by the Four
Country Egg Buying Plants

These variations (Chart VI) can be accounted for by variations in services provided by the cooperatives as well as by the manner in which eggs are sold, since some country plants sell on a whole-sale grade basis while others use the consumer grades. Expenses involved in the grading according to these two standards may differ as much as a cent and one-half per dozen, which may account for a part of the variation in the prices paid to producers.

The narrower spread between the prices paid to producers by the country egg buying plants during July and August can be partially explained by their practice of using incentive payments (over payments) to the producers during this period of low egg production and generally high egg prices.

1
COMPARISON OF THE PRICE PAID TO PRODUCERS TO THE CLEVELAND
2
WHOLESALE QUOTATION FOR EGGS

(CLEVELAND WHOLESALE QUOTATION = 0)



1/ Combined 4-year average weekly net price to producers for Grade "A" Large white eggs paid by the four Ohio cooperatives

2/ Combined 4-year average weekly wholesale quotation per dozen for Grade "A" Large white eggs at Cleveland

(CHART VI)

Summary

The weekly average wholesale egg market quotations for Grade "A" Large white eggs from three terminal markets (Chicago, Cleveland and New York) were compared with each other and also with the weekly average price paid to producers by four Ohio country egg buying plants during the period 1954-1957 inclusive.

Terminal markets in Cleveland and Chicago follow the same seasonal price pattern as the New York wholesale egg market. However, their coefficient of determination (r^2) indicates that price changes in one terminal market account for price changes in another terminal market from 60 to 70 percent of the time.

Yearly average quotations for Cleveland are below those for New York, and those for Chicago are below the quotations for Cleveland.

Weekly average changes in the prices paid to producers by the country egg buying plants are almost independent of the weekly average changes in the terminal wholesale egg market quotations. However, they do follow the general seasonal price pattern as indicated by the terminal market quotations.

The price quotations in the terminal markets do not adequately reflect true market conditions as indicated by the prices paid to producers by the four country egg buying plants included in this study.