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Evaluating Advertising Strategies for Fruits and Vegetables and the Implications for Obesity in the United States

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Obesity has become a huge problem in the United States with over a quarter of the population categorized as obese. The average American has gained 16.3 pounds during the 21 years (1988-2008) which results in an average weight gain of 0.77 pounds annually. The U.S. obesity problem has been blamed on a host of factors such as relatively low prices per calorie for high fat and sweetened foods, insufficient exercise, substantial marketing campaigns by the fast food industry, and other environmental and economics factors. Another important factor is the trend in fruit and vegetable consumption, which has declined by 12.5% (fruit) and 7.6% (vegetables) on a per capita basis over the last 15 years.

One type of advertising that has been more common in Canada (*Go for 2&5*), Australia (*Fruit and Veggies—More Matters*), and the United Kingdom (*5 a Day*) than in the United States is “broad-based” advertising, which is designed to promote overall consumption of fruit and vegetables rather than specific commodities. The fruit and vegetable sector in the United States currently has a voluntary broad-based program that is significantly smaller than the *Go For 2&5* broad-based program used in Australia. The U.S. industry has discussed adopting a mandatory broad-based program that would be used in addition to the current commodity-specific programs. In 2009 advocates of a mandatory program proposed to assess first handlers of all fruits and vegetables an annual per-unit tax in order to raise \$30 million for broad-based advertising. However, the majority of growers did not want to adopt the proposed program and the policy failed after a plebiscite was conducted among all first handlers in 2009.

We recently conducted economic experiments to examine the efficacy of commodity-specific and broad-based advertising on increasing the demand for fruits and vegetables and reducing obesity. In our study, we measured the impact of broad-based advertising, commodity-specific (apple and potato, separately) advertising, and two hybrid programs that include broad-based and commodity-specific advertising across eight selected fruits and vegetables. We use experimental methods to elicit consumers’ willingness to pay for various fruits and vegetables subject to either broad-based or commodity-specific advertising. Willingness to pay estimates can be easily converted into changes in demand and we use these measures in our simulation. We simulate the potential effects of the fruit and vegetable promotion strategies on food consumption using an equilibrium displacement model developed by Okrent and Alston (2011). Our simulated changes in quantities of retail food products are

translated into changes in daily and annual calories consumed using the average daily quantity of food and energy intake in the 2005-06 National Health and Nutrition Examination Surveys.

Our results found strong support that broad-based advertising has a significantly higher effect than commodity-specific advertising on consumers' willingness to pay (WTP) for fruits and vegetables. For example, WTP increased by 18.1%, 22.9% and 32.8% for the three treatments involving broad-based advertising, which were all statistically significant unlike that for commodity-specific advertising (see Table 1).

These results are consistent with the findings of a very successful broad-based advertising program field experiment implemented over a three-year (2002-2005) period in Australia, which suggests that both industry stakeholders and government health agencies should carefully consider adopting a broad-based promotional strategy.

TABLE 1. Simulated Effects of Promotional Activities on Consumption and Weight

Food categories	Promotional Activity			
	Broad-based	Broad-Based+Apples	Broad-Based+Potatoes	Average
	increase in WTP			
	18.1%	32.8%	22.9%	24.6%
	<i>Simulated Percentage Change in Quantities Consumed:</i>			
Cereals and bakery	-2.07	-3.74	-2.61	-2.81
Red meats	-3.69	-6.69	-4.67	-5.02
Poultry and eggs	2.40	4.35	3.04	3.26
Fish and seafood	6.20	11.23	7.84	8.42
Dairy	2.74	4.96	3.46	3.72
Fruits and vegetables	11.48	20.80	14.52	15.60
Other foods	1.45	2.62	1.83	1.97
Nonalcoholic beverages	-1.23	-2.23	-1.55	-1.67
Food Away from Home	-2.23	-4.03	-2.82	-3.02
Alcoholic beverages	0.90	1.63	1.14	1.23
	<i>Annual Impacts on Per Capita Caloric Consumption and Weight:</i>			
Consumption (kcal)	-1,328.78	-2,407.96	-1,681.17	-1,805.97
Weight (lbs)	-0.84	-0.69	-0.48	-0.52
Weight (%)	-0.47	-0.85	-0.59	-0.64

Note: Average weight of an adult individual in 2005-2006 National Health and Nutrition Examination Survey was 178.5 lbs. The calculation assumes additional 3,500 kcal would add one pound to weight.

Our research provides the first piece of empirical evidence about the broad-based advertising effects relative to commodity-specific. While our research has some limitations, it is an important starting point in a significant industry debate in the U.S. Broad-based advertising has the capacity to increase demand for fruits and vegetables, and it also has the capacity to decrease caloric consumption

and obesity. We find that a successful broad-based advertising campaign for fruits and vegetables, either alone or as a hybrid with commodity-specific campaigns, may reduce average annual caloric intake per person by approximately 1,800 kcal (Table 1). This calculation takes into account the direct effects of advertising on demand and prices for fruit and vegetables, as well as the indirect effects of changes in demand for all other products as a result of the demand and price effects. Although this reduction may appear small, it is a substantial part of annual weight gain (0.77 pounds per year) that average American has experienced. Such a strategy could be used as one component of an overall program to reduce obesity and the serious health risks associated with it. Therefore, based on the results of our study, an increase in broad-based advertising may lead to benefits for producers of fruits and vegetables and consumers more generally.

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