INDUSTRY ATTITUDES TOWARD A DAIRY CHECK-OFF PROGRAM IN KOREA : AN APPLICATION OF INSTITUTIONAL INNOVATION THEORY*

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Introduction

Farm-funded generic advertising and promotion programs, gaining in prominence in industrialized Western economies, have yet to be instituted in newly industrialized countries like Korea. In the United States, United Kingdom, Canada, and Australia a long tradition of farmer-supported commodity promotion exists either through voluntary or mandatory programs. The experience in these countries suggests that pressures to establish such programs usually arise during times of industry crises. For example, 1985 U. S. legislation creating a mandatory nationwide program for dairy products(generating a $ 200 million annual promotion budget)came about in a climate of chronic excess supply and stagnant demand (Novakovic). The check-off program allows milk processors to collect a 15c/cwt. charge from dairy farmers that is in turn forwarded to the national level after allowable deductions in support of local promotion programs have been made.

Despit financial health and relatively strong demand growth in the Korean dairy sector, surplus milk production has become a problem in recent years (Huh and Lee), stimulating interest in promotion. Partly as a result of this interest, dairy industry leaders have approached the government requesting legislation to establish a national check-off program for milk. The government has responded by requesting the Korea Rural Economics Institute to determine feasibility and desirability of establishing a dairy check-off program in Korea. The purpose of the research reported in this paper was to : 1) determine the level of industry support for a dairy promotion check-off; 2) establish guidelines for determining an appropriate assessment level;and 3) identify information gaps relative to the scope and intent of industry check-off programs.

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Previous research on industry-funded commodity promotion programs is *ex post* in nature, focusing on such issues as the costs/benefits of existing programs (Thompson and Eiler,1977 ; Nerloveand Waugh ; Kinnucan, 1987) , optimal allocation of promotion budgets over time (Kinnucan and Forker,1986), product forms (Kinnucan and Forker, 1988), and markets (Thompson and Eiler, 1975) and effectiveness of generic *versus* brand advertising (Kinnucan and Fearon). This paper differs from and adds to existing literature in that it is *ex ante* in nature, addressing issues that relate to circumstanes surrounding eventual industry adoption of a promotion check-off scheme. Such *ex ante* information is useful to both industry and government policy makers in that it serves as a basis for improved design, implementaion, and management of check-off programs. For example, information about industry preferences regarding an acceptable assessment level could be incorporated into initial legislative language, thereby avoiding wasted effort associated with a failed referendum. Then, too, determination of current industry attitudes toward a check-off program could be used to enhance the timing of the proposed referendum, increasing the probability of a favorable outcome. Finally, baseline information about industry attitudes toward a promotion check-off in Korea might shed light on how industries in other newly industrialized countries will respond to initiatives to establish promotion check-offs.

Hypotheses regarding industry attitudes toward a check-off program, knowledge level, and assessment preferences were tested qualitatively using a "mirror image" data collection strategy (Purcell). Decision makers on opposite sides of the farm gate transaction were posed similar questions but were asked to respond from the unique perspective in which each operates. Data are analyzed to determine consistency in attitudes among key actors of the Korean milk marketing channel, the producers and processors. The conceptual framework for the analysis, survey procedures and data are outlined in the next section, followed by a discussion of survey results. The paper concludes with a review of findings and implications for design and potential implementation of a dairy check-off program in Korea.

Conceptual Framework

Viewing commodity promotion programs as marketing institutions permits application of institutional innovation theory (Hayami and Ruttan) for the purpose of developing hypotheses about why and how industries initiate action to install check-off programs. A basic tenant of institutional innovation theory is that "…institutional innovations will be supplied if the expected marginal return from the innovation that accrues to political entreprenuers exceeds the marginal cost of mobilizing the resources necessary to introduce the innovation"(Hayami and Ruttan, p. 107). Based on this statement, we

propose that market disequilibrium in the form of excess supply is an essential precondition for the establishment of check-off programs. Excess supply may be caused by temporary imbalances in supply and demand due to rigidities in agricultural supply response or government price support programs that raise price above market clearing levels.

Resulting downward pressure on price is recognized by industry leaders as a problem requiring group action. Industry sponsored advertising programs that increase aggregate demand for the commodity in question are seen as a means for abating, forestalling, or even avoiding the price declines necessary to restore market equilibrium. The expected marginal benefit of the institutional innovation is the attenuation in price decline afforded by the check-off program. The associated marginal cost is the assessment rate. If surpluses are such that eventual price declines appear large and inevitable, a powerful incentive will exist for the affected industry to press government officials for legislative authority to enact a check-off program because expected marginal benefits (avoidance of a price cut) have a high probability of exceeding expected marginal costs (the assessment level).

A corollary to the proposition that excess supply creates an incentive to innovate with a check-off marketing institution is that industries with pre-existing price support structures are more likely to so innovate than industries without such structures. As suggested by institutional innovation theory, "Collective action leading to changes in the supply of institutional innovation···is strongly influenced by the cost of achieving social concensus(or of suppressing opposition)" (Hayami and Ruttan, p. 96). We assert that subsidized industries are more organized with respect to communicaion networks than unsubsidized industries, if for no other reason than to ensure that lobbying efforts to obtain favorable support levels are effective.

In times of market disequilibrium these lobbying organizations and related trade associations can be mobilized to articulate industry positions at relatively low marginal costs. Thus the cost of achieving the industry and political concensus necessary for establishment of the check-off is likely to be less for a government-protected industry than for similar unprotected industries (This may explain the recent success and failure, respectively, of national dairy and egg promotion referendums in the U. S. ; the U. S. dairy industry has generous price subsidies ; the egg industry enjoys no such support).

Finally, institutional innovation theory suggests that industry concentration is an important factor governing the check-off innovation process. Industries consisting of fewer firms, with production concentrated in relatively small geographical areas, and with well-established power bases like cooperatives, will have lower coordination and communmication costs than atomistic, unorganized, and spatially dispersed industries. Benefits from industry sponsored advertising are more easily captured and costs are more equitably shared if the industry is concentrated (whether organizationally or

spatially) so that group action, communication, and concensus is facilitated. Importantly, the costs of achieving social concensus on the critical issues of assessment level and voluntary *vis-a-vis* mandatory participation are hypothesized to be lower for concentrated industries.

Since the public good aspect of commodity promotion provids an incentive for the individual producer both to understate the anticipated value of the program and to escape assesment, a free-rider problem exists (Olosn).[1] The ability of concentrated industries to effectively address the free-rider problem acts as a powerful incentive for leaders of these industries (and related special interest groups) to press for check-off legislation.

To summarize, based on institutional innovation theory we state three propositions regarding industry behavior toward promotion check-offs;

Proposition Ⅰ :Excess supply is a precondition for initiation of the referendum process.

Proposition Ⅱ : Promotion check-offs will be most prevalent in subsidized industries.

Proposition Ⅲ : Concentrated industries, concentration where may occur across locational, institutional, or economic dimensions, have a comparative advantage over less concentrated industries in adopting and maintaining industry support for check-off programs.

These propositions effectively summarize current conditions in the Korean dairy industry : 1) excess supply representing 1.6% of milk production occurred in 1985 and is forecasted to continue (Huh and Lee) ; 2) a Dairy Committee authorized by the Korean government has been setting milk prices since 1973 ; and 3) the industry is wellorganized as indicated by the existence of numerous trade associations representing industry interests and the movement of most milk through a small number of dairy cooperatives. Given the congruity between the foregoing propositions and current industry conditions, we hypothesize that the Korean dairy industry will have favorable attitudes toward estalishment of a promotion check-off program. This support will be demonstrated through a willingness to vote in favor of a

[1] Commodity promotion programs are considered to have public good attributes because the goodwill, enhanced product image, and improved consumer knowledge resulting from such programs give rise to externalities that cannot be appropriately internalized without the proper institutional structure. For example, the benefits of advertising-induced demand shifts are available to all industry participants without regard to the level of individual contribution to the effort (which will be zero for some industry participants if the check-off program is voluntary). In infant industry situations generic advertising may accelerate the time path for achieving scale economies, providing a social benifit beyond that realized by producers funding the effort. Because market solutions are generally inefficient in cases involving public goods, appropriate government intervention can lead to improvement in social welfare (Olson).

producer referendum to establish the check-off and fund the program through producer assessments. The data presented below tests these hypotheses and shed light on related issues concerning industry adoption of a check-off program.

Data

Parallel questionnaires probing dairy farmer and processor attitudes toward industry-funded promotion programs, acceptable assessment levels, and willingness to support an industry referendum were mailed to 230 purposively selected dairy farmer leaders and 51 processing plant managers in November 1987. Dairy farmer leaders represent individuals actively involved in trade associations, cooperative enterprises, or who have important financial investments in dairying. These individuals were identified from mailing lists maintained by the U.S. Feed Grains Council/Korea Office. The 230 individuals selected represent about 2% of dairy production in Korea and about 0.5% of all dairy farmers. Processing plants covered by the survey represent about 90% of industry capacity.

By December 26, 1987 the termination date of the survey effort, 110 farm surveys and 34 processor surveys had been returned, yielding response rates of 48% and 67%, respectively, generally acceptable responses for mail surveys (Dillman). The relatively high response rates were obtained by using a carefully planned cover letter and two follow-up mailings to nonrespondents. To obtain additional background information helpful in interpreting survey responses, in-depth open-ended personal interviews were conducted with key industry representives.

Survey Results

Attitudes toward advertising. Data show favorable industry attitudes toward the concept of generic advertising. Both farmers and processors agree that ; 1) advertising helps the dairy farmer ; 2) farmers should do more to promote milk ; and 3) efforts to increase the demand for milk help everybody in the dairy industry (Table 1). However, satisfaction with existing programs is quite low. When asked about the relative performance of farmers, processors, and retailers in promoting milk products, responses indicate either uncertainty or disapproval with the performance of the identified group. Not surprising, self-rating of performance is more favorable than rating of others (Table 1). Dissatisfaction with retailers milk promotion efforts is particularly evident (Table 1). Whereas industry participants appear unanimous in their view of the efficacious effects of advertising, they are uncertain about the effects of retail prices on demand, and whether consumers are adequately

TABLE 1. **Farmer and Processor Attitudes toward Dairy Advertising Korean Dairy Industry Survey, 1987**

Attitude	Mean agreement[a]		T-test[b]
	Farmers	Processors	
1. Advertising dairy products helps the dairy farmer	1.28	1.18	0.94
	(0.579)	(0.387)	
	109	34	
2. Korean consumers don't know enough about milk	2.68	2.47	0.95
	(1.121)	(1.161)	
	109	34	−0.31
3. High retail prices keep too many people from buying milk	2.81	2.88	
	(1.159)	(1.122)	
	109	34	3.97
4. Dairy processors do a good job of promting milk products to consumers	3.55	2.76	
	(1.008)	(1.017)	
	108	34	−1.16
5. Retailers do a good job of promoting milk products to consumers	4.01	4.21	
	(0.997)	(0.479)	
	109	34	−3.04
6. Farmers do a good job of promoting milk products to consumers	3.30	3.97	
	(1.167)	(937)	
	107	34	0.71
7. Farmers should do more to promote dairy products to consumers	1.78	1.68	
	(0.699)	(0.768)	
	109	34	0.57
8. Efforts to increase consumer demand for milk help everybody in the dairy industry	1.43	1.24	
	(0.614)	(0.431)	
	109	34	

[a] Responses are based on a five-point scale as follows : 1=strongly agree, 2=agree, 3=uncertain, 4=disagree, and 5=strongly disagree.
Top figure is mean value ; figure in parenthesis is the standard deviation ; and the bottom figure if the number of observations.

[b] T-test is computed under the null hypothesis that farmer and processor responses are identical. T-values exceeding 1.96 in absolute value indicate significance at the 5% level according to a two-tail test.

informed about milk as a consumer product.[2]

Attitudes toward check-offs. Both farmers and processors approve of a check-off program to fund dairy advertising (Table 2, questions 1, 5, and 6). However, both groups agree that the level of industry knowledge about how check-off

[2] The one point of divergence between mail responses and those obtained from personal interviews occurred in the question about the role of milk prioces in affecting consumer demand. In contrast to the mail survey results, personal interviewees expressed emphatic oncern over the level of milk prices, indicating that felt the price level, if too high, would act as an important constraint to the future growth of the industry. That milk prices probably are in important factor governing industry growth is corroborated by the empirical analysis of Huh and Lee (p. 33) that shows price having a significant effect in each of the four demand equations for dairy products estimated in their study.

programs operate is inadequate (Table 2, question 3), suggesting the need for a producer education program prior to initiation of a referendum.

Questions about costs, benefits, and control of check-off programs show some divergence between farmers and processors. When asked which group-farmers, processors, or retailers-should pay for dairy promotion, dairy farmers tend to agree that processors and retailers should finance the program, whereas processors agree that dairy farmers should pay for the program (Table 2, questions 2 and 10).[3] Similarly, perceptions about who

TABLE 2. **Farmer and Processor Attitudes toward a Dairy Check-Off Program, Korean Dairy Industry Survey, 1987**

Attitude	Mean Agreement[a]		T-test[b]
	Farmers	Processors	
1. Getting consumers to drink more milk is the best way to build the Korean dairy industry in the long run.	1.32 (0.484) 110	1.32 (0.475) 34	0
2. Dary farmers usually work together to improve the industry	2.43 (0.994) 109	3.15 (1.019) 34	−3.67
3. Most Korean dairy farmers understand how a check-off program works	3.44 (1.036) 110	3.73 (0.761) 33	−1.49
4. I understand how a check-off program works	2.39 (1.028) 109	2.38 (0.888) 34	0.05
5. Korean dairy farmers support of advertising is important to the future of the dairy industry	1.76 (0.845) 110	1.65 (544) 34	0.71
6. I think farmer-supported advertising is important of the future of the dairy industry	1.89 (0.902) 110	1.79 (0.479) 34	0.62
7. Processors and retailers should pay for all dairy promotion	2.40 (1.167) 110	3.56 (991) 34	−5.25
8. If dairy farmers pay for a promotion program, they should control how the money is spent	1.96 (0.871) 110	3.06 (1.179) 34	−5.91
9. Dairy farmers benefit the most from a dairy promotion program	3.27 (1.188) 110	2.76 (1.103) 34	2.23
10. Dairy farmers should help pay for promotion efforts.	2.91 (1.194) 107	2.30 (0.984) 33	2.68

[a] Responses are based on a five-point scale as follows : 1=strongly agree, 2=agree, 3=uncertain, 4=disagree, and 5=strongly disagree.
Top figure is mean value ; figure in parenthesis is the standard deviation ; and the bottom figure if the number of obserbations.

[b] T-test is computed under the null hypothesis that farmer and processor responses are identical. T-values exceeding 1.96 in absolute value indicate significance at the 5% level according to a two-tail test.

benefits most from industry promotion efforts differ depending on the perspective of the respondent. Most processors tend to agree with the statement "Dairy farmers benefit the most from dairy promotion programs" whereas most dairy farmers tend to disagree with the statement (Table 2, question 9). Finally, whereas most dairy farmers feel they should control the program if they pay for it, processors are uncertain about the wisdom of letting dairy farmer manage check-off funds (Table 2, question 8). Processor uncertainty in this regard may reflect concern over whether dairy farmers have the necessarty marketing expertise to manage an advertising and promotion program.

Referendum support. The data show strong industry support for a promotion check-off program. When asked whether they were favorable towards developing check-off program for dairy, both farmers and processors gave responses in the "very favorable" to "favorable" range with processors showing stronger support than than farmers (Table 3, question 1). More to the point, 74% of farmers and 88% of processors indicated they would vote in favor of a referendum to establish a check-off program if the referendum were held today (Table 3).

Assessment level. Respondents were asked to indicate both a recommended level and the maximum assessment they would accept and still support the check-off program. Only 56% of farm respondents and 59% of processor respondents chose to answer, perhaps reflecting the speculative nature of the questions. For those who did respond, the average level of assessment recommended by each group is 1% of farm price (Table 3, question 3). The recommended maximum assessment level is 1.12% of farm price for farm respondents and 1.86% of farm price for processor respondents (Table 3, question 3). The higher maximum rate for processors may reflect their greater belief in the efficacy of marketing efforts. In any case, recommended assessment levels are consistent with the U.S. dairy industry current check-off of 1.35% of farm price. When asked whether Korean farmers should pay more, the same, or less than U.S. dairy farmers, the majority of both farmers and processors recommend less (Table 3, question 5).

Concluding Remarks

Survey respondents favorable attitudes toward a dairy promotion check-off

[3] The t-test described in Spurr and Bonini (pp.296-98) was used to determine whether the responses of farmers and processors differ. The test is appropiate for situations involving : 1) small samples of the target populations, 2) normal distributions, and 3) equal standard deviation between the two populations. Preliminary examination of the data suggested that these assumptions are largely satisfied.

TABLE 3. **Industry Willingness to Support a Dairy Promotion Check-Off Program, Korean Dairy Industry Survey, 1987**

Item	Mean Response		T-Test or
	Farmers	Processors	Chi– Square
1. Other agricultural industries, like livestock, are beginning to establish check-off programs for the purpose of funding advertising and promotion, education and research on new product development. How favorable are you towards developing a similar program for the dairy industry?[b,c]	2.18 (1.066) 108	1.76 (0.654) 34	2.16*
2. If a referendum were held today to determine whether the dairy industry supports a check-off program, how would you vote? [d]			
a. Would vote in favor of the referendum	74%	88%	4.13
b. Would vote to reject the referendum	13%	3%	
c. Uncertain	13%	3%	
3. Suppose you were involved in developing check-off program for the dairy industry. What level of assessment would you recommend? (% of farm price)[c]	0.94 (0.667) 61	1.00 (0.763) 20	−0.34
4. What is the maximum level of assessment would you recommend and still support the check-off program? (% of farm price)[c]	1.12 (815) 63	1.86 (2.127) 21	−2.32*
5. In the U. S., farmers pay 15 cents/cwt. in their dairy check-off program. Should Korean farmers pay the same, more, or less? [d]			
a. same	27%	34%	1.54
b. more	6%	13%	
c. less	67%	53%	

[a] Both the t-test and the chi-square test are computed under the null hypothesis that farmer and processor responses are identical. The t-test relates to items 1, 3, and 4; the chi-square test to items 2 and 5. The asterisk indicates significance at the 5% level or lower. The chi-square test has two degrees of freedom.

[b] Responses are based on a six-point scale as follows: 1 = very favorable, 2 = favorable, 3 = somewhat favorable, 4 = somewhat unfavorable, 5 = unfavorable, and 6 = very unfavorable.

[c] Top figure is mean value; figure in parenthesis is the standard deviation; and the bottom figure is the number of observations.

[d] Responses indicate percent of sample selecting the respective answer.

program are consistent with hypotheses generated from institutional innovation theory. However, several qualifications are apparent. First, because the farm sample consists of industry leaders, their attitudes about check-off programs might not accurately mirror those of the entire dairy farmer population. It is quite probable that the typical Korean dairy farmer views promotion check-offs less favorably than industry leaders in part because they lack knowledge about how check-off programs operate and their potential for improving the profitability of the dairy farm enterprise. Thus, before proceeding with a referendum based on the optimistic results reported in this study, it may be prudent to first conduct an educational program

informing the industry about costs and benefits of promotion check-offs, perhaps drawing on the experience on other countries like the U.S., where appropriate research findings are available.

The second caveat relates to the potentially transitory nature of industry support. As indicated in the theoretical discussion, market disequilibrium in the form of excess supply is a primary force governing the industry drive to establish a promotion check-off. It follows then that, as excess supply problems attenuate, so too do pressures to innovate with a producer-funded marketing program. Recent milk surpluses undoubtedly are a factor explaining the overwhelmingly positive survey response to the check-off concept. Reduction or elimination of these surpluses through appropriate adjustments in farm price may cause a decline in industry support. Decisions about the timing of a producer referendum to establish the check-off program would benefit from consideration of recent industry experience with respect to market disequlilbrium.

A third caveat relates to survey responses regarding an appropriate assessment level. Promotion check-off programs are a type of public good, i.e., a producer can participate in the benefits of the program without diminishing the benefits that other producers receive. Moreover, once a check-off program is installed, it is not possile to exclude nonpaying farmers from participating in the benefits of the program. The public good and nonexclusionary aspects of promotion check-offs give rise to the free-rider problem. One dimension of the free-rider problerm is the incentive to understate one's trus willingness to pay(The respondent believes that what he says about the assessment level is unlikely to influence whether the check-off program is implemented, and, if it is implemented, he wants to pay as little as possible toward it). For this reason, recommended assessment levels of 1% of farm price provided by survey respondents has an inherent downward bias. Because economies of size in advertising and promotion can be quite meaningful, designers of the Korean dairy industry check-off program will want to pay careful attention to the assessment level to ensure that it generates an adequate budget. Of course, whatever assessment level is established, economic efficiency demands that it be mandatory across all industry participants.

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