GRADE LABELING AND THE DEMAND CURVE: EMPIRICAL EVIDENCE AND IMPLICATIONS

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The problem dealt with in this paper is the inquiry into the question: Will a more extensive use of grade labeling tend to flatten the demand curve and bring about a greater degree of price competition?

I. OVERVIEW

The methods and procedures employed in gathering data were those incorporating both primary and secondary sources. One was a telephone survey of a sample of housewives chosen at random from two communities' telephone directories: El Paso, Texas, and Silver City, New Mexico.

In the case of secondary source data, the current literature produced a number of studies that tended to give breadth and support to the conclusions reached from the consumer surveys conducted in both El Paso and Silver City.

A summary analysis of some of the complete consumer studies of egg purchasers, given in 18 different states and in Canada showed support for the primary source findings in many areas. The experiences with grade labeling programs in Canada gave further insights into this problem.

Grade-labeled products generally may be viewed as essentially competitive in nature in the sense that not only is there rivalry among the various grades of one or similar products, but also between graded and non-graded products.

For the purpose of the field studies, the problem was stated as follows: Are there implications that consumers react to grade-labeled products in such a way as to make the purchasers conscious of the price variations of competing goods within a given grade or quality level?

STRONG DEGREE OF PRICE CONSCIOUSNESS

There was a strong indication from the El Paso-Silver City surveys that a majority of the respondents showed not only a strong degree of price consciousness but also of quality consciousness.

The largest group of respondents described their egg purchasing preferences in purchasing the highest quality-grade at the lowest price. Although this group constituted only 44 per cent in Silver City (40 per cent in El Paso) of the total number of consumers questioned, there appeared to be substantial support for price-and-quality consciousness in that other answers indicated an equal

or, at least, a partial concern with both price and quality. Over three-quarters of the respondents in Silver City were so categorized.

Quality-grade and price seemed to be the most important factors to the respondents in making egg purchases, according to the results of both primary and secondary research findings. The price differential tended to be reduced within quality groups to the extent that consumers were grade conscious.

In Canada, brand choice existed within grade classifications and, therefore, this may have caused price differentials inside the grade boundaries within a certain range. This tended to be true especially to the extent that consumers wished to discount the graded quality, or lacked information concerning quality rating. Consumer education is, therefore, an important variable in the effectiveness of any grading program.

There was evidence that a significant number of consumers reacted to grade-labeled products in such a way as to make them conscious of price variations of competing goods within a given grade level.

In the Canadian experience, the overall effect of grade labels was to bring about a higher degree of price competition than would have existed without the presence of grading.

The theoretical implications, as well as the empirical evidence, tended to lead to the conclusion that a more extensive use of grade labeling tended to bring about a greater degree of price competition, thereby flattening the demand curve.

II. BACKGROUND AND FINDINGS

There has been no formal scholarly presentation of the thesis that grade labeling tends to flatten the demand curve with its possible implications for public policy. Brand names, on the other hand, have had some treatment in recent literature, especially those dealing with the problems of product differentiation and monopolistic competition. Although some scholars may have assumed that brand names and trade marks would have an opposite effect on the slope of the demand curve, there has been, to date, no formal support for such a thesis.

Background

The United States Department of Agriculture, during World War I, began to set up standards for grading agricultural goods after unsuccessful attempts to incorporate grading into past food and drug laws.

The Office of Price Administration brought about a controversy during the Second World War by announcing that the 1943 pack of canned fruits and vegetables must be grade labeled. The conflict was between those advocating grade labels and those supporting trade marks. The controversy shows the political obstacles in the way of adoption of compulsory grade labeling programs. The author, however, points out that in the light of Canadian experience, there need be no conflict between the areas of grade labels and trade marks.

What may not be realized by the business interests (or perhaps realized only too clearly) is that grade labeling may be indirectly a force for a greater degree of competition in the economy.

Effects of Product Differentiation, Grade Labels and Brands on the Demand Curve

A demand curve is shown to indicate product differentiation if it produced an elasticity other than perfectly elastic. Trade marks are shown by Prof. E. H. Chamberlin (1) to have a tendency to slope the demand curve; on the other hand, grade labels, it is theorized, tended to flatten the demand curve for the grade-labeled product's market.

Grade-labeled products can generally be viewed as essentially competitive in nature in the sense that not only is there rivalry among the various grades of one product or similar products, but also between graded and non-graded products.

Current Survey Findings

The sources of current consumer survey findings were both primary and secondary.

Primary sources. The primary source was composed of two field surveys. One was a telephone survey of a sample of housewives chosen at random from an El Paso, Texas, telephone directory. The second, using the same procedure, was conducted a few weeks later in Silver City, New Mexico. Both communities surveyed were considered representative for this type of research on the basis of number, size and variety of retail food outlets in these areas.

Secondary sources. The current literature produced a number of studies that tended to give breadth and support to the consumer surveys conducted in both El Paso and Silver City. A summary analysis of some of the complete consumer studies of egg purchasers given in 18 different states and in Canada showed support, in many areas, for the primary-source finding. (2)

The primary and secondary data-sources supplied empirical evidence to the theoretical implications derived from an *a priori* approach to the problem of the effect of grade labeling on the demand curve.

Methodological steps used. In order to plan a research project, it is necessary to anticipate all the steps which must be undertaken if the project is to be completed successfully. For the purpose of the field studies, the problem was stated as follows:

Are there implications that consumers react to grade-labeled products in such a way as to make them conscious of the price variations of competing goods within a given grade or quality level?

Special attention was paid to designing the questionnaire, since the effectiveness of the wording will influence the accuracy of the data obtained. The questions were worded for comprehension by the housewives, usually in terms of recent purchasing activity. Also, there was a quantitative measure of the strength of the respondent's answers in "cents."

In order to ask questions effectively of consumers on grading, it was recognized that the scope of inquiry would have to be narrowed to the goods that were universally labeled by grades on the retail level. This meant that meaningful questions were designed to inquire about food purchases, principally eggs and meat.

After the telephone calls were made and the questionnaires were filled out, there remained the difficult task of processing the completed forms in a manner which would enable the project objectives to be attained.

DATA TABULATED FOR ANALYSIS

First, the forms were edited to make sure that the resulting data was consistent and logical within each form. Then the data was tabulated for analysis. Percentages and averages were computed and compared. Some correlation was shown between the results of the El Paso and Silver City studies.

Conclusions were reached in line with survey results and those found in current literature. The two field surveys, it was pointed out, have the same limitation as other surveys of this type: It was discovered what people think they think, or do.

It was concluded that there was a strong indication from the El Paso-Silver City surveys that a majority of the respondents showed not only a strong degree of price consciousness but also of quality consciousness.

The largest group of respondents to the questionnaire described their egg-purchasing habits as purchasing the highest quality-grade at the lowest price. Although this group constituted only 44 per cent in Silver City (40 per cent in El Paso) of the total number of consumers questioned, there appears to be substantial support for price and quality consciousness in that other answers indicated an equal, or at least a partial, concern with both price and quality. Over three-quarters of the respondents in Silver City were so categorized.

Canadian experience. Canada, although not unique with respect to grading requirements, is indeed a pioneer in the field. (3) Grade labeling of canned fruits and vegetables has, for example, been mandatory in Canada since 1918 and on fresh fruits, vegetables and eggs since 1923. The move toward grade labeling has been an evolutionary process.

Processors must apply to the Canadian Department of Agriculture for a registration certificate but the individual processors do the inspecting and grading, which is checked only periodically by the government inspectors. The cost is negligible due to the small number of government inspectors and strong support of the Canadian businessmen.

Canada has, therefore, built a system of standards which is compulsory for some goods in all cases and for others in certain places and conditions.

Experience has shown that grade establishment and grading are most practical for commodities whose units have a considerable uniformity and the varieties of which are somewhat limited. A similar range of qualities and sizes should be maintained from year to year so that a grade once fixed is more or less continuously applicable. (5)

GUARANTEE SERVICE AND SATISFACTION

Grades and brands both guide purchasing, but brands also guarantee service and satisfaction, in some cases beyond considerations of quality. With both labels in force, as is found in Canada, product differentiation can continue by varying flavor, style, package, etc. Brand choice exists within grade classifications. It may cause price differentials inside grade boundaries within a certain range, especially to the extent that either consumers wish to discount the graded quality or lack information concerning quality ratings. (6)

In the Canadian experience brands may actually increase with grading requirements. (7)

There has not been a deterioration in quality in Canada in the sense that quality has been lowered to minimum specifications. Grading, on the other hand, has tended to provide an incentive to improve quality in Canada. (8)

The price differential tends to be reduced within quality groups to the extent that consumers are grade conscious. (9)

III. CONCLUSION

Sufficient evidence, within the limitations of the study, has been presented to indicate that a significant number of consumers react to grade-labeled products in such a way as to make them conscious of price variations of competing goods within a given grade level.

There was a strong indication that a majority of the respondents showed not only a strong degree of price consciousness but also of quality consciousness in egg purchases. A majority of the housewives were willing to pay substantial premiums for a higher quality meat as well as for higher quality eggs.

Although it would be unrealistic to assume that eggs and meat were typical representatives of products in general or even foods, it is conceivable that there would be a fairly strong correlation between price consciousness of eggs and meat on the one hand and the potential price-reaction of consumers to other goods conducive to grade labeling.

LABELING DOES TEND TO FLATTEN DEMAND CURVE

Conceivably, price-conscious consumers would tend to stimulate and be stimulated by price flexibility in the market. In turn, the element of price flexibility is a major characteristic of a competitive market. It would be conceivable that price-consciousness, other things being equal, would be an indication of price competition. It is also conceivable that grade-labeling might tend to stimulate price competition as is indicated by its effects on the price reactions of consumers surveyed.

Therefore, theoretical implications and empirical evidence together indicate that grade labeling does tend to flatten the demand curve and thereby bring about a greater degree of price competition within the grade-labeled products market.

If the thesis that grade labeling tends to bring about a greater degree of competition is considered as supported and a more extensive program of grade-labeling is found to be feasible, then the public policy implications are many. Encouragement of grade labeling programs would, for instance, no longer be viewed as solely a standardizing technique, but also as a useful tool to bring about a more competitive market.

It could counteract, to some extent, the varying degrees of monopolistic control resulting from the use of brand names, trade marks and advertising. If it is assumed that a more competitive market is in the interest of consumers (i.e., more standardized quality and more competitive prices), then such a policy might be an instrument for serving the consumer.

This paper was taken from a dissertation which partially fulfilled the requirements for the Degree of Doctor of Philosophy by the author at the University of Southern California. The dissertation was entitled: Grade Labeling and the Demand Curve: Theoretical Implications and Empirical Evidence. The author is acting head of the Economics and Sociology Department, Northern Michigan University.

APPENDIX A

EL PASO, TEXAS AND SILVER CITY, NEW MEXICO
CONSUMER SURVEY RESULTS
FALL, 1962

		El Paso, Texas	*Silver City, New Mexico*
QUESTION 1: When did you last buy a product with a grade marking (AA, A, B, C)?			
ANSWER:	One to three days ago	50	38
	About one week ago	26	38
	Over one week ago	12	19
	Do not remember	12	5
	Total	100	100
QUESTION (a): What product or products was it?			
ANSWER:	Eggs	74	64
	Meat	14	13
	Milk	6	10
	Butter	2	1
	Canned Goods	0	5
	Cheese	0	2
	Do not remember	4	7
QUESTION (b): What grade was marked on it?			
ANSWER:	AA	38	45
	A	30	30
	B	2	0
	C	0	0
	Other (choice meat)	10	5
	Do not remember	22	16
QUESTION (c): What *other* products do you remember with a grade labeling?			
ANSWER:	Eggs	2	10
	Butter	2	1
	Meat	26	24
	Canned goods	6	3
	Milk	12	18
	Cheese	8	6
	Chicken	0	1
	Other	6	1
	Do not remember	48	20
QUESTION 2: Are you willing to pay a higher price for high grades (i.e., grade A) than lower grades (i.e., grade B) found on products:			
ANSWER:	Yes.	60	66
	No	24	12
	Undecided or depends	16	22
	Total	100	100
QUESTION 3: If you see two brands of grade AA eggs of different prices, would you buy the grade AA eggs at the lower or higher price?			

		El Paso, Texas	*Silver City, New Mexico*
ANSWER:	Lower	61	55
	Higher	11	26
	Undecided	28	19
	Total	100	100

QUESTION 4: (a): How many more cents would you be willing to pay for the highest quality grade of:

(1)	Meats (i.e., hamburger)		
	1c to 5c	16	18
	6c to 10c	30	23
	Over 10c	10	24
	None	24	6
	Uncertain	20	29
	Total	100	100
(2)	Eggs		
	1c to 5c	26	25
	6c to 10c	24	20
	Over 10c	10	12
	None	18	14
	Uncertain	22	29
	Total	100	100

QUESTION (b): How many more cents would you be willing to pay for your favorite brand of:

(1)	Canned fruits		
	1c to 5c	40	41
	6c to 10c	12	10
	Over 10c	2	4
	None	28	8
	Uncertain	18	37
	Total	100	100
(2)	Canned vegetables		
	1c to 5c	42	37
	6c to 10c	12	14
	Over 10c	2	6
	None	28	5
	Uncertain	16	38
	Total	100	100

QUESTION 5 (a): Do you find one brand of canned pineapple better than another?

		El Paso, Texas	*Silver City, New Mexico*
ANSWER:	Yes	52	61
	No	24	18
	Undecided	24	21
	Total	100	100

QUESTION (b): Would you pay more for your favorite brand?

ANSWER:	Yes	38	66
	No	38	16
	Undecided	24	18
	Total	100	100

QUESTION (c): How many cents more:

ANSWER:			
	1c to 5c	20	28
	6c to 10c	8	13
	Over 10c	2	2
	None	38	16
	Uncertain	32	41
	Total	100	100

QUESTION 6: If you saw two cans of peas that you thought to be the same in quality but one had a lower price, which can would you purchase — the lowest or highest priced one?

ANSWER:	Lowest	66	69
	Highest	14	11
	Depends (undecided)	20	20
	Total	100	100
	(of the total, those with no understanding of the grading system)	8	3

QUESTION 7: When you are looking for a quality product, do you look for grades (A, B or C) on some of the food products you buy or do you look for trademarks (producer's identification) when you purchase foods?

ANSWER:	Grades	10	13
	Trademarks	56	51
	Both	28	30
	Uncertain	6	6
	Total	100	100

	El Paso, Texas	*Silver City, New Mexico*
QUESTION (a): What food purchases are influenced primarily by grading:		
ANSWER: Eggs	54	43
Meats	30	27
Canned goods	8	6
Milk	6	13
Cheese	4	2
Butter	4	1
All goods	2	0
Others	0	7
QUESTION (b): What food purchases are influenced primarily by brand names:		
ANSWER: Frozen food	0	1
Canned goods	38	26
Bread	0	1
Coffee	0	1
Tea	0	1
Meats	4	0
Jams	0	1
Vegetables	0	14
Milk	0	2
Fruit	0	11
Eggs	6	0
Other goods	16	0
Most goods	8	1
QUESTION 8: What grade eggs do you usually buy?		
ANSWER: Don't know	12	5
AA	58	48
A	28	47
B	2	0
C	0	0
Total	**100**	**100**

	El Paso, Texas	*Silver City, New Mexico*
QUESTION 9: When you buy graded eggs (AA, A, B and C) what do you consider most important:		
1. The highest grade (AA) at the lowest price	40	44
2. My favorite brand on the carton of eggs no matter what the price	24	21
3. The highest grade but I do not check the price	16	16
4. The lowest price but I do not check the grade	2	2
5. The lowest price but I do not check who produced them	0	0
6. The lowest price for my favorite grade (what is your favorite grade?)	2	13
7. Just the lowest price	12	0
8. I do not remember	4	4
Total	100	100

FOOTNOTES

(1) E. H. Chamberlin, *The Theory of Monopolistic Competition* (Cambridge: Harvard University Press, 1933), pp. 57-58.

(2) A. W. Jasper, "Consumer Egg Preferences," *Marketing Activities* (Washington: Department of Agriculture, August, 1953), p. 4.

(3) P. K. Norsworthy, "Some Effects of Grade Labeling," *The Business Quarterly*, 1952, p. 117.

(4) *Ibid.*, p. 118.

(5) J. V. Coles, *Standards and Labels for Consumer's Goods* (New York: Ronald Press Co., 1944), p. 337.

(6) Norsworthy, *op. cit.*, p. 124.

(7) *Ibid.*

(8) *Ibid.*, p. 126.

(9) *Ibid.*, pp. 124-25.