Appendix

Simulations of Retail Broiler Prices Assuming Input Price Increases Are Passed on to Consumers

Simulated retail chicken prices were calculated by summing the simulated farm value of broilers (ready-to-cook basis (RTC)) in year j (FV_j) and simulated broiler marketing costs in year j (MC_j). Farm value in each year was simulated by using price indices for production inputs to adjust feed cost, nonfeed cost, and returns to producers in 1960, and then summing across inputs:[1]

$$FV_j = \frac{FEED\left(\dfrac{FPI_j}{FPI_{1960}}\right) + NONFEED\left(\dfrac{PPI_j}{PPI_{1960}}\right) + RETURNS\left(\dfrac{CPI_j}{CPI_{1960}}\right)}{.72} \qquad (1)$$

where FEED is the feed cost per pound of broilers in 1960 (10.3 cents per pound), FPI_j is the broiler feed price index in year j, NONFEED is the nonfeed production costs in 1960 (5.4 cents per pound), PPI_j is the producer price index for finished goods in year j, RETURNS are the returns to producers above production costs in 1960 (1.1 cents per pound), and CPI_j is the consumer price index in year j. Returns were multiplied by the Consumer Price Index to calculate the returns in year j that would have provided the same real return as 1.1 cents in 1960. Live weight farm value was then divided by 0.72 to convert to RTC basis. Similarly, marketing costs were simulated by multiplying broiler marketing costs in 1960 by the appropriate price indices, and summing:

$$MC_j = LABOR\left(\frac{EARN_j}{EARN_{1960}}\right) + ENERGY\left(\frac{FUEL_j}{FUEL_{1960}}\right) + PACK\left(\frac{CONTAIN_j}{CONTAIN_{1960}}\right) + OVERHD\left(\frac{PPI_j}{PPI_{1960}}\right) \qquad (2)$$

where LABOR is the broiler labor marketing cost in 1960 (8.1 cents per pound), $EARN_j$ is the index of average hourly earnings of production workers in the food and kindred products industries in year j, ENERGY is energy cost in 1960 (1.6 cents per pound), $FUEL_j$ is the index for fuels, power, and related products, PACK is the packaging and materials cost in 1960 (1.6 cents per pound), $CONTAIN_j$ is the index of prices for containers in year j, and OVERHD are overhead and other costs in 1960 (7.7 cents per pound).

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[1]According to Lasley, benchmark data were available for this year and prices were relatively stable, even though major industry changes had already begun.

Appendix table 1—Consumer price indices and indices for production inputs

| Year | CPI food [1] | Broiler rations [2] | PPI finished goods [3] | Marketing cost indices [4] | | |
				Labor---Hourly earnings and benefits	Fuel and power	Packaging and containers
	1982-84=100	1980=100	1982=100	1967=100		
1960	29.6	44.6	33.4	79.9	96.1	95.5
1961	29.9	45.0	33.4	82.2	97.1	94.7
1962	30.2	45.1	33.5	84.7	96.6	95.9
1963	30.6	44.1	33.4	87.1	96.3	94.7
1964	31.0	44.0	33.5	89.8	93.7	94.0
1965	31.5	44.1	34.1	91.9	95.5	95.8
1966	32.4	45.6	35.2	95.4	97.8	98.4
1967	33.4	45.0	35.6	100.0	100.0	100.0
1968	34.8	42.9	36.6	106.5	99.7	96.3
1969	36.7	43.6	38.0	113.7	100.5	99.5
1970	38.8	46.1	39.3	122.5	106.1	103.6
1971	40.5	47.3	40.5	131.9	112.3	106.6
1972	41.8	47.5	41.8	143.3	118.4	110.4
1973	44.4	73.4	45.6	154.2	133.1	117.3
1974	49.3	81.6	52.5	168.7	198.9	149.7
1975	53.8	79.1	58.2	187.4	236.1	174.4
1976	56.9	81.4	60.8	203.8	264.5	184.8
1977	60.6	82.6	64.7	222.4	310.6	192.8
1978	65.2	81.7	69.8	244.4	331.7	204.7
1979	72.6	91.5	77.6	265.8	418.2	228.4
1980	82.4	100.0	88.0	292.6	563.2	261.5
1981	90.9	109.9	96.1	321.3	669.2	280.9
1982	96.5	101.6	100.0	342.7	705.1	275.1
1983	99.6	107.7	101.6	356.8	705.1	280.7
1984	103.9	112.8	103.7	365.5	712.5	303.5
1985	107.6	95.2	104.6	363.0	700.0	312.1
1986	109.6	90.5	103.2	359.4	590.2	317.4
1987	113.6	89.7	105.2	361.2	596.7	329.8
1988	118.3	96.1	108.0	370.5	578.2	350.7
1989	124.0	97.5	113.6	382.2	619.4	364.6
1990	130.7	87.7	119.2	395.7	671.4	367.6
1991	136.2	87.7	121.7	405.8	655.7	371.2
1992	140.3	88.0	123.2	418.4	654.6	370.1
1993	144.5	88.5	124.7	432.1	671.7	371.1
1994	148.2	92.2	125.5	443.6	660.7	385.3
1995	152.4	91.5	127.9	455.2	633.7	415.7
1996	156.9	118.1	131.3	459.7	670.7	399.8

[1]Source: U.S. Department of Labor, Bureau of Labor Statistics.

[2]Source: Lasley and others and U.S. Department of Labor, Bureau of Labor Statistics.

[3]Source: U.S. Department of Labor, Bureau of Labor Statistics.

[4]Source: Elitzak; Lasley.

Appendix table 2—Simulated costs of producing live broilers

Year	Feed	Nonfeed	Returns	Farm value	
				Liveweight	Ready-to-cook
			Cents/pound		
1960	10.3	5.4	1.1	16.8	23.3
1961	10.4	5.4	1.1	16.9	23.5
1962	10.4	5.4	1.1	17.0	23.5
1963	10.2	5.4	1.1	16.7	23.2
1964	10.2	5.4	1.2	16.7	23.2
1965	10.2	5.5	1.2	16.9	23.4
1966	10.5	5.7	1.2	17.4	24.2
1967	10.4	5.8	1.2	17.4	24.1
1968	9.9	5.9	1.3	17.1	23.8
1969	10.1	6.1	1.4	17.6	24.4
1970	10.6	6.4	1.4	18.4	25.6
1971	10.9	6.6	1.5	19.0	26.3
1972	11.0	6.8	1.6	19.3	26.8
1973	16.9	7.4	1.7	26.0	36.1
1974	18.8	8.5	1.8	29.2	40.5
1975	18.3	9.4	2.0	29.7	41.2
1976	18.8	9.8	2.1	30.7	42.7
1977	19.1	10.5	2.3	31.8	44.1
1978	18.9	11.3	2.4	32.6	45.2
1979	21.1	12.5	2.7	36.4	50.5
1980	23.1	14.2	3.1	40.4	56.1
1981	25.4	15.5	3.4	44.3	61.5
1982	23.4	16.2	3.6	43.2	60.0
1983	24.9	16.4	3.7	45.0	62.5
1984	26.0	16.8	3.9	46.7	64.8
1985	22.0	16.9	4.0	42.9	59.6
1986	20.9	16.7	4.1	41.6	57.8
1987	20.7	17.0	4.2	41.9	58.3
1988	22.2	17.5	4.4	44.0	61.2
1989	22.5	18.4	4.6	45.5	63.2
1990	20.2	19.3	4.9	44.4	61.6
1991	20.2	19.7	5.1	45.0	62.5
1992	20.3	19.9	5.2	45.5	63.1
1993	20.4	20.2	5.4	46.0	63.8
1994	21.3	20.3	5.5	47.1	65.4
1995	21.1	20.7	5.7	47.5	65.9
1996	27.3	21.2	5.8	54.3	75.5

Source: ERS/USDA.

Appendix table 3—Simulated marketing costs and retail prices

Year	Marketing costs[1]					Simulated retail price[1]	Actual retail price[2]
	Labor	Energy	Packaging and material	Overhead and other	Total marketing costs		
			Cents/pound				
1960	8.1	1.6	1.6	7.7	19.0	42.3	42.4
1961	8.3	1.6	1.6	7.7	19.2	42.7	38.3
1962	8.6	1.6	1.6	7.7	19.5	43.1	40.5
1963	8.8	1.6	1.6	7.7	19.7	42.9	40.8
1964	9.1	1.6	1.6	7.7	20.0	43.2	38.6
1965	9.3	1.6	1.6	7.9	20.4	43.8	39.6
1966	9.7	1.6	1.6	8.1	21.1	45.3	41.6
1967	10.1	1.7	1.7	8.2	21.7	45.8	38.7
1968	10.8	1.7	1.6	8.4	22.5	46.3	40.8
1969	11.5	1.7	1.7	8.8	23.6	48.1	43.4
1970	12.4	1.8	1.7	9.1	25.0	50.6	41.7
1971	13.4	1.9	1.8	9.3	26.4	52.7	42.0
1972	14.5	2.0	1.8	9.6	28.0	54.8	42.7
1973	15.6	2.2	2.0	10.5	30.3	66.4	60.8
1974	17.1	3.3	2.5	12.1	35.1	75.6	57.0
1975	19.0	3.9	2.9	13.4	39.3	80.5	64.3
1976	20.7	4.4	3.1	14.0	42.2	84.9	61.2
1977	22.6	5.2	3.2	14.9	45.9	90.0	61.9
1978	24.8	5.5	3.4	16.1	49.8	95.1	66.5
1979	27.0	7.0	3.8	17.9	55.6	106.2	67.7
1980	29.7	9.4	4.4	20.3	63.7	119.8	71.9
1981	32.6	11.1	4.7	22.2	70.6	132.1	73.7
1982	34.8	11.7	4.6	23.1	74.2	134.2	71.6
1983	36.2	11.7	4.7	23.4	76.1	138.6	72.8
1984	37.1	11.9	5.1	23.9	77.9	142.8	81.4
1985	36.8	11.7	5.2	24.1	77.8	137.4	76.3
1986	36.4	9.8	5.3	23.8	75.4	133.2	83.5
1987	36.6	9.9	5.5	24.3	76.4	134.6	78.5
1988	37.6	9.6	5.9	24.9	78.0	139.2	85.4
1989	38.8	10.3	6.1	26.2	81.4	144.6	92.7
1990	40.1	11.2	6.2	27.5	85.0	146.6	89.9
1991	41.2	10.9	6.2	28.1	86.4	148.9	88.1
1992	42.4	10.9	6.2	28.4	88.0	151.1	86.9
1993	43.8	11.2	6.2	28.8	90.0	153.8	89.0
1994	45.0	11.0	6.5	28.9	91.4	156.8	90.1
1995	46.2	10.6	7.0	29.5	93.2	159.1	91.7
1996	46.6	11.2	6.7	30.3	94.8	170.2	97.3

[1]Source: ERS/USDA.

[2]Source: Lasley and others and USDA[c].