

**The Wheat Farmers' Contribution
To Rising Bread Prices**

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INTRODUCTION

In an article¹ describing an investigation of the bread and cereals industries by the Council on Wage and Price Stability, the council said that "evidence persists that the bread industry recorded increased profit margins and rates of return on capital during the period of declining commodities prices in 1974-1975." Michael Moskow, Council Director, was quoted as saying:

"The combination of rising profit margins and considerable economic concentration raise doubts as to whether commodity cost savings are being reflected in the retail prices charged to consumers."

The commodity cost savings since 1974 refers to the declining price of the basic ingredients of a loaf of bread—the raw agricultural ingredients. The investigation was instituted in light of evidence showing increasing profit margins in the bread and cereals industries coupled with decreasing commodity prices. In other words, decreasing commodity prices were not being reflected in consumer prices; retail bread prices were increasing in spite of the fact that the cost of the basic ingredients used in producing bread were decreasing.

¹Source: *Wall Street Journal*, January 15, 1976.

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American consumer groups are justifiably concerned with rising bread prices. However, this concern has typically manifested itself by singling out the wheat producer and the foreign sale of his product as the source of raising bread prices. The consumer advocates' logic is based on no more than an intuitive feeling that foreign wheat sales influence American wheat prices and American wheat prices determine retail bread prices. This logic was accurate in the past. The remainder of this paper brings the consumer up to date.

The purpose of this submittal is twofold:

- A. To demonstrate the fact that there has been a structural change with regards to the ingredient cost/retail cost relationship in recent years in the bread processing industry.
- B. To establish the fact that the American wheat farmer is neither the great benefactor or cause of rising bread prices.

EMPIRICAL FINDINGS

The time period of this study is from January 1971 to December 1975. The data was taken from the *Wheat Situation Report* and is shown and more fully explained in Appendix A. The data was split into two time periods: Time Period I is from the first quarter of 1971 through August 1973 and Time Period II from September 1973 to December 1975. As will be shown graphically and statistically, Time Period I was clearly a period during which bread prices and input prices were strongly and positively related, while during Time Period II these interrelationships took a dramatic and unexplainable turn.

Figure 1 is a self-explanatory graph depicting the data as listed in Appendix A. All the data is presented in terms of cents per one-pound loaf of bread. The lines in Figure 1

TIME PERIOD I

TIME PERIOD II

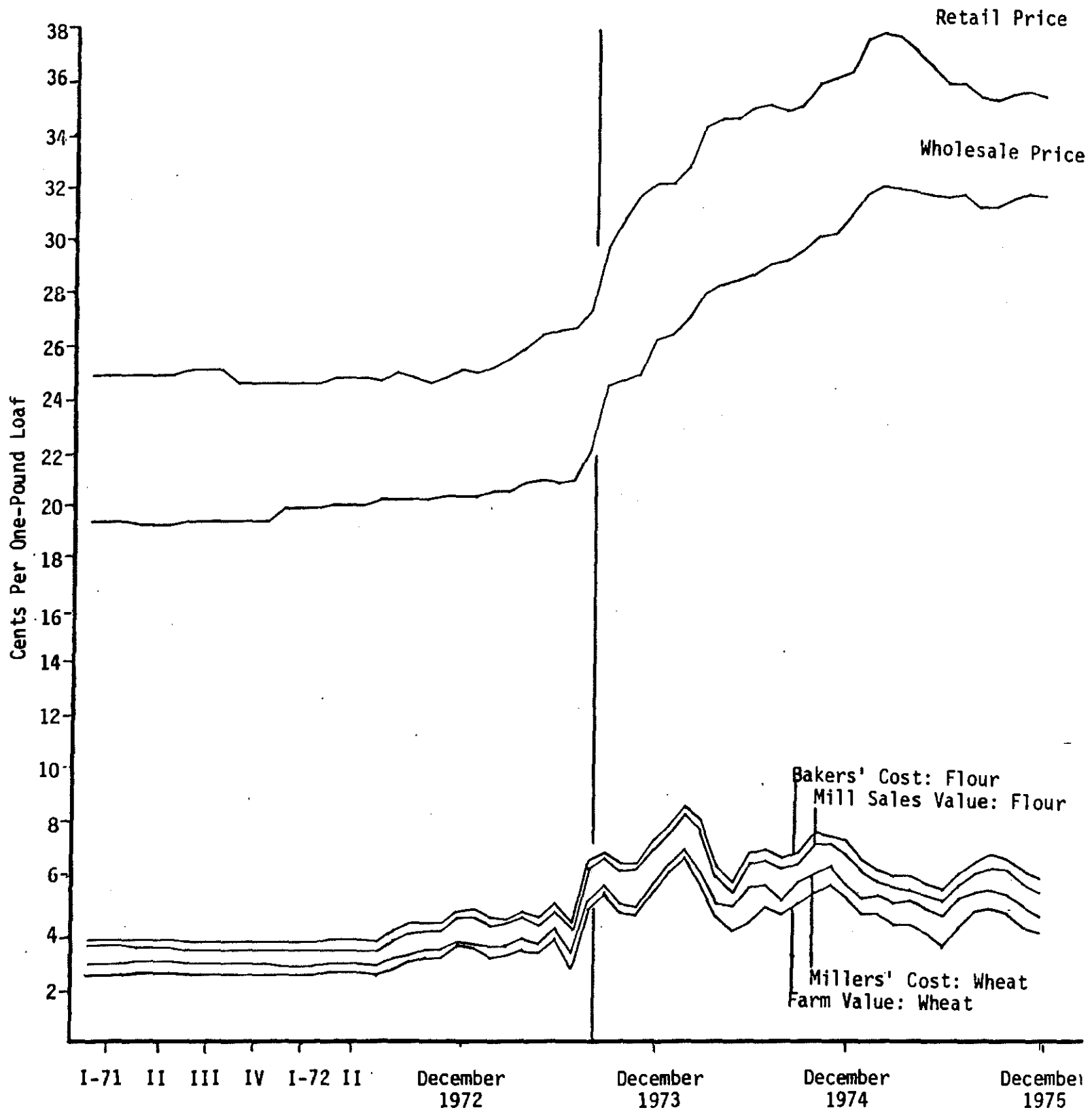


Figure 1. Farm Value of Wheat, Millers' Cost of Wheat, Mill Sales Value of Flour, Bakers' Cost of Flour and the Wholesale and Retail Price of a One-Pound Loaf of White Pan Bread: 1971-1975.

depict what happens to the wheat as it is processed and ultimately sold as bread to the consumer. For example, in December 1975, the farm value of wheat to produce a one-pound loaf of bread was 4.1 cents, the miller paid 4.7 cents for enough wheat to produce a one-pound loaf of bread and sold the equivalent in flour for 5.6 cents, the baker, in turn, paid 6.1 cents for the equivalent measure of flour, the wholesale price of bread was 31.4 cents and the retail price of a one-pound loaf of bread was 35.1 cents. In short, the farm value of enough wheat to produce a loaf of bread was 4.1 cents and this loaf of bread was ultimately sold to the consumer for 35.1 cents in December of 1975.

Figure 2 is essentially the same as Figure 1 except the farm value of all agricultural ingredients (including wheat, lard, shortening, non-fat dry milk and sugar) is used along with the bakers' cost of these same ingredients (the millers' cost of wheat and sales values of flour have been eliminated to reduce the congestion of the graph).

As can be noted in both Figure 1 and Figure 2, Time Period I represents a time of relatively stable input prices and retail prices. Also shown in Time Period I is a strong relationship between all the variables. That is, a change in the price of wheat is reflected throughout the entire processing industry to the retail price of bread. However, during Time Period II input prices begin and continue to fluctuate around each other while wholesale and retail prices appear to break away from traditional relationships and generally follow a course of continually increasing prices. That is, changes in the price of wheat is reflected throughout the spectrum until the bread reaches the wholesale and retail level. The price changes in these latter two levels during Time Period II do not reflect price fluctuations which are occurring during the previous stages of production.

Correlation analysis was used to statistically determine the extent to which these variables were related in the two time periods. Correlation analysis is a statistical tool

TIME PERIOD I

TIME PERIOD II

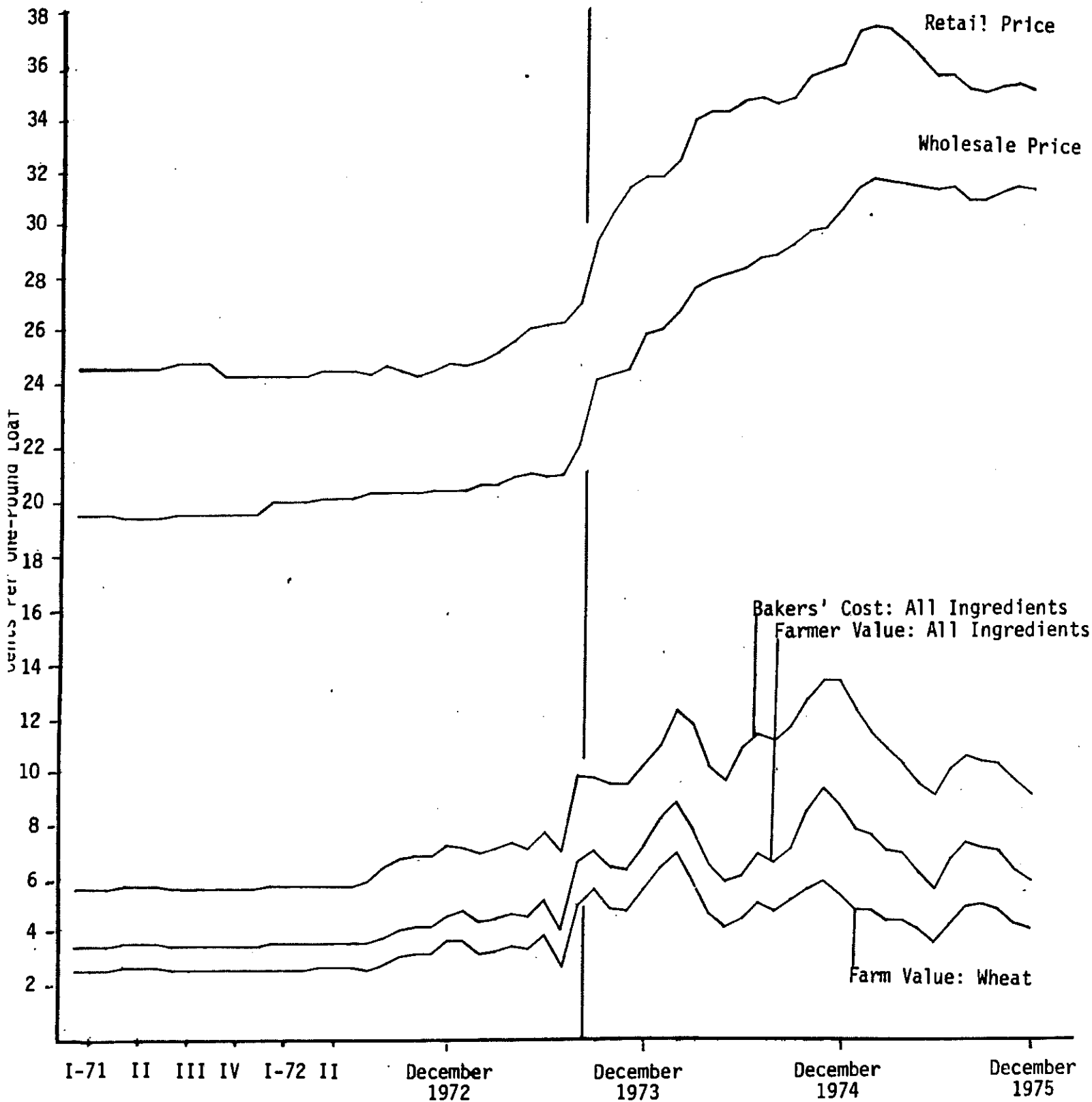


Figure 2. Farm Value of Wheat, Farm Value of All Ingredients, Bakers' Cost of All Ingredients and the Wholesale and Retail Price of a One-Pound Loaf of White Pan Bread: 1971-1975.

similar to simple regression analysis to the extent that both regression and correlation are used to determine the linear relationship between two variables. Correlation analysis, unlike regression analysis, measures only the relationship between the variables and does not require one variable to be designated as dependent on the other variable. A correlation coefficient (also referred to as 'r') is much like an index in that it measures the intensity of the linear relationship between two variables. If all the observations were perfectly related, where when one increases the other increases or when one decreases the other decreases, the correlation coefficient would equal +1.00. That is, the relationship is measured in terms of an estimated line of regression and if all the observations were on the estimated line of regression the correlation coefficient would equal one. The correlation coefficient will range between -1.00 and +1.00. The larger the absolute value of r, the closer the observed points will fit the estimated line of regression. The closer the absolute value of r is to 1, the more the two variables are related and the closer it is to zero, the lesser the two variables are related. If the correlation coefficient is negative the variables are inversely related to each other (as one increases the other decreases) and a positive correlation coefficient indicates a positive relationship between the two variables.

It is easy to visualize what happens to the correlation coefficient through the use of graphs. Figure 3 is a series of graphs which shows what happens to the price relationships of farm wheat as it is processed and eventually sold to the consumer.

Table 1 contains the list of correlation coefficients (the significance probability is shown beside the correlation coefficient in parenthesis)² which pertain to the various combination of variables in Figure 3 for both time periods.

²All the correlation statistics are shown in Appendix B in matrix form. This is also the source of the correlation statistics shown in Tables 2, 3 and 4 of this study.

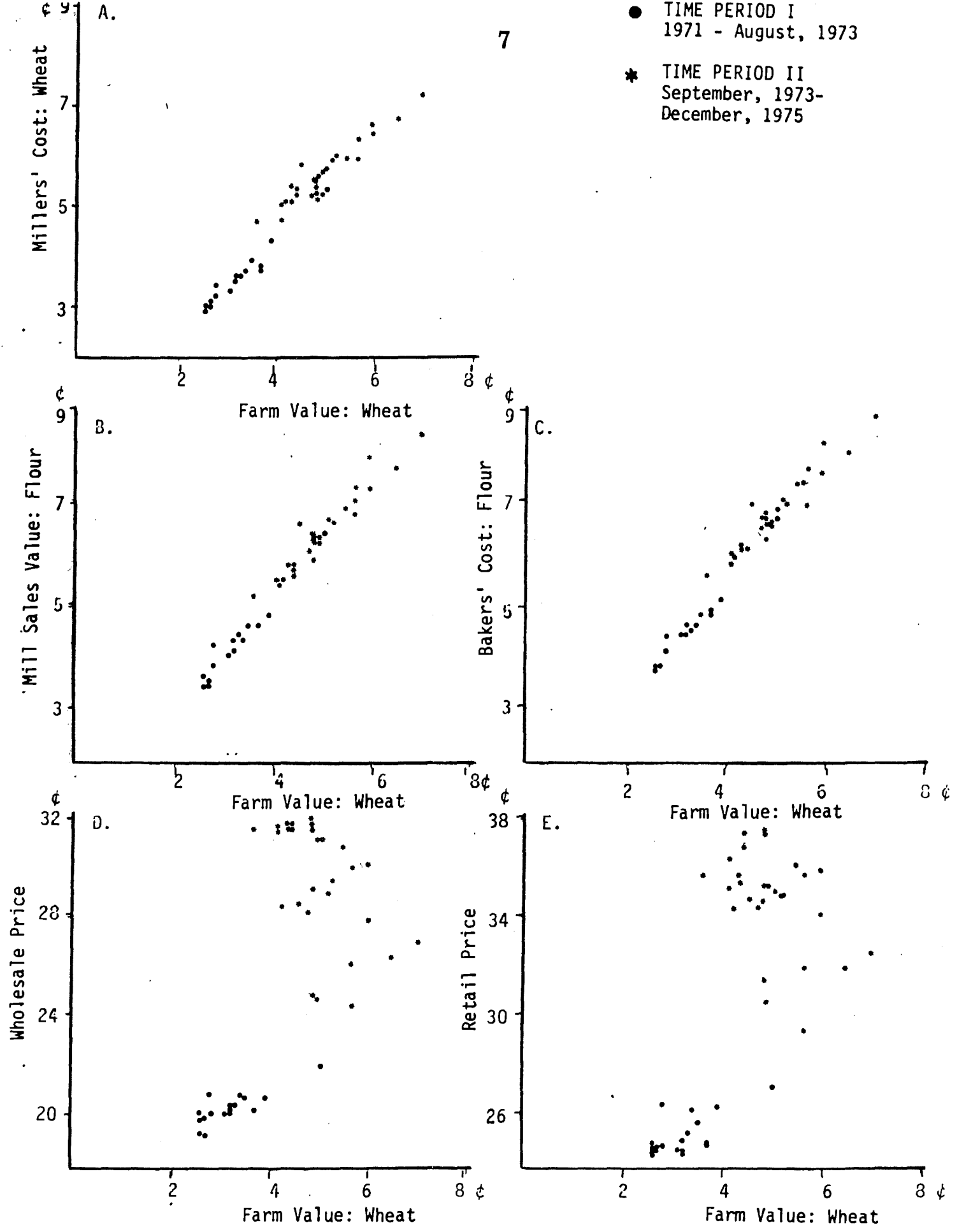


Figure 3. The Relationships Between the Farm Value of Wheat in a One-Pound Loaf of White Pan Bread and the Millers' Cost of Wheat, the Mill Sales Value of Flour, the Bakers' Cost of Flour, the Wholesale Price of Bread and the Retail Price of Bread.

TABLE 1		
Relationship	Time Period I	Time Period II
A. Farm Value of Wheat and Cost of Wheat to the Miller:	0.978950 (0.0001)	0.940921 (0.0001)
B. Farm Value of Wheat and Mill Sales Value of Flour:	0.974777 (0.0001)	0.962294 (0.0001)
C. Farm Value of Wheat and Bakers' Cost of Flour:	0.980431 (0.0001)	0.954850 (0.0001)
D. Farm Value of Wheat and Wholesale Price of Bread:	0.816909 (0.0001)	-0.512555 (0.0053)
E. Farm Value of Wheat and Retail Price of Bread:	0.689716 (0.0008)	-0.449108 (0.0165)

Recalling from the correlation analysis discussion, if the correlation coefficient is positive, the two variables are positively related—when the farm value of wheat increases the corresponding variable also increases and if the correlation coefficient is negative, the two variables are inversely related—when the farm value of wheat decreases the corresponding variable increases. Also the closer the absolute value of the correlation coefficient is to 1.00, the stronger the relationship between the two variables.

From the series of graphs shown in Figure 3 and from the above table of correlation coefficients the following conclusions can be made:

1. There is a strong and positive relationship in both time periods between the farm value of wheat and the cost of wheat to the miller, the mill sales value of flour and the bakers' cost of flour.
2. There is a positive relationship between the farm value of wheat and the wholesale price of bread in Time Period I. However, in Time Period II the relationship between these two variables becomes negative.
3. The relationship between the farm value of wheat and the retail price of bread is positive in Time Period I and negative in Time Period II.

In Table 2 similar comparisons are made as in Table 1 except Table 2 provides a comparison of the farm value of all agricultural ingredients to the corresponding variables.

TABLE 2		
Relationship	Time Period I	Time Period II
A. Farm Value of All Ingredients and Bakers' Cost of all Ingredients:	0.981433 (0.0001)	0.880728 (0.0001)
B. Farm Value of All Ingredients and Wholesale Price of Bread:	0.878730 (0.0001)	-0.030259 (0.8785)
C. Farm Value of All Ingredients and Retail Price of Bread:	0.771208 (0.0001)	0.064039 (0.7461)

The conclusions drawn from Table 2 are analogous to those of Table 1:

1. There is a strong and positive relationship in both time periods between the farm value of all ingredients and the bakers' cost of all ingredients.
2. In Time Period I there was a strong and positive relationship between the farm value of all ingredients and the wholesale price of bread but the relationship became negative and insignificant in Time Period II.
3. The relationship between the farm value of all ingredients and the retail price of bread was strong and positive in Time Period I but there was no relationship in Time Period II between the two variables.

From Table 1 and Table 2 it can be concluded that in Time Period I the relationship between the farm value of bread inputs and the similar costs throughout the processing and sales industry was strong and positive. This also holds true in Time Period II until the relationship between the farm value and the wholesale and retail prices are compared.

Another way of looking at this same situation is to look at the interrelationships between the variables. Figure 4 is a series of graphs which shows these interrelationships as the wheat is bought from the farmer, processed and eventually sold as bread to the consumer.

Table 3 lists the correlation coefficients and significance probabilities for each of the graphs shown in Figure 4.

TABLE 3		
Relationship	Time Period I	Time Period II
A. Farm Value of Wheat and Cost of Wheat to Miller	0.978950 (0.0001)	0.940921 (0.0001)
B. Cost of Wheat to Miller and Mill Sales Value of Flour:	0.984073 (0.0001)	0.936542 (0.0001)
C. Mill Sales Value of Flour and Bakers' Cost of Flour:	0.995382 (0.0001)	0.995564 (0.0001)
D. Bakers' Cost of Flour and Wholesale Price of Bread:	0.873939 (0.0001)	-0.457873 (0.0143)
E. Wholesale Price of Bread and Retail Price of Bread:	0.822713 (0.0001)	0.939046 (0.0001)

The conclusions made with regard to Table 3 and Figure 4 are the same as discussed in connection with Table 1 and Figure 3 with one major additional finding: the retailer is left off the hook. There is a strong and positive relationship between all the variables in both time periods as the wheat leaves the farm and goes through the processing industry. However, the relationship in Time Period II between the bakers' cost of flour and the wholesale price of bread is negative. That is, in Time Period I there was a strong and

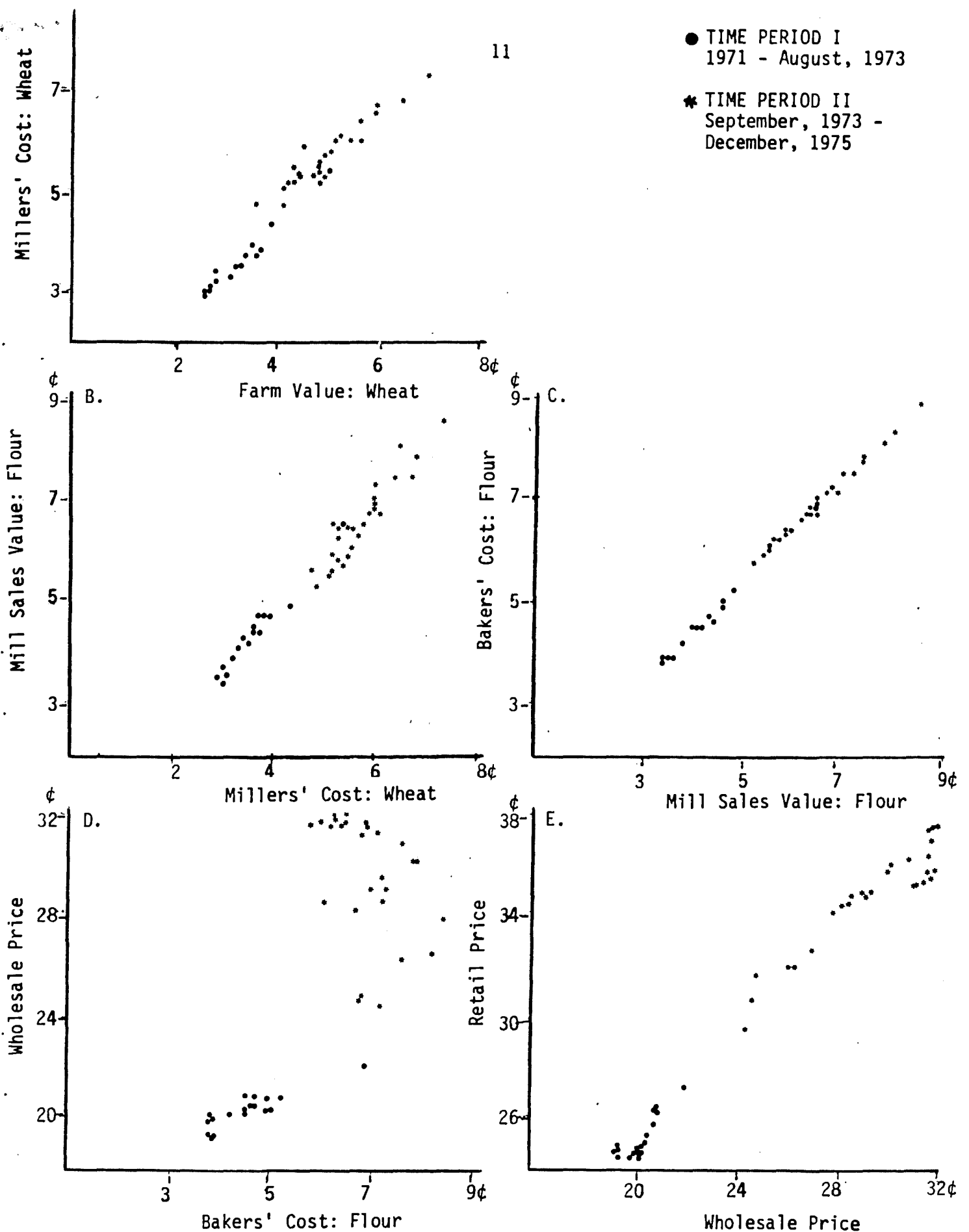


Figure 4. The Interrelationships Between the Farm Value of Wheat, the Millers' Cost of Wheat, the Mill Sales Value of Flour, the Bakers' Cost of Flour, the Wholesale Price of Bread and the Retail Price of a One-Pound Loaf of White Pan Bread.

positive relationship between these two variables, but in Time Period II this relationship has become less intense and statistically negative. In Time Period II, as the bakers' cost of flour decreased the wholesale price of bread increased.

The relationship between the wholesale and retail price of bread is strong and positive in both time periods indicating that increases and decreases in wholesale bread prices are consistently reflected in retail prices.

Table 4 shows the same sequence of variables except the relationship of the farm value of all agricultural ingredients is the point of concentration.

TABLE 4		
Relationship	Time Period I	Time Period II
A: Farm Value of Wheat and Farm Value of All Ingredients:	0.987232 (0.0001)	0.817435 (0.0001)
B: Farm Value of All Ingredients and Bakers' Cost of All Ingredients:	0.981433 (0.0001)	0.880728 (0.0001)
C. Bakers' Cost of All Ingredients and Wholesale Price of Bread:	0.923418 (0.0001)	0.111647 (0.5717)
D. Wholesale Price of Bread and Retail Price of Bread:	0.822713 (0.0001)	0.939046 (0.0001)

The above table reinforces the foregoing conclusions: there is a strong and positive relationship between all the variables in both time periods except for the relationship between the bakers' cost of all ingredients and the wholesale price of bread in Time Period II.

The correlation analysis contained in the tables confirms the conclusions one might draw from the visual inspection of the figures. There *has* been a structural change in the bread processing industry in regards to the ingredient cost/retail cost relationships since

the first quarter of 1971. During the time period from January 1971 through August 1973 the price relationship between the farm value of wheat in a loaf of bread and the retail price of a loaf of bread was strong and positively related. There was an average spread of 22.0 cents between the farm value of wheat that goes into a loaf of bread and the retail price of bread. The average farm value of wheat was 3.2 cents and the average retail price of bread was 25.2 cents. In Time Period II, this spread increased to 29.6 cents. Between September 1973 and December 1975, the average farm value of wheat in a loaf of bread was 5.0 cents and the average retail price of bread was 34.6 cents.

Time Period II represents a period of rising and falling agriculture ingredient prices and generally increasing bread prices. While price fluctuations in the farm value of wheat are reflected in the millers' cost of wheat, the mill sales value of flour and the bakers' cost of flour, they are not reflected in the wholesale or retail price of bread. In other words, declining wheat prices in Time Period II are consistently and proportionately passed up through the bread processing industry until they reach the wholesaler.

The bakers' cost discussed throughout are the cost of all agriculture ingredients used in making bread. In December 1975 the bakers' costs were 9.1 cents and the wholesale price of bread 31.4 cents for a spread between the bakers' cost of all ingredients and the wholesale price of 22.3 cents per loaf. The margin between the wholesale and retail price of bread has been quite constant since January 1971. Since the price of the wheat that goes into a loaf of bread does not account for the increasing wholesale prices (or retail bread prices) the relationship between the bakers' cost of all other inputs besides the agriculture ingredients must make up for the increasing bread prices. Bakers' costs which are not accounted for in this analysis and which could explain the inconsistencies in pricing policy in Time Period II are essentially labor, capital, distribution, promotion, and

the bakers' profit margin. However, it must be noted that the farmer and miller also have costs of labor, capital, distribution, and profit but they maintain a constant pricing policy throughout the entire study period. Visual inspection of the figures in regard to the spreads between these interrelationships is convincing enough.

In the correlation analysis previously discussed a regression or estimating equation can be derived. The relationship between the farm value of wheat and the retail price of bread in Time Period I was:

$$Y = 22.366102 + 0.9015499X$$

$$(0.71714093)^* \quad (0.22308495)^*$$

Where Y = estimated retail price of bread

and X = farm value of wheat.

***Standard errors.**

It is interesting to speculate that had this Time Period I relationship been maintained into Time Period II, the retail price of bread in December 1975 would have been 26.06 cents rather than 35.1 cents per one-pound loaf. Another way of determining what the retail price of bread would have been in December 1975 had the relationships in Time Period I been maintained in Time Period II, is to consider the absolute differences between the variables. In Time Period I the average farm value of wheat was 3.16 cents and the average wholesale price of bread 20.275 cents for a spread of 17.115 cents. Likewise in Time Period I the average retail price of bread was 25.215 cents for a wholesale-retail spread of 4.94 cents. If the absolute differences had been maintained in December 1975 in relation to the farm value of wheat, the retail price of bread would have been as follows:

December farm value of wheat	4.1 cents
Difference between farm value of wheat and wholesale price of bread	17.115 cents
Difference between wholesale and retail price of bread	<u>4.94</u> cents
Estimated retail price of a one-pound loaf of bread in December 1975	26.155 cents

CONCLUSIONS

In December 1972 the farm value of wheat in a one-pound loaf of bread was 3.7 cents which amounted to 14.8 percent of the retail price of bread of 25.0 cents. In December 1975 the farm value of wheat in a one-pound loaf of bread was 4.1 cents which amounted to 11.7 percent of the retail price of bread of 35.1 cents. From December 1972 to December 1975 the farm value of wheat in a loaf of bread increased only 0.4 cents while the retail price of bread went up 10.1 cents. Therefore, during this period, less than four percent of the increase in the retail price of bread can be justifiably laid at the feet of the American wheat farmer. It is important and only fair that the American consumer be fully aware that in recent years the shelf price of a loaf of bread gives little if any indication as to the price of a bushel of wheat. The American wheat farmer should be so fortunate.

APPENDIX

APPENDIX A

TABLE 1. WHITE PAN BREAD. ESTIMATED RETAIL AND WHOLESALE PRICE OF ONE-POUND LOAF; RETAILERS, WHOLESALERS, MILLERS AND OTHER SPREADS AND FARM VALUE OF INGREDIENTS**

Year	Month	BAKERS' COST				FARM VALUE			
		Retail Price of Bread ^a	Wholesale Price of Bread ^b	All Ingredients ^c	Flour ^d	Mill Sales Value of Flour ^d	Cost of Wheat to Miller ^e	All Ingredients ^f	Wheat ^g
		Cents Per Loaf	Cents Per Loaf	Cents Per Loaf	Cents Per Loaf	Cents Per Loaf	Cents Per Loaf	Cents Per Loaf	Cents Per Loaf
1971	1st Qtr.*	24.8	19.4	5.6	3.9	3.7	3.0	3.5	2.6
	2nd Qtr.*	24.8	19.3	5.7	3.9	3.6	3.1	3.6	2.7
	3rd Qtr.*	25.0	19.4	5.6	3.8	3.5	3.0	3.5	2.6
	4th Qtr.*	24.5	19.4	5.6	3.8	3.5	3.0	3.5	2.6
1972	1st Qtr.*	24.5	19.9	5.7	3.8	3.5	2.9	3.6	2.6
	2nd Qtr.*	24.7	20.0	5.7	3.9	3.5	3.0	3.6	2.7
	July	24.6	20.2	5.9	3.8	3.5	2.9	3.6	2.6
	August	24.9	20.2	6.4	4.2	3.9	3.2	3.8	2.8
	September	24.7	20.2	6.7	4.5	4.1	3.3	4.1	3.1
	October	24.5	20.2	6.8	4.5	4.2	3.5	4.2	3.2
	November	24.7	20.3	6.8	4.5	4.2	3.5	4.2	3.2
	December	25.0	20.3	7.2	4.9	4.7	3.8	4.6	3.7

APPENDIX A

**TABLE 1. WHITE PAN BREAD. ESTIMATED RETAIL AND WHOLESALE PRICE OF ONE-POUND LOAF;
RETAILERS, WHOLESALERS, MILLERS AND OTHER SPREADS AND FARM VALUE OF INGREDIENTS****

Year	Month	Retail Price of Bread ^a	Wholesale Price of Bread ^b	BAKERS' COST				FARM VALUE	
				All Ingredients ^c	Flour ^d	Mill Sales Value of ^f Flour ^d	Cost of Wheat to Miller ^e	All Ingredients ^f	Wheat ^g
1973	January	24.9	20.3	7.1	5.0	4.7	3.7	4.8	3.7
	February	25.1	20.5	6.9	4.7	4.4	3.6	4.4	3.2
	March	25.4	20.5	7.1	4.6	4.5	3.6	4.5	3.3
	April	25.8	20.8	7.3	4.9	4.7	3.9	4.7	3.5
	May	26.3	20.9	7.1	4.7	4.4	3.7	4.6	3.4
	June	26.4	20.8	7.7	5.2	4.9	4.3	5.2	3.9
	July	26.5	20.9	7.0	4.5	4.3	3.4	4.1	2.8
	August	27.2	22.0	9.8	6.8	6.5	5.3	6.6	5.0
	September	29.5	24.4	9.7	7.1	6.9	5.9	7.0	5.6
	October	30.6	24.6	9.5	6.7	6.4	5.2	6.4	4.9
	November	31.5	24.8	9.5	6.7	6.5	5.1	6.3	4.8
	December	31.9	26.1	10.2	7.5	7.2	5.9	7.2	5.6

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RETAILERS, WHOLESALERS, MILLERS AND OTHER SPREADS AND FARM VALUE OF INGREDIENTS****

Year	Month	Retail Price of Bread ^a	Wholesale Price of Bread ^b	BAKERS' COST			FARM VALUE		
				All Ingredients ^c	Flour ^d	Mill Sales Value of ^e Flour ^d	Cost of Wheat to Miller ^e	All Ingredients ^f	Wheat ^g
1974	January	31.9	26.3	10.9	8.1	7.8	6.7	8.2	6.4
	February	32.5	26.9	12.2	8.8	8.5	7.2	8.8	6.9
	March	34.0	27.8	11.7	8.3	8.0	6.4	7.8	5.9
	April	34.3	28.1	10.1	6.6	6.2	5.2	6.5	4.7
	May	34.3	28.3	9.6	6.0	5.6	5.1	5.9	4.2
	June	34.7	28.5	10.8	7.1	6.7	5.8	6.1	4.5
	July	34.8	28.9	11.3	7.2	6.8	5.9	6.9	5.1
	August	34.6	29.0	11.1	6.9	6.5	5.3	6.6	4.8
	September	34.8	29.4	11.6	7.1	6.7	6.0	7.1	5.2
	October	35.6	29.9	12.6	7.8	7.4	6.3	8.5	5.6
	November	35.8	30.0	13.3	7.7	7.4	6.6	9.3	5.9
	December	36.0	30.7	13.3	7.5	7.0	5.9	8.7	5.4

APPENDIX A

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Year	Month	Retail Price of Bread ^a	Wholesale Price of Bread ^b	BAKERS' COST			FARM VALUE		
				All Ingredients ^c	Flour ^d	Mill Sales Value of Flour ^d	Cost of Wheat to Miller ^e	All Ingredients ^f	Wheat ^g
1975	January	37.2	31.5	12.2	6.8	6.4	5.4	7.8	4.8
	February	37.4	31.8	11.4	6.4	6.0	5.5	7.6	4.8
	March	37.3	31.7	10.8	6.2	5.8	5.2	7.0	4.4
	April	36.8	31.6	10.2	6.2	5.7	5.3	6.9	4.4
	May	36.2	31.5	9.5	5.9	5.5	5.0	6.2	4.1
	June	35.6	31.4	9.1	5.7	5.3	4.7	5.6	3.6
	July	35.6	31.5	10.0	6.3	5.9	5.4	6.7	4.3
	August	35.1	31.0	10.5	6.7	6.3	5.6	7.3	4.9
	September	35.0	31.0	10.3	7.0	6.5	5.7	7.1	5.0
	October	35.2	31.3	10.2	6.8	6.4	5.5	7.0	4.8
	November	35.3	31.5	9.6	6.4	5.9	5.1	6.3	4.3
	December	35.1	31.4	9.1	6.1	5.6	4.7	5.9	4.1

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** See page 17.

* See page 17.

**SOURCE: *Wheat Situation Report* Nos. WS-222, WS-223, WS-224, WS-225, WS-226, WS-227, WS-228, WS-229, WS-230, WS-231, WS-232, WS-233, WS-234, and WS-235. Published by the Economic Research Service, U. S. Department of Agriculture.

* Monthly data was not available so quarterly data was used.

a,b,c,d,e,f,g Footnotes appear on page 21.

APPENDIX A

- ^a Based on prices reported by the Bureau of Labor Statistics.
- ^b Estimated from Bureau of Labor Statistics prices and trade data.
- ^c Cost of flour plus shortening, nonfat dry milk, sugar and other minor nonfarm produced ingredients.
- ^d Cost of sales value of flour (0.6329 lb.) used per pound of bread.
- ^e Cost of wheat (0.01445 bu.) including marketing certificate, net of imputed cost chargeable to mill feed products.
- ^f Returns to farmers for wheat including an allowance for the marketing certificate, shortening, nonfat dry milk and sugar used in a one-pound loaf.
- ^g Returns to farmers for wheat including the certificate less imputed value of mill feed by-products.

APPENDIX B

**TABLE 2. CORRELATION COEFFICIENTS AND THE SIGNIFICANCE PROBABILITY*
FOR EACH CORRELATION COEFFICIENT: JANUARY 1971 - AUGUST 1973**

			BAKERS' COST				FARM VALUE	
	Retail Price of Bread	Wholesale Price of Bread	All Ingredients	Flour	Mill Sales Value of Flour	Cost of Wheat to Miller	All Ingredients	Wheat
Retail Price of Bread	1.000000 0.0000	0.822713 0.0001	0.787933 0.0001	0.757135 0.0001	0.770050 0.0001	0.790272 0.0001	0.771208 0.0001	0.689716 0.0008
Wholesale Price of Bread	0.822713 0.0001	1.000000 0.0000	0.923418 0.0001	0.873939 0.0001	0.873191 0.0001	0.854680 0.0001	0.878730 0.0001	0.816909 0.0001
Baker Cost: All Ingredients	0.787933 0.0001	0.923418 0.0001	1.000000 0.0000	0.986847 0.0001	0.987622 0.0001	0.974747 0.0001	0.981433 0.0001	0.957623 0.0001
Baker Cost: Flour	0.757135 0.0001	0.873939 0.0001	0.986847 0.0001	1.000000 0.0000	0.995382 0.0001	0.985465 0.0001	0.990906 0.0001	0.980431 0.0001
Mill Sales Value of Flour	0.770050 0.0001	0.873191 0.0001	0.987622 0.0001	0.995382 0.0001	1.000000 0.0000	0.984073 0.0001	0.988087 0.0001	0.974777 0.0001
Cost of Wheat to Miller	0.790272 0.0001	0.854680 0.0001	0.974747 0.0001	0.985465 0.0001	0.984073 0.0001	1.000000 0.0000	0.989712 0.0001	0.978950 0.0001
Farm Value: All Ingredients	0.771208 0.0001	0.878730 0.0001	0.981433 0.0001	0.990906 0.0001	0.988087 0.0001	0.989712 0.0001	1.000000 0.0000	0.987232 0.0001
Farm Value: Wheat	0.689716 0.0008	0.816909 0.0001	0.957623 0.0001	0.980431 0.0001	0.974777 0.0001	0.978950 0.0001	0.987232 0.0001	1.000000 0.0000
N=20								

*The significance probability is listed just beneath the correlation coefficient.

TABLE 2. CORRELATION COEFFICIENTS AND THE SIGNIFICANCE PROBABILITY* FOR EACH CORRELATION COEFFICIENT: SEPTEMBER 1973 - DECEMBER 1975								
			BAKERS' COST				FARM VALUE	
	*Retail Price of Bread	Wholesale Price of Bread	All Ingredients	Flour	Mill Sales Value of Flour	Cost of Wheat to Miller	All Ingredients	Wheat
Retail Price of Bread	1.000000 0.0000	0.939046 0.0001	0.289217 0.1355	-0.379056 0.0467	-0.436869 0.0201	-0.263943 0.1747	0.064039 0.7461	-0.449108 0.0165
Wholesale Price of Bread	0.939046 0.0001	1.000000 0.0000	0.111647 0.5717	-0.457873 0.0143	-0.519517 0.0046	-0.338740 0.0779	-0.030259 0.8785	-0.512555 0.0053
Baker Cost: All Ingredients	0.289217 0.1355	0.111647 0.5717	1.000000 0.0000	0.675407 0.0001	0.643670 0.0002	0.710277 0.0001	0.880728 0.0001	0.626531 0.0004
Baker Cost: Flour	-0.379056 0.0467	-0.457873 0.0143	0.675407 0.0001	1.000000 0.0000	0.995564 0.0001	0.941414 0.0001	0.776675 0.0001	0.954850 0.0001
Mill Sales Value of Flour	-0.436869 0.0201	-0.519517 0.0046	0.643670 0.0002	0.995564 0.0001	1.000000 0.0000	0.936542 0.0001	0.759153 0.0001	0.962294 0.0001
Cost of Wheat to Miller	-0.263943 0.1747	-0.338740 0.0779	0.710277 0.0001	0.941414 0.0001	0.936542 0.0001	1.000000 0.0000	0.831756 0.0001	0.940921 0.0001
Farm Value: All Ingredients	0.064039 0.7461	-0.030259 0.8785	0.880728 0.0001	0.776675 0.0001	0.759153 0.0001	0.831756 0.0001	1.000000 0.0000	0.817435 0.0001
Farm Value: Wheat	-0.449108 0.0165	-0.512555 0.0053	0.626531 0.0004	0.954850 0.0001	0.962294 0.0001	0.940921 0.0001	0.817435 0.0001	1.000000 0.0000
N=28								

* The significance probability is listed just beneath the correlation coefficient.