

Tea Advertising: How Effective is It?

J. Weerahewa and E. Goddard¹

Department of Agricultural Economics
Faculty of Agriculture
University of Peradeniya
Peradeniya, Sri Lanka

ABSTRACT. *The objective of this study was to investigate the impact of tea advertising on tea consumption in the United States and Canada. Marshallian demand functions in double log form were estimated to achieve this purpose. The results suggest that a 1% increase in advertising expenditure would increase demand for tea by 0.11 and 0.19% in the United States and Canada respectively.*

INTRODUCTION

Large sums of money have been spent by multinational firms on advertising. During the period 1972 to 1993, the United States alone invested 24,300,000 US\$ per annum on average on tea advertising. How successful are these programs to influence tastes and preferences of consumers? Is it worthwhile to invest in such programs? Such an investigation is necessary from the Sri Lankan point of view because if these advertising programs expand tea consumption, there will be a high demand for tea. Tea producing countries such as Sri Lanka, India, Kenya, etc. will be able to sell more of their tea, possibly at a higher price. Hence, tea producers in these countries will be able to earn more, if advertising programs are successful. The objective of this study is to assess the impact of tea advertising on the demand for tea in the United States and Canada.

MATERIALS AND METHODS

Advertising can be included in a consumer problem as follows. Utility is a function of quantities of commodities demanded and goodwill towards such commodities, which could be influenced through advertising. Consumers maximize utility subject to a given level of income. Solution to

¹ Department of Agricultural Economics and Business, University of Guelph, Canada.

this constrained maximization problem is a set of Marshallian demand functions. These demand functions are expressed where demand is a function of prices of commodities, income level and the goodwill.

Marshallian demand functions of the above form have been estimated to evaluate advertising effectiveness by a number of authors for a number of commodities. Studies however on tea advertising have not been reported. Specification of goodwill is one of the crucial issues in these studies. Many advertising models assume the effects of advertising in influencing goodwill are strongest during or immediately following an advertising campaign, after which they decay. The goodwill variable hence is developed as a weighted average of lagged advertising expenditure. While some authors have estimated single demand equations, others estimated a system of equations which consist of demand for all related products. Double log, linear and semi-log functions were the commonly used forms. A summary of selected studies is provided in Table 1.

This study has used a single demand function in double log form. Goodwill variable was created by adding previous year advertising expenditure to current advertising expenditure. Log of per capita tea demand was expressed as log of tea price, log of coffee price, and log of goodwill variables. All prices were deflated by consumer price index to maintain homogenous of degree zero condition. Advertising expenditure was also deflated by consumer price index in order to maintain media changes over time.

Two demand functions were estimated for the United States and Canada. Data on quantities of tea demanded and their prices in the United States were obtained from World Tea Situation and those of Canada from Food Industries: Statistics Canada. Data on advertising expenditure for the United States was obtained from Ad \$ Expenditure (Leading National Advertisers) and those for Canada from Annual Summary of Advertising Expenditure (Media Measurement Services Inc.). Coffee prices for both countries were approximated by raw coffee import prices (United Nations). Two equations were estimated for the period of 1972 to 1993.

RESULTS AND DISCUSSION

Results of the estimation are presented in Table 2. Goodness of fit values for the United States and Canada are 0.24 and 0.94, respectively. The

Table 1. Functional forms, estimation techniques and elasticities from selected studies on advertising.

Study	Commodity	Functional Form	Elasticity
Thompson and Eller (1977)	Fluid milk	Double log	0.004
Kinnucan and Forker (1986)	Fluid milk	Double log	0.056
Lui and Forker (1990)	Fluid milk	Double log	0.0028
Jones and Ward (1989)	Potato	Linear	-0.0052 to 0.0712
Change and Kinnucan (1990)	Butter Margarine Shortenings Salad oil	Semi Log	-0.074 to 0.023
Lui and Forker (1990)	Fluid milk	Double log	0.0140 to 0.0362
Venkateswam and Kinnucan (1990)	Fluid milk	Double log Semi Log Log inverse Inverse	0.0445 0.0436 0.0600 0.0592
Kinnucan and Belleza (1991)	Fluid milk	Double log	0.004
Capps and Lambregts (1991)	Finfish and Shellfish	Linear	0.029 to 0.0270 0.002 to 0.069
Goddard and McCutcheon (1993)	Fluid milk	Double log Liner pivotal Liner	0.009 to 0.014 0.003 to 0.008 0.003 to 0.008
Wohlganant and Clary (1993)	Dairy	Liner	0.084 to 0.097
Carman and Green (1993)	Avocado	Box-Cox	0.15 (flexibility)
Suzuki <i>et al.</i> (1993)	Milk	Liner	0.058
Chyc and Goddard (1994)	Eggs	Liner	0.007
McCutcheon and Goddard (1992)	Egg	Linear Double log	0.158 to 0.107 0.050 to 0.090

co-efficients in both equations are highly significant with expected signs and hence both equations were considered as acceptable despite the low goodness of fit of the former equation. Own price responses are inelastic. However, Canadian response is more elastic than the United States (-0.12 and -0.47 for the United States and Canada, respectively). Although both countries consider coffee as a substitute for tea, the Canadian response is more elastic than the United States (0.12 and 0.18 for the United States and Canada, respectively).

Table 2. Results of the estimation.

Variable name	United States	Canada
Tea Price	-0.1237 (4.73)	-0.4720 (5.86)
Coffee Price	0.1237 (4.73)	0.1826 (6.03)
Advertising	0.1171 (2.38)	0.1936 (2.90)

Values within parenthesis indicate 't' statistics.

Advertising elasticities suggest that by an increase in advertising expenditure of 1%, demand for tea by the United States can increase by 0.11% and that of Canada by 0.19%. Attempts to include income levels in the demand functions were not successful.

Currently, the Sri Lanka Tea Board subsidises the advertising programs conducted by tea companies which produces brands with 100% Sri Lankan tea. Further research is necessary to evaluate the cost effectiveness of these programs, even though the findings of this study suggest that brand advertising programs conducted during the study period were successful in changing consumer tastes and preferences.

REFERENCES

- Capps, O. and Lambregts, L.A. (1991). Assessing Effects of Prices and Advertising on Purchase of Finish and Selfish in a Local Market in Texas. *Southern J. Agric. Econ.* 23: 181-194.
- Carman, H.F. and Green, R.D. (1993). Commodity supply response to a producer-financed advertising program: The California avocado industry. *Agribusiness.* 9: 605-621.
- Change, H.S. and Kinnucan, H.W. (1990). Generic advertising of butter in Canada: Optimal advertising levels and returns to producers. *Agribusiness.* 6: 345-354.
- Chyc, K.M. and Goddard, E.W. (1994). Optimal investment in generic advertising and research the case of the supply-managed egg market. *Agribusiness.* 10: 145-166.
- Goddard, E.W. and McCutchen, M.L. (1993). Optimal Producer Investment in Generic Advertising: The case of fluid milk on Ontario and Quebec. *Canadian J. Agric. Econ.* 41: 329-347.
- Jones, E. and Ward, R.W. (1989). Effectiveness of generic and brand advertising on fresh and processed potato products. *Agribusiness.* 5: 523-536.
- Kinnucan, H.W. and Belleza, E. (1991). Advertising evaluating and measurement error: The case of fluid milk in Ontario. *Canadian J. Agric. Econ.* 39: 283-297.
- Kinnucan, H.W. and Forker, O.D. (1986). Seasonally in the consumer response to milk advertising with implication for milk promotion policy. *Amer. J. Agric. Econ.* 68: 562-571.
- Lui, D.J. and Forker, O.D. (1990). Optimal control of fluid milk advertising expenditure. *Amer. J. Agric. Econ.* 72: 1074-1055.
- McCutcheon, M.L. and Goddard, E.W. (1992). Optimal producer and social payoff from generic advertising: The case of the Canadian supply managed egg sector. *Canadian J. Agric. Econ.* 40: 1-24.
- Suzuki, N., Lenz, J.E. and Forker, O.D. (1993). A conjectural variations model of reduced Japanese milk price support. *Amer. J. Agric. Econ.* 75: 210-218.
- Thompson, S.R. and Eller, R. (1997). Determination of milk advertising effectiveness. *Amer. J. Agric. Econ.* 59: 330-35.
- Venkateswaran, M. and Kinnucan, H.W. (1990). Evaluating fluid milk advertising Ontario: The importance of functional forms. *Canadian J. Agric. Econ.* 38: 471-488.
- Wohlganant, M.K. and Clary, A. (1993). Development and measurement of farm-to retail price linkage for evaluating dairy advertising effectiveness. *J. Agric. Econ. Res.* 44: 18-26.