



## Alternative Institutional Designs for Funding Generic Commodity Advertising: An Experimental Analysis

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Originally, participation in commodity checkoff programs was strictly voluntary as revenue came from willing participants' donations. While initial participation rates in voluntary programs were typically high, gradually increasing levels of free riding raised questions about the long-term financial viability of this funding and concerns about the growing level of non-participation. Due to the inherent free rider problems of voluntary checkoffs, the vast majority of programs today are mandatory.

The majority of economic studies evaluating commodity checkoff programs reveal substantial benefits to the industry. Many of these programs have rates of return in excess of four-to-one, i.e., on average \$1 invested in advertising increases producer surplus by \$4. In spite of the benefits, some producers and stakeholders have challenged the constitutionality of mandatory checkoff programs. The basis for most of these challenges is that mandatory programs violate individual producer's free speech rights under the First Amendment. While a vast majority of producers may favor a mandatory program, some producers have argued that they are being forced to participate, which is an infringement on their rights to free speech. For example, producers of organic, hormone-free milk may object to use of their assessments to fund generic advertising for milk, because it does not differentiate between the products. Initially, the U.S. Supreme

Court held in favor of these programs. In the 1997 Glickman v. Wileman decision, the Court ruled that the mandatory checkoff program for California peaches, plums, and nectarines was not in violation of the First Amendment. However, in 2001, the Supreme Court ruled the mandatory national mushroom checkoff program was in violation of the First Amendment. In February 2004, the 3<sup>rd</sup> District Court ruled that the national dairy checkoff program was unconstitutional on First Amendment grounds. Due to the uncertainty regarding the constitutional validity of these programs, numerous legal challenges face the existing mandatory programs. If such programs are ruled unconstitutional, then what, if any, type of programs should replace the current mandatory ones?

One alternative that has not been considered is a provision point mechanism (PPM), which can effectively fund public goods. Under this mechanism, checkoff programs would return to being voluntary, but the programs would now only be implemented if a certain percentage of producers contributed; otherwise all participants would receive a refund of their assessments and no advertising program would be implemented. PPMs have been shown to significantly lessen free-riding in the economic laboratory and in the field. Consequently, PPM checkoff

programs may be advantageous because: (1) they are voluntary and not be subject to the current legal challenges, and (2) they would reduce the degree of free riding experienced by previous voluntary programs.

Specifically, there are two objectives of this research. The first objective is to test whether the history of participation rates of an actual voluntary checkoff program can be replicated in the economic laboratory setting. An experiment based on the national checkoff program for eggs is used as a case study to determine whether parallelism holds in our experimental setting. The second objective is to estimate the magnitude of reduction in free-riding after a PPM is implemented.

### Experimental Design

The experiment was designed to simulate salient features of the sales and advertising support for commodities. To parallel reality, each experimental session involved four parts that differed with respect to the funding mechanism for the advertising program. The first part of the experiment did not involve an advertising program. The second part had an advertising program funded through a Voluntary Contributions Mechanism (VCM) with a refund-by-request feature. Some past checkoff programs, such as the national egg program, have used this refund-by-request feature where assessments are collected at the point of sale, but producers have the option of later requesting a refund of the assessment. The third

part had subjects determine, via a majority vote, whether they preferred to have no advertising program or an advertising program with mandatory funding. The fourth part had the advertising program funded with a refund-by-request version of the PPM. Each experimental session involved 20 subjects as producers/sellers. The administrator was the buyer.

To familiarize subjects with the experimental procedures, the first part of the experiment consisted of five rounds and did not include the advertising checkoff program. For each round, a stochastic demand was determined by a subject randomly drawing, with replacement, from a bag containing labeled bingo balls. In the range of the possible demand, the net price elasticity was 0.25. For simplicity and as a reasonable reflection of the highly inelastic demand for eggs, demand in the experiment was perfectly inelastic.

The second part of the experiment was conducted similarly to the first part, except that sellers were assessed for each unit sold and the assessments collected were used to fund an advertising program that increased demand in the subsequent round. Subjects were informed that in “previous experiments” the advertising program not only increases demand, but that higher demand also resulted in higher prices and higher profits for sellers. The increase in demand from advertising was calibrated to yield a 4 to 1 rate of return, based on past evaluation studies. Like the voluntary checkoff program for generic advertising, subjects in the experiment could request a confidential refund of part or all of their assessment. Like the American Egg Board that funded its advertising program using a refund-by-request VCM for eleven years from 1977-1987,

the second part of the experiment consisted of 11 rounds.

After 11 years, egg producers held a referendum in 1988 on whether to create a mandatory program or have no program. Likewise, subjects in the experiment were asked to vote on whether they wanted a mandatory checkoff program, or no assessments and no advertising program. If the subjects elected the mandatory program, sellers were again assessed for every unit sold and all of these assessments provided the funding for the advertising program as subjects could not request a refund. If the subjects elected not to have the advertising program, the experiment operated identically to the first part. After collecting and tabulating the confidential votes, the administrators announced the election results.

To simulate the potential transition from a mandatory funding mechanism to a PPM funding mechanism, the final part of the experiment involved eleven rounds. Again, subjects were assessed for each unit sold and could submit confidential requests for refunds. However, in this part, the advertising program was only implemented if at least 70% of the subjects did *not* request refunds. In each round, the number of subjects *not* requesting a refund was announced to the subjects. If the provision point was met, the amount collected funded the advertising program, which increased demand, price and profit just like before. However, if the provision point was not met, everyone was given a refund of their assessment, whether or not they had initially requested one, the advertising program did not go into affect. In subsequent rounds, subjects were faced with another opportunity to reach the provision point level.

## Results

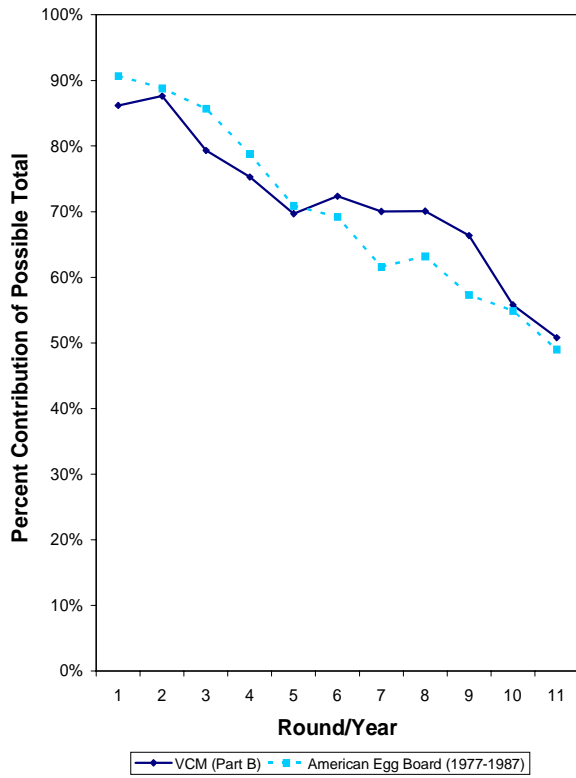
The results of four experimental sessions ( $n=80$ ) conducted in 2003 are reported here. The experiments were conducted at the Laboratory or Experimental Economic and Decision Research at Cornell University. The subjects were recruited from undergraduate economics courses.

A striking result is that the percentage of contributions to the advertising campaign in the lab closely parallels the percentage of contributions to the advertising program of the American Egg Board from 1977 to 1987 (Figure 1). In the first round, subjects gave 86% of the total possible to fund the advertising program, compared to 91% in the first year the American Egg Board used the refund-by-request VCM to fund its advertising program. In the lab, the percentage of contributions gradually declined to only 51% of total possible assessments by Round 11. Again, this decline is almost identical to the American Egg Board results, where 49% of the possible contributions were given by egg producers in 1987. While, the introduction of the advertising program significantly raised producer profits, the aggregate profits declined in subsequent round because of free-riding on contributions for the advertising campaign (Figure 2).

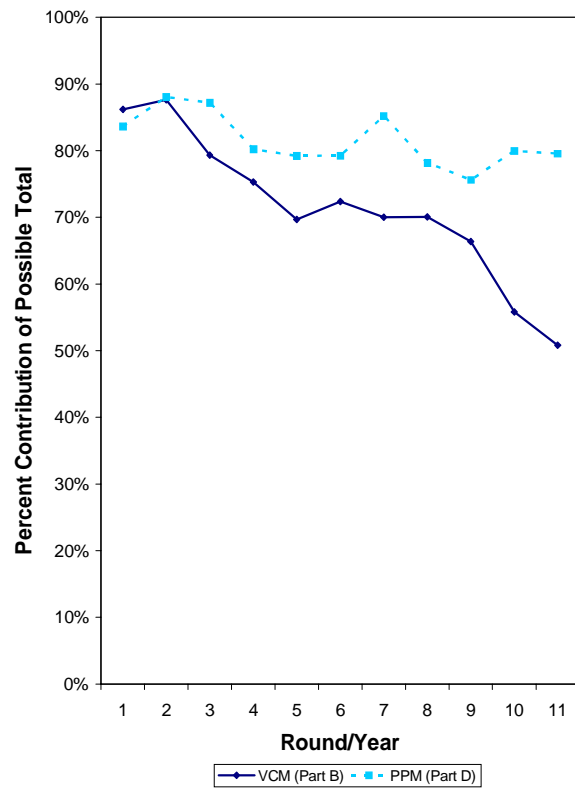
When given the opportunity, subjects overwhelmingly voted (92%) to implement the advertising program with mandatory funding, which again is comparable to the 84% of egg producers who voted for a mandatory program in 1988. As expected, producer profits with the mandatory program part of the experiment were the highest of all four parts of the experiment (Figure 2).

The parallels between the contribution levels over time in the

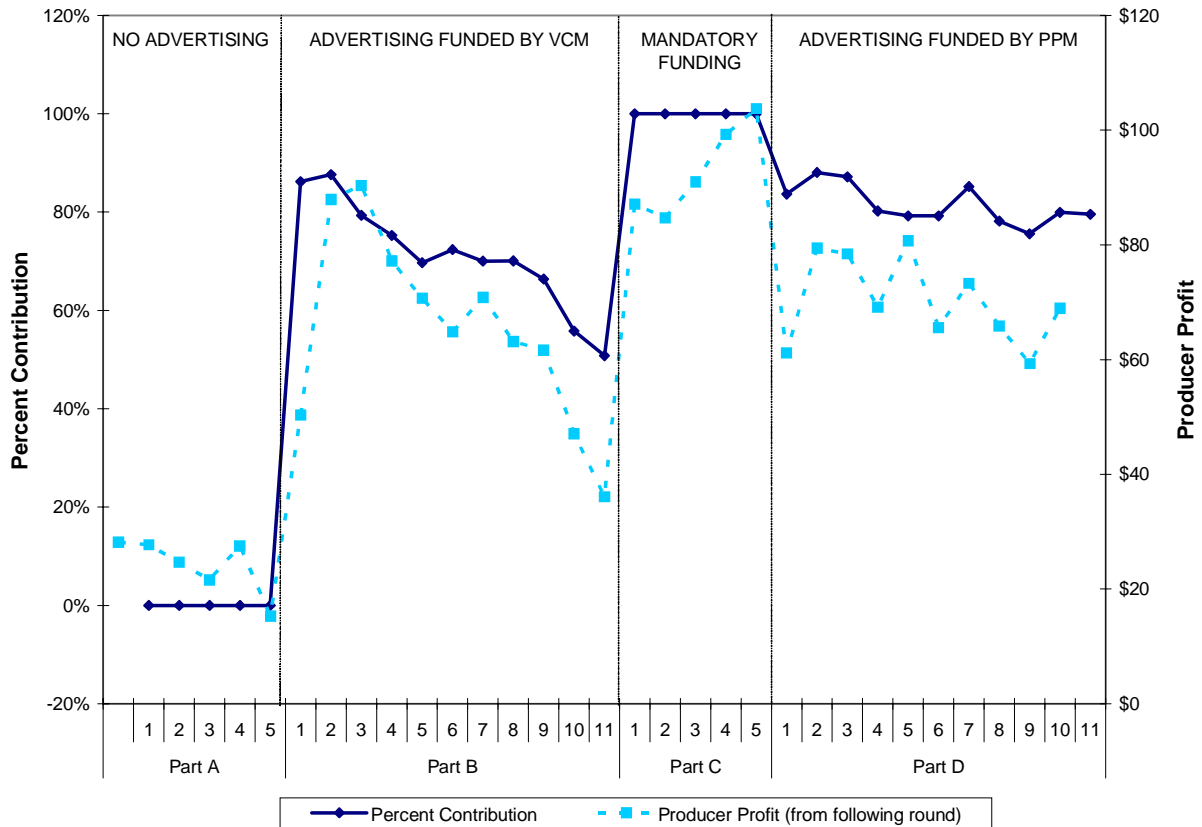
**Figure 1. Percentage of Total Possible Contributions: VCM-Refund and Field Results**



**Figure 3. Percentage of Total Possible Contributions: VCM-Refund and PPM-Refund**



**Figure 2. Experimental Results: Percent Contributions to the Advertising Campaign and Producer Profits.**



voluntary program and the voting percentage for the mandatory program suggest that the lab can mimic actual field results remarkably well. Given this parallelism, alternative funding mechanisms can be explored in the lab with the results being likely predictive of the response in the field.

In the first rounds of the PPM, the percentages of contributions collected for the advertising are virtually identical to the high levels seen in the early rounds of the VCM. In the first round of the PPM, 84% of the possible contributions were given, which is statistically indistinguishable from the 89% of the possible contributions in the VCM. Importantly, however, in subsequent rounds with the PPM, there was no significant deterioration in the level of contributions (Figure 3). By the eleventh round of the PPM, 80% of the possible contributions were given, which is a statistically insignificant change. In contrast, in the VCM, only 52% of the possible contributions

were given in the eleventh round. Not surprisingly, this 37% decrease in contributions with the VCM between the first and eleventh rounds is statistically significant.

In the experiment, the provision point of 70% of producers *not* requesting a refund was achieved 91% of the time, a high success rate compared with previous PPM experiments. This high success rate is due to the process of collecting assessments first and then having sellers request refunds afterwards, which establishes a norm leading to higher levels of contributions (see the companion NICPRE Research Bulletin for details on this result and the influence of "status quo bias"). The PPM offers slightly lowered producer profits than the mandatory program, though the decrease is not statistically significant. More importantly, producer profits with the PPM were significantly higher than

with the VCM and did not experience the sharp decline (Figure 2).

The results of this experiment have two policy implications. First, it appears that a PPM can yield far higher levels of contributions to advertising which has two advantages: (a) it is voluntary, which potentially avoids the legal challenges currently facing mandatory programs, and (b) it yields a higher level of contributions that do not deteriorate over time like observed with the VCM. Second, commodity organizations that opt for a PPM should use a refund-by-request feature since it leads to higher levels of participation. Fortunately, many checkoff programs, such as the American Egg Board, already have experience with the administration of the refund-by-request feature. In addition to leading to higher levels of advertising funding, our results show that the PPM with a refund-by-request feature leads to higher levels of demand, price, and profits for producers than do traditional VCMs.

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