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ECONOMIC

EFFECTS

of Generic
Promotion

Programs for

Agricultural
Exports



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Economic Effects of Generic Promotion Programs for Agricultural Exports

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FOURTEEN

Market Research Evaluation of Generic Product Promotions: The U.S. Wheat/Korean Bakers Case

Robert E. Branson

Fifty years ago, generic promotion of agricultural products was almost a non-entity. The profit and loss statement results of food and fiber processors and marketers were closely tied to their own individual efforts in promoting the few products to which most were wed. In short, the promotion responsibility, as a marketing function, was carried primarily, if not solely, by the marketing system.

The state of affairs was sharply changed by three developments. First came the appearance of the multi-product line mass merchandising firms. The butcher shop and the vegetable stand, for example, faded away into the supermarket. Second came the appearance of an entirely new level in the marketing channel -- the further processing industry. This industry prepares and markets ready-to-serve and/or microwaveable products from a multitude of ingredients. A third influencing factor was the appearance of synthetics, blends, and imitations. These took single generic product reliance among processors and marketing firms to even lower significance levels.

Acceptance of responsibility for generic product promotion by agricultural producers became not a choice, but a forced decision. Agricultural commodity groups have intuitively sensed the necessity of generic product promotions without really understanding the causes. Being practical individuals, they ask, "What is the rate of return on the promotion dollar?" And they do this with little comprehension of the difficulty of finding the answers, given the complexity of the current marketing system.

Even more critical is the lack of recognition, let alone comprehension, of the prior market research requirements essential to the

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creation of a good promotion strategy. Thus the task falls to applied economists to provide not only the research but also the education assistance necessary for decisionmakers in the commodity groups.

A cursory review of the agricultural economics journals will reveal comparatively few articles addressing the subject. Considerably more articles in *The Journal of Marketing Research* deal with the subject, as would be expected.

The journals are not equatable. The point is that to find the best answers to the questions requires a melding of the two disciplines: pure economic research and pure marketing research. This is preferable for the formulation of both domestic and export market promotions.

A market research approach is more likely to be based on some form or adaption of experimental design so that effects can be measured in short-run time periods. The old text *Experimentation in Marketing* by Seymour Banks is still somewhat of a classic, although significant improvements have been made since it was written.

Analysis of longer-run effects using time series data and econometric analyses have been more traditional among agricultural economists. These are, in several respects, adaptations from research procedures for analyzing effects of agricultural governmental policy decisions. Both the short-period market research methodology and the time series econometric methodologies have been used, for example, in citrus and dairy promotion program evaluations, as well as in evaluation of other commodities during the past two decades (Hochman, Regev, and Ward; Lee, Myers, and Forsee).

The argument advanced here, simply stated, is that unless a specific promotion strategy is proven in a reasonable experimental short-run test of effectiveness, the chances of it being effective in the long run are problematic at best. To make a simple analogy, a chef certainly tests his recipes before using them for a banquet. Likewise, generic promotion campaign designs should be pre-tested before being submitted for marketwide adoption. Microcosmic markets for pre-testing are often difficult to arrange, especially in an era of mass communications and mass merchandising.

Henderson used experimental designs several years ago to conduct a test of three levels of mass media advertising expenditures for dairy product promotions in a set of matched cities (Henderson; Clement, Henderson, and Eley). The test took about two years to execute and overall at least three years to complete from design to analysis.

Shorter turnaround time is usually available, and used, but options are not easy to find when dealing with mass media. More ingenious research designs are needed, short of having to rely on

This paper presents one example of the problems and potentials of the market research approach in export market development involving mass media promotions.

simulated tests. According to some market researchers, use of simulated tests by commercial food marketers has sharply declined because the tests fail to mirror on-line market tests in the commercial market (Branson).

Given these concerns, this paper presents one example of the problems and potentials of the market research approach in export market development involving mass media promotions. The case is an export TEA Program involving the U.S. Wheat Associates as representatives of U.S. wheat growers and the Korean Bakers Association (KBA), the industry association in the target country.

MARKETING CHALLENGE AND RESEARCH DESIGN

Rice is the basic food in Korea where consumption exceeds 200 pounds per capita annually, compared with about 10 pounds per capita in the United States. Wheat is consumed primarily in the form of cracker and noodle-type products, with the remainder in breads. Bread, generally classed as a poor man's food in the United States, is a semi-luxury product in Korea.

Prior consumer behavior studies confirmed the move of Koreans toward Western consumer culture. Fast food chains, the McDonald's and Jack-in-the-Box types, had appeared in South Korea. They became the new focal point of meetings by teenagers, instead of the bakery shops previously used. A counter promotion effort was needed by the bakery shops to both regain on-premises consumption and to induce greater use of bakery products in the home.

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Components of the Promotion Program

The U.S. Wheat/Korean Bakers Association program was funded under the TEA export market development efforts. The program was keyed to an Olympics theme, since Korea hosted the 1988 Olympics. Six components were involved:

- Ten new products were introduced. Six were breads and four were sweet breads. These represented popular items from the U.S. and European areas.
- A total of 1,000 from the 8,000 Korean bakeries were selected by the Korean Bakers Association and designated as Exemplary Bakeries to be used for the product marketing.

- Baker's training seminars were held to teach new product preparation and improved baking methods to personnel of the Exemplary Bakeries.
- A mass media campaign included eight months of television advertising and a year-long advertising effort directed at magazines, newspapers, and billboards.
- Consumer Taste-Fairs were held in 10 Korean cities.
- In-store point-of-sale display materials were provided to the Exemplary Bakeries.

The quantity of point-of-purchase (POP) materials totaled nearly 5 million pieces including leaflets and product stickers. The ad promotion design was keyed to featuring products in a time sequence to maintain consumer interest. The total cost of the program to U.S. participants was about \$1 million.

Market Research Objectives and Design

To measure results of the U.S. Wheat/Korean Bakers Association program, a triangular design was created by Branson Research Associates, Inc. Components consisted of the following:

- Sales measurements by months in the 1,000 Exemplary Bakeries (extending from November 1987 to November 1989).
- Sales audits of a probability sample of 100 non-participating bakeries, with 70 in Seoul and 30 in Pusan.
- Consumer panel recall measurement of bakery product purchases for the preceding week, plus their hedonic ratings of the quality of bakery products.

The consumer panel served as a triangular check on the sales performance in combined Exemplary and non-participating bakeries. Audits of the Exemplary Bakeries were provided by a KBA audit field team. The non-participating bakery audits were done by Unique International, a Korean market research firm under contract to Branson Research Associates, Inc. Household survey data were provided from a set of special questions in the Omnibus monthly household surveys by Korea Surveys (Gallup), also a private market research firm under contract to Branson Research Associates, Inc.

The fact that close to two million bytes of computer data were entered and processed attests to the research commitment required for

this market test. From design to final report, the project encompassed 21 months.

Analysis Design

Analyses were made of the total sample data for November 1987, March 1988, and November 1988. November provides the base point, March the promotion effect, and November 1988 the near-term carryover effect. All data from each individual bakery and each household were forwarded to our office for computer entry and analysis.

Some fluctuations occurred within the sample of Exemplary Bakeries reporting. To eliminate that variability, a computer match was run of those reporting in all of the three analysis months. These totaled 469 bakeries. The Omnibus consumer survey included a new sample each month of about 1,400 households in order to avoid prior conditioning of respondents. The control set of 100 bakeries remained the same, with only a few replacements.

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Promotion Response of Original (Pre-Existing) Breads

A key question in any promotion program involving new products is whether sales of promotion items are achieved independent of, or only at the expense of, pre-existing products. Consequently, sales of old and new products were analyzed separately.

Sales by participating bakeries were reported on a value or Won basis. This decision was made by the KBA in setting-up their program cooperation, and it was a decision we were unable to change.

RESULTS

Sales of Original Breads and Sweet Breads -- Exemplary Bakeries

On an overall basis, sale of original (pre-existing) bread products increased by 9 percent from November 1987 to March 1988 but decreased by 5 percent from November 1987 to November 1988. This overall change was not statistically significant at the 95 percent confidence level (Table 1). Increasing sales were observed for the original (pre-existing)

TABLE 1. Original Breads: Average Monthly Sales Per Bakery, Exemplary Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Original Breads:				
Bread	1130	1401	1173	+4 n.s.
std error	62	62	36	
Rolls	1368	1492	1169	-15*
std error	84	77	43	
Variety Bread	892	815	866	-3 n.s.
std error	74	41	27	
All Original Breads	3390	3708	3208	-5 n.s.
std error	174	164	101	

Source: Analysis of sales data from individual bakery monthly reports. Total set includes 469 bakeries that reported all three indicated months.

* Significant at 99 percent c.l. by Z test; n.s. not significant.

sweet breads. Variations occurred by item, but the overall total increased by 12 percent, which was a statistically significant gain (Table 2). Combined original item bread and sweet bread sales were up by 3 percent from November 1987 to November 1988, a change that was not statistically significant.

Original Item Sales in Non-Participating Bakeries

Original item sales in non-participating (or control group) bakeries were reported in quantities that were converted to a value (Won) basis. Quantity of bread sales declined by 8 percent. However, the change was not statistically significant, given the smaller sample size for the control bakeries (Table 3). For sweet bread, sales declined by item from 10 percent to 25 percent, with an overall decline of 20 percent (Table 4).

Despite declining volume, total value of original bread products sold was up by 17 percent in November 1989 versus November 1988 (Table 5). This reflects a price increase for most of the basic lines of bread, a subject which will be addressed later. Meanwhile, value of sweet bread sales was down by an average of 9 percent (Table 6). In value terms, the combined sales in the control set of bakeries were up by 1.4 percent (Table 7).

TABLE 2. Original Sweet Breads: Average Monthly Sales Per Bakery, Exemplary Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
-----Thousand Won-----				
Original Sweet Breads:				
Doughnuts	525	832	756	+44*
std error	32	42	22	
Cakes	1438	1562	1196	-17*
std error	66	83	33	-17*
Petit-Fours	516	580	739	+43*
std error	29	22	22	
Cookies	443	497	592	+34*
std error	16	26	19	
All Original Sweet Breads	2922	3471	3283	+12*
std error	106	141	87	

Source: Analysis of sales data from individual bakery monthly reports. Bakery set includes 469 bakeries that reported all three indicated months.

* significant at 99 percent c.l., by Z tests.

TABLE 3. Original Breads: Average Monthly Quantity Sold Per Bakery, Control Set of Bakeries¹

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Grams -----				
Original Breads:				
Bread	640	677	624	-2 n.s.
std error	55	66	53	
Rolls	423	399	369	-13 n.s.
std error	34	32	30	
Variety Bread	168	156	142	-16 n.s.
std error	20	17	13	
Total Original Breads	1231	1232	1136	-8 n.s.
std error	70	77	64	

¹ Control set totals 100 bakeries.

n.s. denotes non significance at the 85 percent c.l.

TABLE 4. Original Sweet Breads: Average Monthly Quantity Sold Per Bakery, Control Set of Bakeries¹

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Grams -----				
Original Sweet Breads:				
Doughnuts	135	119	101	-25**
std error	10	9	13	
Cakes	268	199	213	-21 n.s.
std error	54	15	25	
Petit-Fours	106	108	86	-19**
std error	9	10	9	
Cookies	84	80	76	-10 n.s.
std error	7	7	10	
Total Original Sweet	593	506	476	-20*
std error	56	25	35	

¹Control set totals 100 bakeries.

n.s. indicates non significance at 95 percent c.l.

*denotes 90 percent c.l. significance

**denotes 95 percent c.l. significance

TABLE 5. Original Breads: Average Monthly Value of Sales Per Bakery, Control Set of Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Original Breads:				
Bread	640	677	832	+30
Rolls	1586	1496	1845	+16
Variety Bread	420	390	426	+1
Total Original Bread	2646	2563	3103	+17

TABLE 6. Original Sweet Breads: Average Monthly Value of Sales Per Bakery, Control Set of Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Original Sweet Breads:				
Doughnuts	540	476	404	-25
Cakes	1784	1328	1602	-10
Petit-Fours	883	900	859	-3
Cookies	735	700	712	-3
Total Original Sweet Breads	3942	3404	3577	-9

TABLE 7. Combined Value of Original Bread Items and Sweet Bread Sales: Monthly Average Per Bakery, Control Set of Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Original Items:				
Breads	2646	2563	3103	+17
Sweet Breads	3943	3404	3577	-9
Total Original Items	6589	5967	6680	+1.4

Promotion Response by New Bakery Items

Since the new items were not given any support in the control group of bakeries, very few are reported to have attempted to produce and sell them. Consequently, the new product response in the control set of bakeries may be considered as equal to zero. Attention therefore centers on the new product sales response in the Exemplary Bakery group.

New bread average sales per bakery rose from 222,000 Won to 1,908,000 Won, a gain of about 750 percent. As the figures in Table 8 indicate, sales not only rose between November 1987 and March 1988, but they also were double the March 1988 level by November 1988.

**TABLE 8. New Bread Product Average Monthly Sales Per Bakery:
Exemplary Bakeries**

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
New Bread:				
Bagels	17	64	297	+1647*
std error	6	6	11	
French Bread	114	325	382	+235*
std error	8	21	11	
Croissants	56	121	330	+489*
std error	7	11	14	
Rye Bread	16	114	290	+1712*
std error	2	10	11	
English Muffins	3	59	297	+9800*
std error	1	13	13	
Biscuits	16	216	312	+1850*
std error	3	12	12	
All New Bread	222	899	1908	+759*
std error	16	56	61	

Source: Analysis of sales data from individual bakery monthly reports. Includes 469 bakeries that reported all three months indicated.

* significant at 99 percent c.l.

Sales per bakery of new sweet breads in the promotion program advanced from 119,000 Won to 1,330,000 Won. The November 1988 figure was almost double the March 1988 level (Table 9). The new bakery products obviously were very successful.

Combined Value of Sales in the Promotion Bakeries

The effect of the promotion program on combined sales of old and new products resulted in an average 46 percent gain in the value of sales per promotion bakery. On a price-corrected basis, the gain was a 35 percent sales level increase (Table 10). By November 1988, new item sales were a substantial success and represented a third of the total value of all bread sales for the Exemplary Bakeries (Table 10).

TABLE 9. Increase in Sweet Bread Item Monthly Average Sales, Exemplary Bakeries

Item	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Sweet Bread:				
Cake Muffins	16	224	332	+1975*
std error	2	14	10	
Sweet Rolls	28	189	382	+1264*
std error	5	13	12	
Danish Pastry	69	282	396	+474*
std error	8	16	14	
Steamed Cakes	5	12	219	+4280*
std error	3	3	8	
All Sweets	118	707	1329	+1126*
std error	15	47	40	

Source: Analysis of sales data from individual bakery monthly reports. Includes 469 bakeries that reported all three months indicated

* significant at 99 percent c.l.

TABLE 10. Combined Product Average Monthly Sales Per Bakery, Exemplary Bakeries

Product Category	Nov 87	Mar 88	Nov 88	Nov 87-88 % Change
----- Thousand Won -----				
Original Items	6312	7185	6492	+3 n.s.
std error	234	278	203	
New Items	344	1611	3241	+842*
std error	30	89	98	
TOTAL	6656	8796	9733	+46*
std error	243	284	285	
Price Corrected ¹			9012	+35

Source: Analysis of sales data from individual bakery monthly reports. Includes 469 bakeries that reported all three months indicated.

* significant at 99 percent c.l.

¹ Average CPI type price index increase equalled 12 percent.

Complications of a Price Rise

Because of increases in ingredient costs, Korean bakeries raised the prices of their pre-existing line of products by an average price per gram of 20 percent in August 1988. The simple arithmetic average of percentage increases across individual products was about 13 percent. The increase, weighted by expenditure weights in the traditional CPI sense, was 12 percent. Price changes ranged from zero for doughnuts to 33 percent for bread and rolls (Table 11).

The effect of the price change was to reduce the average total sales increase for old and new items combined from the 46 percent gain noted earlier to a net sales of 30 percent. The net gain on a CPI adjusted basis was 35 percent. It is safe to say that a 30 or 35 percent gain in sales would be welcomed by any commodity group as a result of a promotion program.

National Return From the Promotion

The effect of a 35 percent sales gain in bakery products applied across the board to all the 1,000 promotion bakeries returned an estimated increase of \$4 million in sales per month. On an annual basis, that increase is equal to \$48 million in sales gain for a U.S. investment of \$1 million (Table 12). If the farmer's share of bakery products in South Korea is 8 percent, as estimated for cereal and bakery products in the U.S. market, then the \$48 million annual sales gain would be equivalent to \$3.8 million at the farm gate.

That is nearly a \$4 return per U.S. \$1 invested in the U.S. Wheat/Korean Bakers Association promotion program, based on sales in the 1,000 promotion bakeries alone.

Since the mass media promotion was nationwide, it is plausible to assume that the 9,000 bakeries that were not a part of the promotion bakeries would probably adopt many of the new products after the success of this market test. The promotion bakeries represented a national sample and are therefore direct competitors of the other bakeries. Nevertheless, new product adoption by only half of the 9,000 Korean bakeries is assumed as a longer term measure of the program's total impact.

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Introduction of the Triangular Measurement Method

The foregoing analyses depended on the accuracy of the reported figures in the bakery sales audits. Can there be a second check or

TABLE 11. Bakery Product Items Price Changes: Republic of Korea

Product	WT(g) ¹	Nov 87	Mar 88	Nov 88
----- Won -----				
Bread	600	600	600	800
Rolls	40	150	150	200
Variety Bread	400	1000	1000	1200
Doughnuts	50	200	200	200
Cakes	1200	8000	8000	9000
Petit-Fours	60	500	500	600
Cookies	800	7000	7000	7500
Avg Price/gm ²		3.46	3.46	4.15

¹Average weights from the KBA for the respective products.

²Average per item sales reported by non-participating bakeries were used to obtain the weighted average price, since quantity data are necessary for price indexes.

TABLE 12. Sales Increase Estimate: November 1987 to November 1988

Product Category	Sales Increase Per KBA Matched Bakery Set	Total for All Promotion Bakeries (1000 Bakeries)	Long-Run Potential ¹
	- Thousands -	- Millions -	- Millions -
Orig. Items (Won)	180	180	720
New Items (Won)	2,897	2,897	11,588
TOTAL (Won)	3,077	3,077	12,208
Promotion Return:			
Monthly \$ U.S.*	4	4	16
Annual \$ U.S.	48	48	192
Return Ratio Per Promotion Dollar ²		4/1	16/1

¹ Assuming half of all bakeries also add the new products

² Based on farmer share of 8 percent per retail product dollar

* Exchange rate 770 Won/\$

triangulation reading, as in the engineering sense, to test data accuracy? For the purpose of testing the accuracy of this hypothesis, results of the bakery sales data were reduced to a nationwide basis by combining sales of the experimental and control groups. The weights of 7,000 non-participating and 1,000 participating (Exemplary) bakeries were required for that purpose (Table 13). The combined net change in estimated nationwide sales was 4.6 percent for the period from November 1987 to November 1988.

Consumer Survey Results

The Omnibus consumer survey of 1,400 households reported an average gain of 33 percent for all breads and 3 percent for all sweet breads when converted to a Won expenditure basis. The resulting household panel average gain for total value of purchases was 4.6 percent (Table 14). That, it turns out, is identical to the sales gain reported in the bakery survey data (Table 13).

Consequently, it was concluded that the triangular measurement design worked as an effective data accuracy check. This, or a similar triangular approach, is believed to be particularly important in export market research in which reliability of data sources is not as well-known as when dealing with more familiar domestic markets. And, as most market researchers are well aware, even U.S. data series are not as perfect as would be desired.

These criteria mean that involvement of the market research approach should occur early in the promotion planning process. Long-run analyses of promotional effort effectiveness is an important reinforcement to marketing strategy evaluation, but long-run effects are likely to be weak if effective pre-evaluation of promotion options is ignored.

CRITERIA FOR MARKET DEVELOPMENT EVALUATION

Based on this research and the collective experience from similar studies over the last two decades, the following important conclusions can be drawn and can serve as criteria for improved evaluation of market development programs.

- Where possible, promotion programs should be pre-tested with the use of market research designs finally adopted.
- Pre-testing should be on as short a time frame basis as feasible in order to expedite identification of good programs.

TABLE 13. Estimated Change in Average Monthly Value of Combined Bakery Sales: November 1987 to 1988, South Korea

Bakery Set	No. of Bakeries	Sales Change Nov 87-88		
		Bread	Sweetbread	Total
- Sales Change in Thousand Won -				
KBA Exemp. Bakeries	1000	+1504	+1573	+3077
Non-Partic. Bakeries	7000	+457	-366	+91
Wtd Avg =	8000	+ 587	-123	+464
Avg Sales Volume per Bakery ¹		3615	6931	10,046
Estimated Nationwide Sales Change in Percentage				+4.6%

¹Based on matched set bakery sales performance

TABLE 14. Consumer Household Reported Purchases of Bread and Sweet Bread

Item	Nov 87	Nov 88	TOTAL
BREAD			
Quantity (Loaves)	0.632	0.641	
Equivalent Grams	379	385	
Price/Gram	2.08	2.73	
Value (Won)	788	1,051	+33%
SWEET BREAD			
Quantity (Pieces)	2.926	2.711	
Equivalent Grams ¹	2,007	1,860	
Price/Gram	6.76	7.51	
Value (Won)	13,567	13,969	+3%
TOTAL	14,355	15,020	+4.6%

¹Weighted average of 686 grams per piece

Source: Special questions in Korean Surveys' (Gallup) nationwide survey of 1,400 households per month.

- Market development programs should be formulated from a knowledge of consumer and marketing firm behavior. This requires prior surveys of consumer and marketing executive opinions and attitudes.
- To the extent feasible, the promotion target market should coincide closely with the market segment response measured. As obvious as this statement is, the structure of the advertising media can make this a difficult task.
- Preferably, promotion pre-tests should be organized around a sound experimental design approach.

These criteria mean that involvement of the market research approach should occur early in the promotion planning process. Long-run analyses of promotional effort effectiveness is an important reinforcement to marketing strategy evaluation, but long-run effects are likely to be weak if effective pre-evaluation of promotion options is ignored.

And, finally, some econometricians perhaps still view the market research approach as adversarial. On the contrary, the two domains of research should be viewed as mutually supportive and necessary components of a total market research function, as they are viewed by national and international agribusiness marketing firms.

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