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U.S. National Economic Contribution of Generic Food and Agricultural Product Advertising

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ABSTRACT

Agricultural promotion groups (APGs) promote the economic welfare of agricultural producers by financing generic advertising and promotion activities intended to expand demand for their commodities in hopes that the benefits will more than cover the cost. A review of the most recent evaluations of 27 major U.S. APG generic advertising and promotion programs conducted by many different researchers using widely different techniques concludes that those programs have effectively enhanced the profits of their respective stakeholders and generated high rates of returns to the dollars invested in those programs. Importantly, this study finds that the success of those programs in supporting and growing their respective sectors of agriculture has spilled over to the general economy. The programs have created an important multiplier effect through the economy. In the process, jobs have been created; income has been generated; and economic growth has occurred.

KEYWORDS

Agricultural promotion group; benefit-cost analysis; checkoff; generic advertising; IMPLAN

Virtually every U.S. agricultural commodity has some type of organization dedicated to promoting the economic welfare of its producers funded through some form of fee on sales by producers and often others in the marketing chain. Known as agricultural promotion groups (APGs), these organizations use the funds collected largely to finance generic advertising and often other types of promotional activities, including development of new uses of the associated commodities, in an effort to expand demand (U.S. and foreign). APGs often promote at the retail end of the supply chain under the assumption that sufficient benefits will migrate upstream to the various stakeholders¹ to more than cover the cost of the generic advertising funded.

Research has clearly demonstrated that U.S. APG generic advertising programs effectively return to their stakeholders more, and in many cases much more, than what they invest in promotional activities (Ward, 2006; Williams, Capps, & Hanselka, 2017). But is that where the impact of APG activities ends—with gains to stakeholders with no broader implications for

the U.S. economy? In theory, anyway, there could be broader U.S. economic impacts because the increased demand stimulated by APG activities also may stimulate many support and service activities to facilitate the increased sales. The effect would be like a rock thrown into the water. The splash of the rock is the initial impact of generic advertising on the U.S. consumption of food and agricultural products. A rock hitting the water, however, not only creates an initial splash but also sends waves of ripples in all directions through the water, sometimes for long distances. The ripples are the secondary effects of the rock hitting the water.

Like those ripples, waves of economic activity may well be launched by U.S. food and agricultural product generic advertising activities beginning in the markets or sectors in which the splashes of advertising occur to associated food and agricultural sectors and beyond to the broader U.S. economy. The ripples of economic activity are the multiplier effect of the financial benefit generated by the generic advertising not only for producers and other stakeholders in a given U.S. commodity industry but also for related food and agricultural product retailers, wholesalers, input suppliers, and others. Personnel employed in the commodity industry as well as in related industries including service and support industries are also benefited and spend their additional incomes on many diverse goods and services, further multiplying the effects of the initial expenditures on generic advertising. In the process, at least in theory, jobs are created, income is generated, and economic growth is stimulated.

Is there a ripple effect from the splash of APGs activities beyond the markets in which the splashes occur? If so, what is the aggregate contribution of APG activities to the U.S. economy and economic growth? This study addresses these questions by focusing on the generic promotion activities of 27 major U.S. APGs which comprise the Commodity Roundtable Marketing and Communications Group (CRMC). After providing some background on generic food promotion and the 27 major APGs that are the focus of this study, the study methodology is detailed. A discussion of the results from applying that methodology to measure the economy-wide effects of 27 major APG programs is followed by a summary of the main conclusions and a discussion of their economic implications.

APGs and generic advertising of food and agricultural products

Advertising and promotion activities are usually classified into two groups: (1) generic and (2) brand. Generic advertising and promotion are intended to increase sales of generally homogenous products (e.g., soybeans, cotton, and milk). In contrast, brand advertising touts the qualities of the product of a specific firm in an industry of related but differentiated products (e.g., shirts, shoes, and laundry detergents) in an effort to enhance the product's

market share and sales (Kinnucan & Clary, 1995). Because the qualities of homogenous products are by definition largely indistinguishable from seller to seller, efforts by specific sellers to brand and separately promote such products are generally ineffective.

As a consequence, producers and often others in the supply chain of the associated homogenous product often band together to promote jointly the general, common qualities of their products. Such Agricultural Promotion Groups (APGs) are most common in the United States but are found elsewhere in the world such as the Norwegian Seafood Council. Generic advertising and promotion by APGs are intended to enhance the sales of all producers and others in the respective industries rather than those of any specific producer or related group. Thus, gains from generic advertising and promotion are earned by all producers and others in the supply chain regardless of whether or not they have contributed to the cost of the advertising. Those who benefit from generic advertising and promotion without contributing to the cost are referred to as “free riders.”

Although voluntary for producers of some commodities and others in associated supply chains under some APG programs in the United States, payment of the assessed fee on sales to support generic advertising and promotion activities (the so-called “checkoff assessment”) has become mandatory for many such groups through state or federal legislation. The intent of making stakeholder payments mandatory is to minimize the free-rider problem associated with voluntary programs. In the United States, state and federally authorized generic advertising and promotion programs are generally requested, funded, and driven by the associated U.S. agricultural producer associations (U.S. Department of Agriculture (USDA, 2017).

Currently, 23 APGs promote domestic and, in many cases, foreign sales of U.S. agricultural commodities through federally authorized promotion programs. Commodities covered by federally legislated promotion programs include beef, Christmas trees, cotton, dairy products (processors), eggs, fluid milk (producers), Hass avocados, Highbush blueberries, honey, lamb, mangoes, mushrooms, paper & packaging board, peanuts, popcorn, pork, potatoes, propane, raspberries, softwood lumber, sorghum, soybeans, and watermelon. In addition, numerous APGs authorized under state laws promote sales of their respective state’s production of various agricultural commodities. At the same time, many of the 30 industry-driven and funded, federally established marketing boards are authorized to operate generic advertising and promotion programs.² The USDA Agricultural Marketing Service (AMS) has oversight responsibility for all federally authorized APGs except propane which is under the federal oversight authority of the U.S. Department of Commerce (USDC). Federal oversight ensures the fiscal responsibility and program efficiency of federally authorized APGs and the fair treatment of participating stakeholders.

The 23 federally authorized APGs along with four other commodity promotion groups³ constitute the Commodity Roundtable Marketing and Communications (CRMC) Group dedicated to discussing common issues related to commodity promotion and research and to seeking ways of sharing solutions and best practices. According to their annual financial reports, the 27 APGs comprising the CRMC group invested a total of about \$624.6 million in commodity promotion programs in 2015.⁴ The promotion expenditures of the CRMC APGs ranged widely in 2015 from a low of just under \$21,000 by the recently established National Christmas Tree Board to a high of \$97.9 million by the United Soybean Board. However, total promotional expenditures for milk and dairy products by the National Dairy Research & Promotion Board and the Fluid Milk Processors Promotion Program together reached nearly \$175 million in 2015.

Title V of the 1996 Farm Bill requires an independent evaluation of the effectiveness of all new and existing, federally authorized commodity promotion programs, not less than every five years, to assist Congress and the Secretary of Agriculture in ensuring that the objectives of the programs are met. In compliance with that legislation, a large and growing number of studies have analyzed the effectiveness of the generic advertising activities of APG programs. Most of those studies report either an average or marginal benefit-cost ratio (ABCR and MBCR, respectively) as the primary metric for the measuring the effectiveness of the respective programs. The ABCR is the most appropriate measure for determining whether an APG generic advertising and promotion program has been successful. The MBCR measure is most appropriate for an evaluation of the returns to stakeholders from a (small) expansion in generic advertising and promotion expenditures. Thus, the MBCR answers the question of whether a (small) expansion of the generic advertising and promotion program in the past would have increased stakeholder profits.

The ABCR for a given APG is calculated as the net increase in revenue to producers and other stakeholders of the associated commodity (stakeholder share of additional retail sales revenues less the costs of promotion and additional production costs) generated by the generic advertising and promotion program over a specified time period divided by the total expenditures by the APG on the generic advertising and promotion over that period. An estimated ABCR of greater than 1.0 indicates that stakeholder profits increased by more than one dollar for every dollar spent on generic advertising and promotion over the period of analysis. An MBCR greater than 1.0 indicates that a particular APG's program could have been profitably expanded in some past period of time.

The consensus apparent across a wide range of studies by many researchers over the many APG programs using a variety of analytical tools is that the return to stakeholders from generic advertising and promotion financed

through commodity checkoff programs is positive and robust (Ward, 2006; Williams & Capps, 2006). In general, APG generic advertising and promotion activities have been found not only to be effective in increasing sales at the retail level but also to have transmitted sufficient revenues up the supply chain to stakeholders to more than cover their costs of the generic advertising and promotion activities

Table 1. Most recent reported benefit-costs ratios for CRMC group members.

Agriculture promotion group (APG)	Study	Benefit-cost ratio ^a	
		Average	Marginal
Almond Board of California	Alston, Crespi, Kaiser, and Sexton (2007)		6.2
American Egg Board	Ward (2012)		11.14
American Lamb Board	Ghosh and Williams (2016)	14.44	
Avocados from Mexico	NA	5.68 ^b	
Cattlemen’s Beef Promotion and Research Board	Kaiser (2014a)		11.2
Cherry Marketing Institute	NA		
Cotton Board	Capps, Williams, and Hudson (2016)	3.1	
Cranberry Marketing Committee	Sexton and Saitone (2012)		
Hass Avocado Board	Carman, Saitone, and Sexton (2013)	5.68	
MilkPep	Capps et al. (2016)	^c	
Mushroom Council	Richards (2016)		1.24 ^d
National Dairy Research & Promotion Board	Capps et al. (2016)	^c	
National Honey Board	Ward (2014)	13.12	
National Mango Board	Ward (2016)	10.51	
National Peanut Board	Kaiser (2014b)		10.4
National Pork Board	Kaiser (2012b)		17.4
National Processed Raspberry Council	NA		
National Watermelon Promotion Board	Kaiser (2012a)	27.73	
Paper & Packaging Board	NA		
Popcorn Board	Fresh Approach, Inc (2013)		
Potatoes USA	Richards and Kaiser (2012)		2.92
Propane Education and Research Council	ICF International (2007)	7.0	
Softwood Lumber Board	Softwood Lumber Board (SLB) (2015)	15.55	
United Sorghum Checkoff	Capps, Williams, and Málaga (2013)	8.48	
United Soybean Board	Williams, Capps, and Lee (2014)	5.2	
U.S. Highbush Blueberry Council	Kaiser (2015)		9.07
Median		7.00	9.74
Simple average		9.69	8.70
Weighted average ^e		5.31	10.96
Median over all BCRs		8.48	
Simple average over all BCRs		9.31	
Weighted average ^e over all BCRs		6.90	

NA, no evaluation study conducted. Blank space, No evaluation study conducted and/or no BCR reported.

^aFor the few studies that report both short-run and long-run BCRs, only the short-run BCRs are shown here.

Also, for studies that report a range of values, an appropriate midpoint or average value is used.

^bAssumed same ABCR as reported for Hass Avocado Board.

^cWithheld because the report has yet to be released to the public. The ABCRs from the report were used in this analysis, however.

^dNo overall BCR reported. Used average of short-run direct BCRs reported for retail and food service demand.

^eWeighted by amount of expenditures for promotion by respective APGs.

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Despite varying widely across programs and time periods, the reported BCRs for APG advertising and promotion programs for members of the CRMC group generally fall in the range of about 2–15 (Table 1). In other words, for every dollar spent on advertising and promotion programs by APGs, the returns to stakeholders associated with CRMC group members generally range from \$2 to \$15.

The median-reported ABCR and MBCR values over all evaluations of the generic advertising and promotion activities of CRMC Group members are 7.00 and 9.74, respectively, indicating that when extreme high and low values (outliers) are ignored, the ABCRs and MBCRs reported across programs do not differ substantially (Table 1). Kaiser demonstrates this point (e.g., Kaiser 2012a, 2014a, 2014b, and 2015). When weighted by the amount of promotion and advertising conducted by the respective CRMC group members, the average-reported ABCR and MBCR values are 5.31 and 10.96, respectively. The lower weighted average ABCR than the median ABCR reflects the fact that the larger promotion programs tend to have lower ABCRs. The weighted average across all ABCRs and MBCRs of the CRMC group members is 6.90.

Consistent with the law of diminishing returns, an inverse relationship between promotion expenditures and BCRs is evident in Figure 1 in which the BCRs (both APBRs and MBCRs) are plotted against the promotion expenditures of the corresponding APGs. All but two of the promotion programs with expenditures less than \$30 million have reported BCRs near

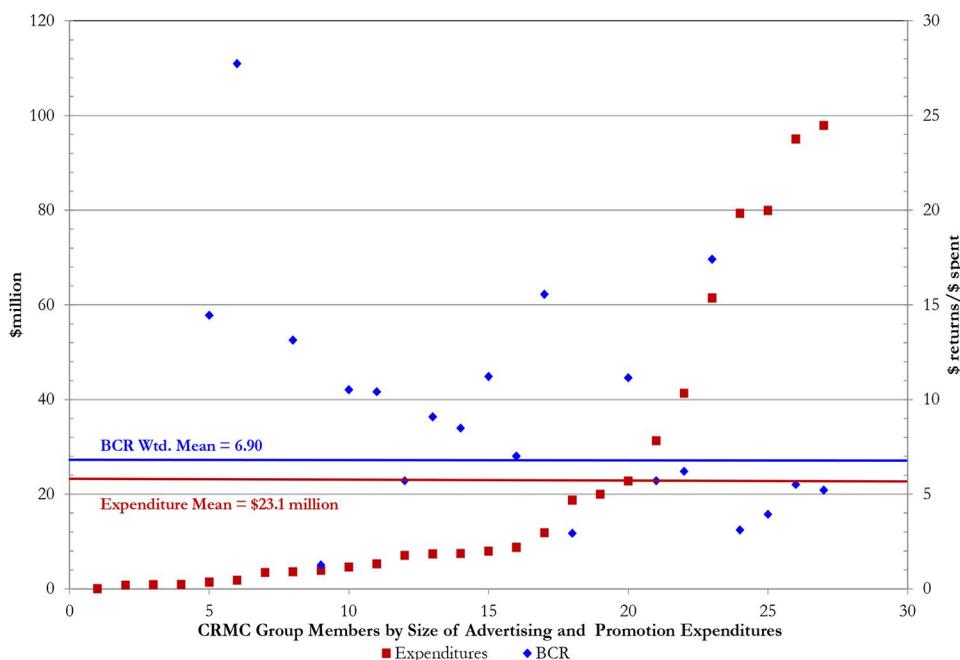


Figure 1. Negative relationship between reported BCRs and the level of 2015 promotion expenditures.

or above the weighted average across all ABCRs and MBCRs. In contrast, all but one program with promotion expenditures in excess of \$30 million have BCRs lower than the weighted average.

Nearly all evaluations of the advertising and promotion effectiveness of the APG members, including those listed in [Table 1](#), have focused on the returns to stakeholders from the checkoff-assessment-financed generic advertising and promotion activities. The only studies that considered the broader impacts of generic advertising and promotion on the general U.S. economy have all evaluated the effects of the USDA Export Market Development Programs which are funded in part by checkoff assessments from a broad range of APGs and part by federal funds. The most recent of those studies (Williams et al., 2016) concluded that in addition to enhancing U.S. agricultural exports by 15% annually and generating a nondiscounted gross revenue BCR of 24.0, the programs have had a substantial impact on the overall U.S. economy. Specifically, the study concludes that over the years the USDA Export Market Development Programs have had a multiplier effect throughout the economy adding up to \$2.1 billion in farm income and up to \$16.9 billion in U.S. GDP while adding up to 239,000 jobs to the economy.

Study methodology

In this study, we investigate the potential multiplier effects of the aggregate programs of the APG members of the CRMC group on the overall U.S. economy. The analysis proceeds in two basic steps: (1) calculation of the sales revenues generated by the generic advertising and promotion programs of the 27 members of the CRMC group and (2) economic contribution analysis using the IMPLAN (IMPact Analysis for PLANning) economic modeling tool and data (IMPLAN Group, LLC, 2015) to measure the economy-wide multiplier effects of the calculated net revenues generated by those APG programs from step (1).

Calculating the aggregate net revenue from APG advertising and promotion programs

The initial effects of the APG generic advertising and promotion programs on the U.S. economy, the initial splash of the rock in water, referred to as the “direct effects,” are the sales revenues generated by those programs. Those direct effects then multiply through the economy generating additional economic impacts and the waves of rings emanating away from the initial splash in the water. Thus, the first step in determining if the generic advertising and promotion programs of the 27 APG members of the CRMC group have an impact on the broader U.S. economy was to devise a reasonable measure of the aggregate sales revenue generated by those programs.

A measure of the additional revenues earned by CRMC Group member stakeholders as a result of their generic advertising and promotion expenditures can be calculated using the BCR metrics reported for each APG in the Group. The reported BCRs indicate the revenues earned by stakeholders per advertising and promotion dollar spent by the respective APGs. Thus, multiplying the reported BCRs by an appropriate measure of the generic advertising and promotion expenditures of each APG in a given year provides a measure the total revenues earned by stakeholders in that year. Those calculated revenues can then be inputted into the IMPLAN model as the “direct effects” of the APG advertising and promotion programs to compute the associated multiplier effects across the U.S. economy in a given year.

For the purposes of this analysis, the reported ABCR is the appropriate measure to use because we want to know the total amount of revenue generated by each APG given the total amount of their expenditures for advertising and promotion. Unfortunately, the evaluations of some APGs do not report ABCRs. In those cases, we use the reported MBCRs to calculate the net revenue generated by the respective APGs. As indicated earlier, reported MBCRs and ABCRs do not differ substantially. Also, as argued by Beach et al. (2007) and Kaiser (2012a), estimates of marginal returns can be considered to be conservative lower bounds of the average returns. In cases where a range of BCRs are reported, we use an appropriate midpoint (median) or average BCR value.

For the advertising and promotion expenditures for each APG, we used their published annual reports that include data on their program expenditures. For most APGs, 2015 was the most recent annual report available at the time of the analysis. Advertising and promotion expenditures were defined to include domestic and foreign market promotion, consumer information and industry information for some programs, and new product development. Expenses excluded from advertising and promotion included (to the extent possible) administration, USDA fees, producer communications, production research, state passbacks, and numerous miscellaneous program expenses, such as program development, compliance, and evaluation.

The result of this process was a measure of the additional revenues to stakeholders, primarily producers, as a result of the generic advertising and promotion expenditures of the 27 APG members of the CRMC group in 2015. Those revenues, however, represent only the share of the total revenue generated at the retail level that is transmitted up the supply chain and captured by stakeholders, mostly at the production level. To calculate the total retail value of the sales generated by the APG generic advertising and promotion programs, the estimated increase in revenue to the stakeholders for each commodity was revalued (marked up) to the retail level using measures of the farm share of the retail sales earned reported by Williams, Capps, and Hanselka (2017).

The IMPLAN model and its application to APG impact analysis

The second step in estimating the spillover of the advertising and promotion programs of APGs to the broader economy was to input the calculated changes in revenues (at the producer/farm level and then at the retail level) from the APG generic advertising and promotion into the IMPLAN input–output model (IMPLAN Group, LLC, 2015b). Input–output analysis is based on the idea that a change in one sector of the economy has effects on other sectors of the economy. The analysis captures the relationships between industries along backward-linked supply chains and estimates the change in each sector’s sales due to an initial change in final demand for a given industry’s output. The sum of these changes is the industry’s multiplier. To measure the impacts on the economy of any change in economic activity such as the change in sales revenues due to APG generic advertising and promotion programs, the IMPLAN model produces multipliers which estimate the total economic contribution of expenditures within an economy. Multipliers are calculated based on the purchasing patterns of industries and institutions in the regional economy. Each industry and region combination has a unique spending pattern and a unique multiplier relating to the direct, indirect, and induced effects of the spending.

Four types of economic effects are reported in IMPLAN analyses. The *employment* contribution measures the number of jobs (both full time and part time) attributable to the direct economic activity stimulated. The contribution to *labor income* measures the effect of spending by businesses on the incomes of households and indicates a benefit to local residents. The *value-added* measures the contribution to gross domestic product and indicates the return to resources used by the business. The *output* contribution measures economic activity (total spending) generated. Labor income is a subset of value added which is part of output. These four effects provide a better perspective of the contribution of an economic activity, but they are three separate views and not meant to be summed.

In this step of the analysis, two separate scenarios are examined using IMPLAN: (1) producer level and (2) retail level. The producer-level scenario examines the economic contribution of only the additional revenues captured by CRMC group stakeholders as a result of their expenditures on generic advertising and promotion (the producer-level analysis). In the producer scenario, the initial “splash” in the economy is considered to occur at the production level so that the indirect effects include the additional purchase of inputs by producers and other stakeholders among local industries as a result of that splash with the induced effects accounting for the additional economic activity generated by the additional expenditures of producer-level households and businesses. The analysis, however, does not account for any changes in spending on other commodities as a result of consumers purchasing the

promoted products. The analysis essentially considers the multiplier effects of the spending on advertising and promotion by the CRMC group members along backward-linked supply chains from the production level.

The process first required the assignment of the calculated increases in stakeholder revenues for each APG member of the CRMC Group to a corresponding sector in the IMPLAN model as shown in the top portion of [Figure 2](#). IMPLAN consists of 536 different sectors from production to transportation, wholesale, manufacturing, retail, services, and others. Each APG member of the CRMC was first assigned to an agricultural sector in IMPLAN which best reflects the respective commodities (top portion of [Figure 2](#)). Then, an “industry change” activity was selected with events for each of the IMPLAN sectors shown in [Figure 2](#). An activity is a grouping of one or more events that represents a related change within the study area (IMPLAN Group, LLC, 2015a). The values of the additional revenues captured by CRMC group member stakeholders as a result of their generic advertising and promotion expenditures in 2015 calculated in the previous step of the analysis were then entered into IMPLAN as the industry sales change for each of the corresponding events. Finally, summary and industry detail sector results for the direct, indirect, induced, and total effects for output (total spending), employment (full- and part-time jobs), value added (contribution to GDP),

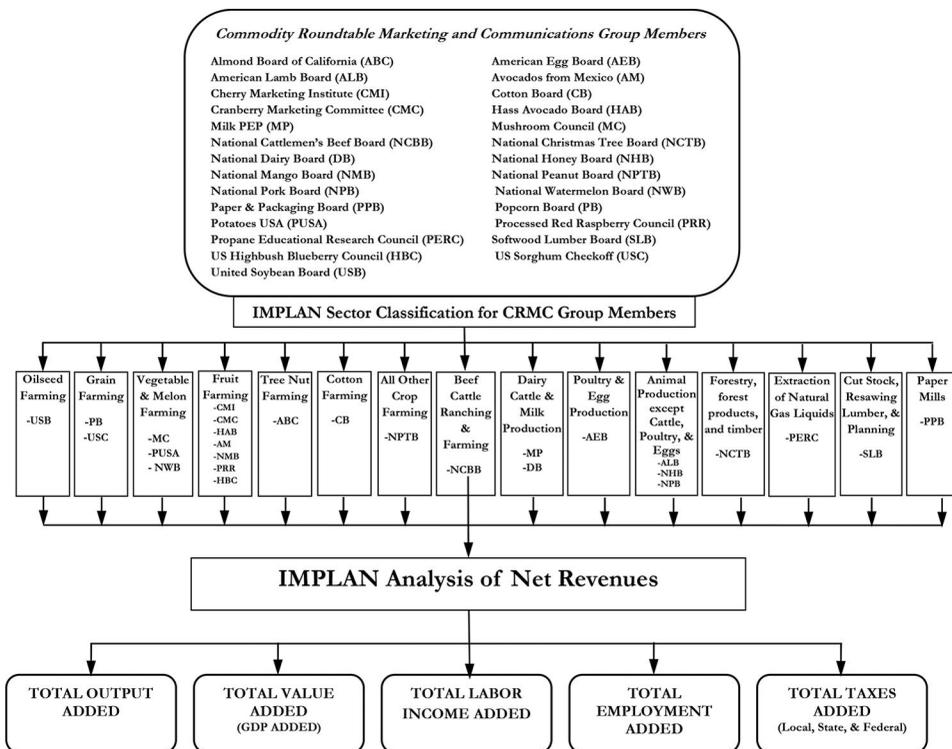


Figure 2. Schematic representation of the producer-level IMPLAN scenario analysis.

labor income (employee compensation), and taxes (local, state, and federal) were reported within the IMPLAN model given the industry sales change for each sector in the model.

The retail-level scenario examines the economic contribution of the total additional retail revenue generated by the same generic advertising and promotion activities of the CRMC group members. In this scenario, the initial splash of the additional revenue generated by the APG advertising and promotion expenditures is considered to occur at the retail level as generally occurs. In this scenario, the indirect effects include the additional purchase of inputs by retail businesses back through the supply chain as a result of the initial splash with the induced effects accounting for the additional economic activity generated at the retail level. The producer-level effects from the producer-level scenario are a subcomponent of the total effects measured in the retail-level scenario. The analysis in this retail-level scenario essentially considers the multiplier effects of the spending on advertising and promotion by the CRMC group members along the supply chain from retailers back to the farm and farm suppliers.

The same procedure was followed for the retail-level scenario analysis as for the producer-level scenario analysis with two main additional steps. First, the additional net revenues to stakeholders for each commodity were revalued (marked up) to the retail level following the process discussed earlier. The calculated values of the increased retail revenues for 2015 were then entered as the industry sales for each of the corresponding events within the U.S. retail model (Figure 3). Second, the additional net retail value generated by the advertising and promotion expenditures was distributed (or margined) across the respective industries or sectors of the value chain (producer, transportation, warehousing, wholesale, and retail). Like the producer-level scenario IMPLAN analysis, the retail-level scenario analysis with the IMPLAN model entailed a calculation of the direct, indirect, and induced impacts of the “industry changes” (increased net revenue) at the respective industry levels as indicated in Figure 3. Likewise, summary and industry detail sector results for output (total spending), employment (full- and part-time jobs), value added (contribution to GDP), labor income (employee compensation), and taxes (local, state, and federal) are reported for the retail-level scenario analysis (Figure 3).

Analysis of the economic contribution of agricultural advertising and promotion

For both the producer-level scenario and retail-level scenario IMPLAN analyses, the contribution of the increase in net stakeholder revenues to the value of output (sales), value-added or gross domestic product (GDP), employment, labor income, and taxes paid (federal, state, and local) are

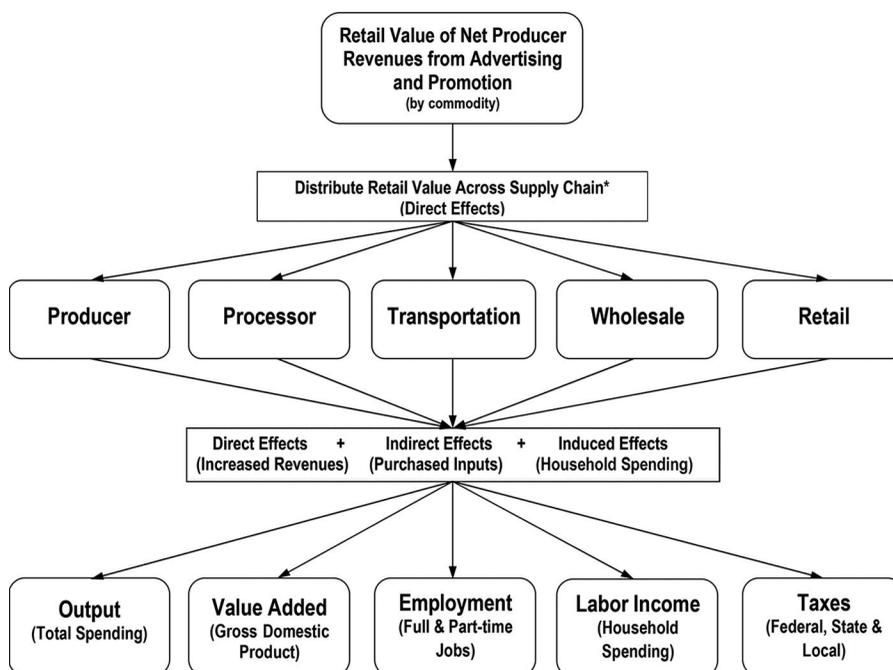


Figure 3. Schematic representation of the retail-level IMPLAN scenario analysis.

reported. Contribution multipliers are also presented for each scenario analysis. The multipliers indicate the additional output, value added (GDP), and labor income generated across the national or state economy per dollar of additional net stakeholder revenues generated. Employment multipliers are also presented reflecting the number of jobs generated per million dollars of increased net stakeholder revenues generated. Finally, a tax multiplier is presented, which shows the value of all taxes generated at the federal, state, and local levels as a result of all activities stimulated as a share of the value of the increased net stakeholder revenues. The results provide measures of the contribution of the generic advertising and promotion activities of the CRMC group members to the national economy.

Producer-level scenario analysis

Following the methodology described in the previous section, measures of the revenues transmitted up the supply chain to producers and other stakeholders in 2015 as a result of the generic advertising and promotion expenditures of the 27 members of the CRMC Group were first calculated. The calculated additional revenues generated for producers in 2015 by the generic advertising and promotion ranged from about \$100,000 to nearly \$1.1 billion across CRMC Group members for a total of \$4.27 billion. That infusion of additional revenues into the economy represents the “direct effects” of the advertising

and promotion activities of the CRMC Group. The “indirect” effects include the additional purchases of inputs by local industries as a result of the direct effects with the “induced” effects accounting for the additional economic activity generated by the additional expenditures of producer-level households and businesses.

The IMPLAN model analysis concludes that the total of all the direct, indirect, and induced effects of the \$4.27 billion initial increase in net revenues to stakeholders from the generic advertising and promotion expenditures of the CRMC group members in 2015 in this scenario includes \$10.3 billion in additional U.S. output or total sales (Table 2). At the same time, the \$4.27 billion of increased net revenues added \$5.8 billion to the U.S. GDP (value-added), created \$3.3 billion in U.S. labor income, added \$1.1 billion in taxes (federal, state, and local), and contributed 60,404 jobs to the economy.

Retail-level scenario analysis

Most of the advertising and promotion activities of CRMC group members actually occur at the retail level. So considering only the impacts of the promotion activities at the producer level and the resulting economic multiplier effects that occur fails to capture all the additional activity generated at the retail level and along the supply chain from the retail level back to production. Thus, in this scenario analysis, the initial impact of the additional revenues generated by the advertising and promotion expenditures (the “direct” effects) is considered to occur at the retail level. The \$4.27 billion of net revenue calculated to have been earned by stakeholders from the CRMC advertising and promotion activities as discussed in the producer-level scenario analysis is only the share of the total revenue generated at the retail level that is transmitted up the supply chain and captured by stakeholders.

In addition to producers, others along the supply chain also experience additional business and earn additional revenues as a result of the retail advertising and promotion activities. In general, the process begins with an increase in sales at supermarkets, restaurants, fast-food establishments, and other retail outlets of products from either domestic or foreign sources generated by advertising and promotion. Retail establishments then demand additional services and sales by distributors, wholesalers, processors, and others down the supply chain to eventually generate an increase in production

Table 2. Producer scenario: National economic contribution of 2015 Stakeholder net revenues from advertising and promotion.

<u>U.S. output (sales)</u>	<u>U.S. value added (GDP)</u>	<u>U.S. employment</u>	<u>U.S. labor income</u>	<u>U.S. taxes*</u>
\$ million	\$ million	No. of jobs	\$ million	\$ million
\$10,348.9	\$5,845.1 (0.06% of GDP)	60,404	\$3,315.8	\$1,101.6

*Federal, state, local.

and sales at the farm level. In the process, economic activity along associated supply chains with which the commodity's supply chain intersects is also stimulated. Such activities include transportation, advertising, construction, finance, manufacturing, infrastructure, farm input supply, and numerous after-market services. Thus, the additional stakeholders profits generated by APG activities are likely only one part of the true economic impact of those programs as the initial advertising and promotion activities create a multiplier effect through the economy.

Following the procedures outlined in the methodology section, the retail revenue generated by the advertising and promotion expenditures of CRMC Group members was calculated to be \$26.5 billion. That retail revenue was distributed (or margined) across the main industries/sectors of the supply chain (production, processing, transportation, wholesaling, and retailing) in the IMPLAN model using IMPLAN estimates of the shares of the retail values earned by each of those upstream sectors.

The share of the total sales value assigned to each upstream sector in the IMPLAN model under this scenario is the "direct" effect or initial economic activity for each commodity. The "indirect" effects result from the purchase of inputs by local industries at each level as a result of the additional revenues or the additional business to business activity. The "induced" effects result from expenditures of additional income by households and institutions such as governments benefitting from increased activity at each of those points along each commodity's supply chain.

The IMPLAN analysis results for this scenario indicate that the aggregate direct, indirect, and induced effects of the \$26.5 billion in increased net revenues at the retail level across all commodities resulting from the advertising and promotion of CRMC Group members in 2015 included an aggregate contribution to U.S. output or total spending of \$77.2 billion (Table 3). At the same time, the advertising and promotion were responsible for generating \$40.6 billion of the U.S. GDP (value-added) that year along with \$23.3 billion of U.S. labor income, \$9.9 billion of taxes paid (federal, state, and local), and 516,517 of U.S. jobs.

Implied national contribution multipliers

Another metric for measuring the national impact of the advertising and promotion expenditures of CRMC group members is the national

Table 3. Retail scenario: National economic contribution of 2015 Stakeholder net revenues from advertising and promotion.

U.S. output (Sales)	U.S. value added (GDP)	U.S. employment	U.S. labor income	U.S. taxes*
\$ million	\$ million	no. of jobs	\$ million	\$ million
\$77,157.9	\$40,631.4 (0.43% of GDP)	516,517	\$23,284.0	\$9,941.9

*U.S. federal, state, local.

contribution generated per dollar of net revenues earned at the farm level (producer-level scenario) and at the retail level (retail-level scenario). These are the implied national contribution multipliers which indicate the values of U.S. output, U.S. GDP, labor income, and taxes resulting from the CRMC advertising and promotion activities per dollar of stakeholder revenues earned in the producer-level scenario or per retail dollar generated by those activities in the retail-level scenario. A U.S. employment multiplier measures the jobs contributed to the U.S. economy by the advertising and promotion per million dollars in net producer revenue or per million dollars at the retail level.

In the producer-level scenario, the U.S. output (sales) multiplier is 2.42 meaning that every dollar of net revenue returned to stakeholders from their investment in advertising and promotion generates \$2.42 in output (sales) across the U.S. economy (Table 4). The U.S. GDP multiplier is 1.37, and the U.S. labor income multiplier is 0.78. The U.S. employment multiplier indicates that for every million dollars of net revenue returned to producers by advertising and promotion, 14.1 jobs are created. The U.S. tax multiplier indicates that the additional taxes generated across the U.S. economy amounted to nearly 26% of the value of the net revenue returned to stakeholder from advertising and promotion in 2015. Thus, for every \$100 million increase in net producer revenues from advertising and promotion, U.S. output or spending increases by \$242 million whereas GDP increases by \$137 million, labor income by \$78 million, employment by 1,410 jobs, and U.S. federal, state, and local taxes by \$25.8 million.

For the retail-level scenario, the implied national economic multipliers measure the dollars of contribution to the national economy per retail dollar of revenues estimated to be generated by advertising and promotion. The retail-level multipliers imply that every dollar increase in retail revenues in 2015 as a result of advertising and promotion generated \$2.91 in gross output, \$1.53 in GDP (value added), and \$0.88 in labor income (Table 5). Every million dollars of increased retail revenues generated 19.5 jobs in the U.S. economy. Also, the U.S. tax multiplier indicates that the additional taxes generated across the U.S. economy amounted to 37.5% of the value of the retail revenues generated by advertising and promotion in 2015 (Table 5).

Table 4. Producer scenario: Implied national economic contribution multipliers, 2015.

U.S. output (sales) multiplier	U.S. value-added (GDP) multiplier	U.S. employment multiplier	U.S. labor income multiplier	U.S. tax multiplier
(\$ output/\$ net producer revenue)	(\$ GDP/\$ net producer revenue)	(jobs added/\$ million net producer revenue)	(\$ labor income/\$ net producer revenue)	(% of net producer revenue)
2.42	1.37	14.1	0.78	25.8%

*U.S. federal, state, local.

Table 5. Retail scenario: Implied national economic contribution multipliers, 2015.

U.S. output (sales) multiplier	U.S. value-added (GDP) multiplier	U.S. employment multiplier	U.S. labor income multiplier	U.S. tax multiplier
(\$ output/\$ retail revenue)	(\$ GDP/\$ retail revenue)	(jobs added/\$ million retail revenue)	(\$ labor income/ \$ retail revenue)	(% of retail revenue)
2.91	1.53	19.5	0.88	37.5%

*U.S. federal, state, local.

Thus, for every \$100 million increase in retail revenues from advertising and promotion, U.S. output or spending increases by \$291 million, whereas GDP increases by \$153 million, labor income by \$88 million, employment by 1,949 jobs, and U.S. federal, state, and local taxes by \$37.5 million.

Total national returns to advertising and promotion

According to the evaluations of advertising and promotion programs of the CRMC group members reviewed earlier, the returns to stakeholders from their investments in those programs range from about \$2–\$15 per dollar spent on promotion. The producer-level and retail-level scenario analyses, however, demonstrate that the additional stakeholder net revenue generated by APG activities is only the initial splash in the water which sends waves of multiplier effects through the economy. The *national* returns to the advertising and promotion activities of the CRMC group member advertising and promotion activities can be calculated as the additions to U.S. output, GDP labor income, and tax revenue per dollar of the aggregate expenditures on promotion and advertising by the group members.

Given the retail-level national contributions of advertising and promotion from Table 3 and total expenditures by CRMC member on advertising and promotion of \$624.6 in 2015, the *national* returns per dollar of advertising and promotion that year amounted to \$123.53 of additional national output (sales), \$65.05 in GDP, \$37.28 in labor income, and \$15.92 in tax revenue. Per million dollars of advertising and promotion, the national employment return in 2015 was 826.97 jobs.

Conclusion

Extensive research provides broad evidence that generic commodity advertising by agricultural promotion groups in the United States effectively enhances the net revenues of their respective stakeholders and generates high rates of returns to the dollars invested in those programs. This study provides evidence that the success of U.S. generic agricultural commodity advertising and promotion programs in supporting and growing their respective sectors of agriculture spills over to the general economy creating substantial

multiplier effects throughout the economy like the ripples on water following the initial splash of a rock.

Using 2015 as the year of analysis, specific findings include the following:

- Assuming that the initial or “direct” impact occurs at the production level (*the producer scenario*), the contributions of the generic agricultural commodity advertising and promotion programs to the broader U.S. economy in 2015 were found to include (1) \$10.3 billion in additional U.S. output or spending; (2) \$5.8 billion in additional U.S. GDP (value-added); (3) 60,404 additional U.S. jobs; (4) \$3.3 billion in additional labor income; and (5) \$1.1 billion in additional U.S. federal, state, and local taxes paid. Agriculture, services, and manufacturing account for 85% of the contribution of promotion and advertising to U.S. output, 86% of the contribution to U.S. GDP, U.S. employment, and U.S. labor income, and 61% of the contribution to U.S. taxes.
- Assuming that the initial or “direct” impact occurs at the retail level (*the retail-level scenario*), the contributions of the U.S. generic commodity and advertising programs to the broader U.S. economy in 2015 were found to include (1) \$77.2 billion in additional U.S. output or spending; (2) \$ 40.6 billion in additional U.S. GDP (value-added); (3) 516,517 additional U.S. jobs; (4) \$ 23.3 billion in additional labor income; and (5) \$ 9.9 billion in additional U.S. federal, state, and local taxes paid.

One caveat with regard to these results is that IMPLAN does not allow for substitution among commodities (either domestic or imported) as a result of advertising and promotion which may lead to some tendency toward over estimation. At the same time, however, complementary or halo effects are not considered either which limits the potential towards overestimation of the effects.

Notes

1. Stakeholders include producers and any other groups along the supply chain (processors, importers, or others) of some agricultural commodity who voluntarily or by legal mandate pay the assessment (or “checkoff”) fee that financially supports the generic advertising and promotion programs operated by the respective APG.
2. Marketing orders cover milk and dairy products as well as fruits, vegetables, and specialty crops, including almonds, apricots, avocados, sweet cherries, tart cherries, Texas citrus, Florida citrus, cranberries, dates, grapes, hazelnuts, kiwifruit, olives, Idaho-Eastern Oregon onions, South Texas onions, Vidalia onions, Walla Walla onions, Oregon-Washington pears, pecans, pistachios, California plums/prunes, Idaho-Eastern Oregon potatoes, Washington potatoes, Oregon-California potatoes, Colorado potatoes, Virginia-North Carolina potatoes, raisins, spearmint oil, tomatoes, and walnuts.
3. The four groups include two federal marketing orders (the Almond Board of California and the Cranberry Marketing Committee), one voluntary promotion group (Cherry Marketing Institute), and one import group (Avocados from Mexico) that receives funds for promotion from the associated federally authorized APG (Hass Avocado Board).

4. Includes expenditures for both domestic and foreign market promotion as well as consumer information and industry information expenditures but excludes (to the extent possible) production research, producer/industry communications, miscellaneous program expenses like compliance, program development, and evaluation, state passback expenses, and administrative costs. Note also that these expenditures do not include expenditures of checkoff funds by state commodity boards which are largely for research.

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