

MEASURING THE IMPACT OF MILK PROMOTION DOLLARS

Olan D. Forker
Professor of Agricultural Economics,
Cornell University, Ithaca, NY and
Adjunct Professor, Food and Resource Economics Department
University of Florida, Gainesville, FL

Have the dairy promotion organizations been measuring the impact of milk promotion dollars? Yes! Is it being done now? Yes! Is enough being done? No!

The New York Milk Promotion Board has been supporting economic studies designed to measure the impact of their fluid milk promotion dollars on sales since 1972. That is when the industry obtained legislation for a mandatory, no refund, check-off. From the beginning the dairy farmer board of directors insisted on an on going process of evaluation. Ideally they wanted return on investment type measurements. We at Cornell entered into an agreement to do as much as we could to provide answers; with an understanding that we could and would publish the research results regardless of the outcome, positive or negative. This condition, of course, made many in the generic milk promotion business very nervous.

The early work yielded very positive results. As a result much of the local opposition disappeared.

In this presentation I wish to address three questions. What kind of studies are being done? Who is doing them? And, what kind of answers are they getting? Then I will close with some generalizations and a statement as to why I think not enough is being done.

WHAT KINDS OF STUDIES ARE BEING DONE?

Two approaches are being used: Tracking studies and economic analysis.

The tracking studies are designed to measure changes in consumer awareness and consumer attitudes--awareness to the dairy advertisements attitudes toward dairy products. These studies are essential in the management of any advertising and promotion program. If they are continuous, they provide management a quick reading on how well their promotion efforts are being received by the viewing and reading consumer. However, they do not provide a basis for measuring return on investment.

The second approach, economic analysis, gets to the question of return on investment. Through the proper kind of economic analysis one can measure the net effect of advertising on sales. This in turn can be used to estimate returns. And if properly done, the results will be useful in deciding how much money to put behind different kinds of programs.

WHO IS DOING THE WORK?

Tracking studies have been supported by the dairy promotion organizations for several years. Nobody would think of spending millions of dollars on advertising without the information that tracking studies provide. In the past UDIA, the California Milk Advisory Board and other dairy organizations all supported different kinds of market research studies. Now that work is consolidated at the national level and funded by the National Dairy Board.

Economic analysis has been supported by the New York State Milk Promotion Board since 1972. But, that research covers only the advertising programs in the New York markets.

In the late 1970's, the United Dairy Industry Association hired Stan Thompson of Michigan State University to develop an economic model of the ADA fluid milk advertising program. Stan Thompson was a graduate student of mine who had helped develop the first studies of the New York promotion programs. Stan and the UDIA selected 10 markets in the United States to include in that analysis.

In 1984, Ron Ward here at Florida took over that work. Then the next year, the National Dairy Board took over. They hired Arthur D. Little their first year. But in their second year, they entered into a contract with the University of Florida. Ron Ward, with the help of Bruce Dixon from the University of Arkansas, has been updating the study annually since 1987.

The Ward/Dixon economic model is very sophisticated and efficient. It provides the dairy industry with an excellent measure of the impact of the fluid milk advertising dollar on sales in 12 markets that represent about 42 percent of total US volume.

Some work has been done on measuring the impact of the cheese advertising dollars on sales. At Cornell, we did a study of cheese advertising in the New York City market. The UDIA had Wharton Econometrics do a study. A.D. Little did one study for the National Dairy Board. The Economic Research Service in the USDA has a model of cheese advertising that provides some insight. They all yield positive results, but their value is limited because of lack of data to use in measuring changes in away from home consumption.

At Cornell we have just completed a study which begins to gain some insight into the relationship between fluid milk advertising and cheese advertising.

The Ontario Milk Marketing Board has been supporting economic analysis of their fluid milk and butter promotion programs for about 3 years now. That work has been done using faculty from the University of Guelph in Ontario and Henry Kinnucan from Auburn. Henry worked with me at Cornell on the New York studies until about 1983 when he joined the faculty at Auburn.

RESULTS

So what are the results?

First, all of the studies have shown a positive impact on sales. Second, the return on investment has been positive in almost every case, but not all. Third, it is reasonable to expect that different studies done in different markets over different time periods will yield different results. And they do.

IMPACT ON SALES

One way to measure the impact on sales is to develop what is called a long run advertising elasticity. This is a measure of the percent increase in sales associated with a one percent increase in advertising expenditure. They range from 0.3 to 0.005. A study of the California fluid milk advertising program for the period 1970-73 indicated a 0.3 percent increase in sales from a 1 percent increase in advertising expenditure. That is the largest number anyone has gotten.

The second largest elasticity observed comes from a Cornell study of fluid milk advertising in the Buffalo, New York market covering January 1978-June 1981. This yielded an elasticity of 0.121. Other studies have yielded a range of elasticities from 0.051 (New York City, January 1971 to June 1980) to 0.005 (Syracuse, NY).

Different results of this magnitude can come about in several ways. First, different markets might respond differently because of different kinds of consumers.

Second, the size of the market makes a difference in media costs. For example, because of population density differences, it is much less costly to reach 100,000 viewers in New York City than in Syracuse, NY.

Third, the competitiveness of the market for advertisers makes a difference. For example, it costs more to reach the same number of viewers in Boston than it does in NYC.

Fourth, the law of diminishing returns applies to advertising just like it does to the application of fertilizer to a crop. The effectiveness of each additional dollar increases at an increasing rate up to some level of expenditure, then increases at a decreasing rate, but then it might begin to decrease. But, just like a fertilizer response curve, the effectiveness and shape depend on the quality of the environment and the quality of the input. The markets are the environment. The advertisements, good and bad, are the inputs.

Generic milk advertising expenditures were relatively modest prior to the 1970's. The results then indicated that the response was on the early part of an upward sloping curve. The studies of the 1980's with much higher levels of expenditure indicate that the measurement is much higher on the curve; perhaps nearing the top; and, perhaps, even over the economic optimum in some markets. It is worth noting that the rate of return on investment decreases as you move to higher levels of expenditure.

Of course, this is a very useful information. If in fact you know what the response function is, you can determine the optimum level of advertising expenditure.

CUMULATIVE EFFECT

Most fluid milk studies indicate a substantial carryover effect, sometimes referred to as a lag effect, or a cumulative effect. Almost every study indicates a lag between the time the expenditure is made and the time of greatest impact. All of the studies indicate that the greatest impact comes about two to three months after the initial advertising and the impact of that advertising is completely gone by the end of five or six months. This is evidence that if it pays at all it pays to continue to advertise.

RETURN ON INVESTMENT

Return on investment estimates are available from some of the studies. I am going to report some of them, but I suggest that they be used with caution.

One of our models of the New York City market indicated a \$6.00 return on investment. This covered the period January 1971-June 1980. The advertising expenditure level was at 7 to 8 cents per capita.

Our Buffalo study indicated a return of \$16-20 per advertising dollar invested. Expenditure levels per capita were higher than in NYC. But Buffalo is a unique market.

Studies over the same time period indicated relatively modest returns on investment in the other upstate markets. The Albany study indicated a return of \$1.50 for each dollar spent. The Syracuse study indicated only a \$0.50 return on each dollar invested.

We calculated an optimum level for the New York markets. The optimum for NYC was 10 cents per-capita. The optimum for Albany was 3 cents and 1.5 cents for Syracuse. The actual level of advertising expenditures in all markets was about 7 cents per-capita.

Later studies of the NYC program showed more modest returns primarily because advertising expenditures had gotten to much higher levels. For example, by 1984 per capita expenditure in New York City had gotten to 15 cents and at that level the return on investment was \$1.50 for each dollar spent. In fact, the optimum level in that study would have been about 35 percent less than what was actually being expended at that time.

The more recent studies of Ward and Dixon for the National Dairy Board yield some interesting numbers. For the period December 1978 to September 1984, \$90 million dollars was spent on fluid milk advertising in the 12 markets being studied. This is an annual rate of \$15.4 million. On average, \$1 of advertising yielded 43 pounds of additional milk sales.

For the period September 1984 to September 1987, \$105 million was spent on fluid milk advertising. This is an annual rate of \$35 million. On average, \$1 of advertising yielded an increase in sales of 57 pounds of milk.

The study further indicates that the advertising level pre 1984 caused a 3.2 percent increase in sales over what would have occurred without advertising.

For the post 1984 period, the actual advertising level caused a 6.5 percent increase in sales over what would have occurred without advertising.

The difference between pre 1984 levels and the post 1984 levels of advertising expenditures yields an increase of 2.5 percent.

The annual update indicates that since the industry began advertising at higher levels following the Dairy Promotion Act of 1983, there has been a continual improvement in the effectiveness of each dollar spent.

OTHER FACTORS

Factors other than advertising also affect sales of a commodity. Each of the studies that I have mentioned takes into account the impact of those other factors. The advertising responses discussed above are net of the influence of those other factors.

In all of the studies the only other economic variables identified as having any significant impact on sales, are the price of milk itself, purchasing power of the consumers and their demographic characteristics. In just a few of the studies, the price of cola or the price of orange juice, competing beverages, showed up as being important. The higher the price of the competing beverages, the lower the consumption of fluid milk, or the lower their prices the higher the consumption of fluid milk.

MORE ECONOMIC ANALYSIS NEEDED

All of the studies so far indicate positive results. So why do I think it necessary to support more economic analysis?

First, the fluid milk advertising is the only portion of the generic milk promotion program that has been anywhere near adequately researched. The dairy industry collects and invests annually about \$200 million. About \$70 million (35 percent) is spent on fluid milk advertising. So to date the industry has a meaningful level of economic understanding on only one third of their investment.

Second, the industry will not be able to determine whether investing 35 percent in fluid milk advertising is the correct allocation until the industry has response estimates for the other programs, that is, cheese advertising, butter advertising, nutrition education and the several other programs that are being supported. When advertising response functions are known for each program, the Boards will be able to make more informed allocation decisions among program activities.

Third, the economic analysis needs to be continuous and cover different segments of the total market that the industry is trying to influence. It is apparent from the completed studies that the effectiveness of the advertising effort changes over time. Current information is necessary to make appropriate

temporal adjustments in program funding. It is also apparent that different geographical markets respond differently. Knowledge of these differences is necessary if these differences are to be exploited to the dairy farmers advantage. The use of different media might also give different economic results. Economic studies to determine these differences would help with decisions about media allocations.

A NATIONAL MULTI-PRODUCT STUDY

Ideally, for optimum utilization of the funds available, a person would like to have a separate response measure for each advertising, promotion, education and research effort of the dairy promotion organizations. The ideal is not possible. But we could come a lot closer than we are now.

We have just completed a study at Cornell that goes one step farther. It measures the impact of all fluid milk advertising and all cheese advertising on the total US volume of milk used for fluid and for manufacturing purposes. It measures the impact on the M-W price and the federal order price levels. It also measures the milk production response resulting from the more favorable prices. With this information, separate return measures for the cheese advertising effort and the fluid advertising efforts can be determined. This makes it possible to estimate the best allocation between fluid and cheese advertising. It also provides a basis for deciding whether the national 15 cent assessment is the optimum.

This particular study indicates reasonable but somewhat more positive responses from fluid milk advertising than the previous studies. But more important it indicates a very positive response from the cheese advertising effort.

SUMMARY

In summarizing, let me make some general observations.

First, two approaches are used to measure the impact of advertising. Tracking studies are essential in monitoring the manner in which consumers respond to the advertisements that are developed. They are essential in the diagnosis of the various programs so that better programs can be designed for the future.

Economic analyses are essential to obtain any estimate of economic benefits or any estimate of a return on investment. Only through some form of economic analysis can we obtain a measure of the net effect of advertising on sales, net of the influence of other factors such as changes in relative prices and changes in consumer purchasing power.

Second, it is clear from the research that has been done so far that the advertising expenditures can and do have a positive impact on sales. But it is also clear that the effectiveness changes as the levels of expenditure are increased. It is clear that effectiveness is influenced by different economic and demographic conditions in the market place and by different type program efforts.

Third, economic analyses that cover all different program efforts, all products being advertised, and all markets are necessary. That much economic insight is necessary if the Boards of Directors of the programs and the program managers are to make the allocation and investment decisions that will maximize returns to dairy farmers over the long pull. It is important to recognize though that the optimum level is a continually moving target and, therefore, a system of economic analyses needs to be put in place to continuously update the programs' impacts.

Why has more economic analysis not been done? Data limitations are the main reason. A major investment of time and effort is required on the part of the promotion organizations to develop some sort of a consistent way of measuring and recording the advertising effort. It is also necessary to develop some way of recording in a consistent and continuous manner a more thorough breakdown of sales. Only then can more detailed, more sophisticated, more accurate measurements be made.

There is a tendency to not want to allocate funds for this kind of effort, partly because it is expensive business, and partly because people do not want to know the answer. Knowing the answer might require substantial deviations from the current way of doing business. It might also suggest an optimal program inconsistent with the current policy of having the promotion dollar follow the milk to market.

CLOSING STATEMENT

Let me close on a positive note. First, I think you, as dairymen, should feel good about your promotion program. The research indicates that the fluid milk advertising effort is yielding positive returns. The modest amount of research on cheese advertising indicates a likely positive return. Sound economic analyses of the other program components will provide information for sound decisions, decisions that will make the most effective use of your advertising dollars. The dairy promotion business has come a long way in 4 years.

To make sure that the promotion business continues to improve, I encourage you to keep asking the important, crucial and perhaps embarrassing questions. Are we getting a reasonable return on our investment?