Are Assessments for Generic Advertising Optimal if Products are Differentiated?

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Abstract

An analytical framework where consumers display preferences for various qualities of an agricultural commodity is used to investigate the producer welfare effects of generic advertising assessments. Depending upon the degree of product differentiation present in the final goods, some producers are shown to benefit more than others from the use of an equivalent assessment on all producers. This paper delineates those cases where producer assessments should be equal and where assessments should be different to insure an equitable benefit.

Keywords: Generic Advertising, Product Differentiation, Welfare Distribution.
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Introduction

There is increasing debate on the distribution of benefits in marketing orders for generic advertising. In fact, a recent session at the 2001 ASSA meetings in New Orleans was entirely devoted to this issue. Distribution questions permeate the ongoing litigation surrounding generic advertising (Crespi & Sexton). Surprisingly, while the producers at the front lines of these battles consistently point to growing differences in varieties and qualities in the advertised commodities as affecting the distribution of benefits, the academic discussion has given only slight acknowledgement to these issues. Here is what Mike Gallo, CEO of Joseph Gallo Farms said about generic advertisements that he and other cheese producers are compelled to fund under the California dairy marketing order, “We’re trying to differentiate ourselves from other products with quality... They’re saying all cheese is the same and it’s not” (Hood, p. F3). Likewise, Dan Gerawin who joined other producers to challenge the generic advertising marketing orders for peaches, plums, and nectarines charges, “We’re doing everything we can to differentiate ourselves. Yet we have to pay into a fund that advertises that all peaches and plums are the same. A generic message, we feel, definitely hurts us” (Savage and Groves, A26).

Generic advertising has become an increasingly difficult issue for courts around the country as producers opposed to generic advertising have claimed that the advertising assessments are used in ways that benefit some producers more than others. For example, in both a 1997 U.S. Supreme Court case concerning the generic advertising of peaches and nectarines (Glickman vs. Wileman), and a 2001 U.S. Supreme Court case involving generic advertising for fresh mushrooms (United Foods vs. USDA), producers argued that generic advertising assessments unfairly benefited some producers over others. The mushroom case,
which at this writing is yet to be decided, will prove especially interesting as one of the key arguments was that today’s mushroom varieties are so distinguishable from each other, and satisfy such different consumer tastes and preferences that a truly “generic” advertising program is impossible. If the producers in this case are successful, marketing order programs around the country will find themselves having to justify not only their programs, but also their assessment choices (Crespi and Sexton).

Funding for generic advertising is collected from producers on a per-unit basis; an assessment rate that is the same for all producers governed by a given marketing order. Nearly every generic advertising program presumes a homogeneous commodity and, indeed, in the 1950s when the first marketing orders for generic advertising were promulgated, a good argument could be made that the commodity covered by any particular order was indeed homogeneous. In such a case, the benefits to producers from an advertising-induced increase in demand are arguably proportional throughout the industry and, thus, a single per-unit assessment rate is equitable. However, with the seeming explosion of varieties in the last decade and differences in processing techniques, one must ask whether the homogeneous commodity model is still applicable for all generic advertising orders? Figure 1 shows the change in major varieties of six commodities since the 1950s. In the 1980s and 90s, these six commodities also became embroiled in a great deal of litigation over generic advertising. Obviously varieties are developed as much for reasons of yield as for differences in consumer tastes and preferences, however, considering the above complaints by opponents of generic advertising, figure 1 is telling.

If commodities within a marketing order are distinguishable at the consumer level, then it should be expected that benefits from a generic advertising program might not be distributed to all producers in the same way. As such, it is important to ask whether the assessment rates supporting a marketing order for a particular commodity should be equal for
all producers of that commodity (as the assessments currently exist) or should be, say, proportional to the benefits derived from the program?

This paper presents a simple, theoretical model that takes product differentiation into account in order to compare producer welfare under the current, equivalent producer assessment system with a hypothetically “fair” (or equitable) producer assessment that accounts for consumer preferences.¹ In this model, a fair assessment balances each producer’s marginal profit gain coming from generic advertising with the marginal cost of the assessment. The policy implications from this simple model are important to the generic advertising debate as a proposed fair assessment may help marketing boards avoid costly litigation.

In this model, a case of horizontal differentiation is considered, where different consumers may offer different rankings to the same bundle of goods. Goods in this model may be thought of as different varieties of the same commodity (red, yellow and green apples, for example), where the commodity (apples) exists under a generic-advertising marketing order. We show that the current equivalent assessment corresponds to the fair assessment under one of two conditions: i) either consumers perceive the varieties to be homogeneous or ii) the varieties are differentiated such that consumers’ preferences are symmetric (e.g., the market is fairly evenly split between those consumers preferring one variety and consumers preferring the other). With the exception of these two cases, however, a fair assessment must necessarily differ among firms producing different varieties given consumers’ asymmetric preferences for differentiated products.

While there is a fair amount of literature discussing optimal assessments for marketing order programs (Nerlove and Waugh; Alston, Carman and Chalfant; Holloway), and there has

¹ The authors admit that the use of the word “fair” may be a bit unsettling, and they are open to suggestions for a term that will be more acceptable to economists, and especially, to growers.
been a recent interest in distributional questions (see especially Alston, Chalfant and Piggott; Chung and Kaiser (2000a and b), Kinnucan and Miao, Suzuki and Kaiser, and Zhang and Sexton) there has been nothing written about optimal assessments in the case of heterogeneous varieties covered under the same generic advertising marketing order.

**An Advertising Model of Product Differentiation**

The model chosen for this paper is based on a model developed by Hotelling. In this very simple model, there are $N$ consumers whose location is identified by $x$, uniformly distributed over $[0,1]$. Hotelling’s model treated the distribution as a geographically spatial one (the location of firms along a beach or roadway, for example), and many subsequent papers have kept this geographic dimension. However, the “location” in our model is not geographic. Rather, in this model we interpret the location, $x$, of the consumer as indicating a consumer’s “ideal product variety,” à la von der Fehr and Stevik (p. 116).

Consumers may choose between two firms offering varieties that are, in this sense, “located” in different places. We arbitrarily fix one of the firm’s varieties. Firm 1’s variety is located in $v \in [0,1]$, while firm 2’s variety is located at 1. The parameter $v$ captures the intensity of the product differentiation and the demand size for both firms. Thus, the case of $v=1$ corresponds to a situation with perceived homogeneous products (where consumers perceive no difference between varieties), while the case of $v<1$ corresponds to a situation under horizontal differentiation (whereby if goods are offered at equal prices, the diversity of consumer preferences will cause some buyers to purchase from firm 1 and others to choose firm 2’s variety). For simplicity, both firms incur no cost of production and they compete in prices (Bertrand competition).  

Producer homogeneity in supply response is assumed in order to focus upon demand heterogeneity. Our results can be extended if we consider a competitive case with an inelastic supply function (see Chung and
There is a “travel cost” so to speak of purchasing the variety offered by one firm if that variety is located further away along the continuum from a consumer’s preferred variety. The further away that a firm’s variety is from a consumer’s ideal variety, the lower is the consumer’s willingness to pay for the offered product. We assume that this travel cost increases at an increasing rate (see Tirole, p. 280). Specifically, a consumer purchasing a variety from firm \( i \) incurs a cost of \( d_i^2 \) where \( d_i \) is the distance traveled. Thus a consumer of type \( x \) chooses one unit of either variety 1 or variety 2 in order to maximize her indirect utility given by \( U_i = u - p_i - d_i^2 \), where \( u \) is the same for each variety and \( p_i \) denotes the price selected by seller \( i \).

Further, following much of the literature on generic advertising, we assume that advertising acts as a demand shifter but does not change the slope of the demand curve. In this static game, the producers may not alter the intrinsic quality (e.g., the sugar content, color, texture) of their varieties, but they can augment the number of consumers ready to consume the product. Advertising acts to bring in new consumers. Let \( N \) be defined as the number of consumers in the market for both varieties. Generic advertising increases the size of the market such that, ceteris paribus, \( N = n_0 \) without advertising and \( N = n_0 + n_1 \) with generic advertising. The additional \( n_1 \) consumers may be obtained for some fixed cost \( A \), necessary to finance media advertising and other promotions. Since we are interested in a marketing board’s assessment strategy for achieving a certain level of demand, we just look at the marginal amount of advertising necessary to augment demand by \( n_1 \) additional consumers. In other words, we are unconcerned about an advertising level of \( A + B \) in order to bring in, say, some \( n_1+n_2 \) additional consumers, as this would result in a new assessment rate, but would not change the analysis. Further, because generic advertising is promulgated

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3 Obviously, the case of a more complex technology for the advertising could be considered, where the number of new buyers \( N \) may entail a fixed cost \( fN^2/2 \), with \( f>0 \). This case is being examined as an extension.
in cases where producers feel the market lacks significant branded advertising, we distinguish the case of branded advertising from that of generic advertising. We do show, however, that our model does allow us to compare both types of advertising (see Crespi and Marette for a model where both generic and branded advertising coexist in the same industry). One nice feature of this model over other models of generic advertising is that the rationale for generic advertising (that the industry will provide a sub-optimal level of advertising if left unregulated) is actually endogenous to our model rather than simply an assumption.

Two further assumptions are made, which are also consistent with the implications of a marketing order for generic advertising. First, we assume the marketing cost for either variety is the same and we simply set this cost equal to zero. While this assumption ignores seller heterogeneity in supply response, marketing boards implicitly make the same assumption when they set their assessments. Second, when we discuss the effectiveness of branded and generic advertising, we assume an identical advertising process that ignores any difference in efficiency and/or quality perception between branded and generic advertising. While this second assumption may be harder to justify, we do note that some marketing orders for generic advertising also implicitly make this assumption through credit-back provisions that reimburse producers for partaking in their own branded campaigns. In other words, the assumption underlying a credit-back provision is that advertising is advertising, regardless of whether it is branded or generic. Simply, we do not feel that augmenting our model, so that branded advertising is more effective than generic advertising, adds significantly to the implications.

The single round of trading proceeds in two stages. In stage 1, the choice of whether or not to implement advertising, \( A \), to bring in the additional consumers is taken. We consider two cases in stage 1. In the first case, the decision to implement \( A \) is made by either one or both firms (in the case where no generic advertising exists), while under the second
case the board that administers the marketing order decides whether to implement A (in the case where an industry is regulated under a marketing order for generic advertising). Before proceeding to the second stage of the game, we briefly discuss these two cases in order to show why generic advertising is needed in certain industries. In the game’s second stage, producers simultaneously set prices, $p_1$ and $p_2$ (Bertrand Competition). The game is solved by backward induction (i.e., subgame perfect equilibrium).

For the demand specification, a critical variable in the product differentiation case is the location we denote as $\hat{x}$, representing the preference location such that a consumer is indifferent between purchasing either variety. The consumer with a preference located at $x$ who purchases a product from firm 1 has an indirect utility equal to $u - p_1 - (x - v)^2$. Likewise, a consumer purchasing from firm 2 has an indirect utility equal to $u - p_2 - (1 - x)^2$. The indifferent consumer is one whose indirect utilities from purchasing either variety are equal: $u - p_1 - (x - v)^2 = u - p_2 - (1 - x)^2$. Therefore, the location of this indifferent consumer’s preference is determined as $\hat{x} = \frac{1 + v}{2} + \frac{(p_2 - p_1)}{2(1 - v)}$.

Because both prices and varieties differ, demands in the product differentiation case are not necessarily equal as in the homogeneous goods case. Specifically, because consumers’ product variety preferences are distributed along the unit interval, the demand for variety 1 is $Q(p_1, p_2) = N\hat{x}$ and the demand for variety 2 is $Q(p_1, p_2) = N(1 - \hat{x})$. Note that the market is always covered (i.e., all consumers purchase one unit) because we restrict our attention to the case where $u - p_1 - (x - v)^2 > 0$ and $u - p_2 - (1 - x)^2 > 0$. Under this case, the overall purchased quantity is $Q(p_1, p_2) + Q_2(p_1, p_2) = N$.

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4 We abstract from the case of an incompletely covered market, although it should be noted that if $A$ becomes very large, consumption will be reduced because either $u - p_1 - (x - v)^2 < 0$ and/or $u - p_2 - (1 - x)^2 < 0$. However, in this case, such an effect would deter a marketing order from implementing any additional advertising.
Let \( t_1 \) and \( t_2 \) represent the assessments under generic advertising respectively incurred by firm 1 and firm 2. In reality, these assessments are equal for all producers, but we allow the possibility of unequal assessments in order to determine the rates that would be optimal in a differentiated goods industry. The profit for firm 1 is \( \pi_1 = (p_1 - t_1) Q(p_1, p_2) \) and the profit for the firm 2 is \( \pi_2 = (p_2 - t_2) Q(p_1, p_2) \).

The game is solved by backward induction whereby stage 2 is solved first to obtain the firms’ prices in equilibrium. Using the first-order conditions for profit maximization, the Nash equilibrium is given by prices \( p_1^* = [(1 - \nu)(3 + \nu) + t_2 + 2t_1]/3 \) and \( p_2^* = [(1 - \nu)(3 - \nu) + 2t_2 + t_1]/3 \). These prices result in equilibrium quantities of \( Q_1^*(N, t_1, t_2) = N[(1 - \nu)(3 + \nu) + t_2 - t_1]/[6(1 - \nu)] \) and \( Q_2^*(N, t_1, t_2) = [(1 - \nu)(3 - \nu) - t_2 + t_1]/[6(1 - \nu)] \). Likewise, firm profits in equilibrium are equal to \( \pi_1^*(N, t_1, t_2) = \frac{N[(1 - \nu)(3 + \nu) + t_2 - t_1]^2}{18(1 - \nu)} \) and \( \pi_2^*(N, t_1, t_2) = \frac{N[(1 - \nu)(3 - \nu) - t_2 + t_1]^2}{18(1 - \nu)} \).

Before proceeding to the setting of the assessment rates in stage 1, several points may be highlighted in the absence of generic advertising, namely with \( t_1 = t_2 = 0 \). When \( \nu = 0 \), varieties are located at the two extremes of consumers’ preferences (for example, if the good were apples, given the prices set by the firms, the market is divided such that half of the consumers prefer red apples and half prefer green apples). Profits in this case, \( \pi_1^*(N, 0, 0) \) and \( \pi_2^*(N, 0, 0) \), are equal and positive, because producers have market power over a symmetric and differentiated demand due to their extreme locations. On the other hand, when \( 0 < \nu < 1 \), the profit \( \pi_1^*(N, 0, 0) \) is greater than \( \pi_2^*(N, 0, 0) \), because firm 1 is able
to capture more of the demand due to its more centralized position (e.g., if firm 1 produced red apples then if consumers have a stronger preference for red apples, firm 1 benefits from this stronger preference). When $v=0$, both profits $\pi_1^*(N,0,0)$ and $\pi_2^*(N,0,0)$ are equal to zero since products are homogeneous (e.g., either because only red apples are offered or because consumers perceive no difference between red and green apples).

Stage 1 is now detailed by distinguishing branded advertising from generic advertising.

**The Branded Advertising Case**

We begin with a discussion of branded advertising in order to show that our model encompasses the rationale behind generic advertising, namely, that firms may find themselves in a position where a sub-optimal level of advertising exists in an industry. When there is no advertising, only $N=n_0$ buyers make purchases. In order to increase demand, either firm 1 or firm 2 has to pay $A$ for the advertising that will bring in the $n_1$ new consumers. Using the profits computed in the previous section with assessments $t_1 = t_2 = 0$, we obtain the following results. 

- **(i)** If $\pi_2^*(n_1 + n_0,0,0) - A > \pi_2^*(n_0,0,0)$, then both firms have an incentive to pay for the advertising. At the subgame equilibrium, either firm 1 or firm 2 pays for the branded advertising. If firm 1 incurs the cost $A$, firm 2 will not spend on advertising as such spending brings in no more buyers (again, this is due to one of our assumptions). Thus, if firm 1 incurs the cost, profits are $\pi_1^*(n_1 + n_0,0,0) - A$ for firm 1 and $\pi_2^*(n_1 + n_0,0,0)$ for firm 2 (with the costs reversed if firm 2 incurs the cost of advertising).

  We restrict the rest of this discussion to the cases where firm 1 incurs the cost, though clearly the analysis is symmetric. 

- **(ii)** If $\pi_2^*(n_1 + n_0,0,0) - A < \pi_2^*(n_0,0,0)$ and
\[ \pi_1^*(n_1 + n_0, 0, 0) - A > \pi_1^*(n_0, 0, 0) \] only firm 1 has an interest in paying for the advertising. Thus, in equilibrium for cases (i) and (ii), the profits are \[ \pi_1^*(n_1 + n_0, 0, 0) - A \] for firm 1 and \[ \pi_2^*(n_0 + n_1, 0, 0) \] for firm 2. Firm 2 benefits from the advertising without incurring the cost; thus, while all firms benefit from the advertising, the cost is only incurred by one firm, hence the incentive for generic advertising in this industry. (iii) Finally, for \[ \pi_1^*(n_1 + n_0, 0, 0) - A < \pi_1^*(n_0, 0, 0) \] no firm is incited to advertise and profits are \[ \pi_1^*(n_0, 0, 0) \] for firm 1 and \[ \pi_2^*(n_0, 0, 0) \] for firm 2. Thus, we have established that our model can encompass the rationale for generic advertising.

The Generic Advertising Case

If a sub-optimal level of industry advertising exists, an industry may wish to be regulated under a marketing order for generic advertising. The marketing board responsible for choosing the advertising level and assessment rates decides whether or not to advertise at a cost of \( A \) in order to attract \( n_1 \) additional consumers. If the marketing board incurs the amount \( A \), mandatory assessments on all firms in the industry are imposed to cover this cost. The amount of generic advertising and the assessment rates are chosen under the condition that \( A \) is not only affordable but also that industry profits are at least as high as they would be in the absence of generic advertising. Although in reality, the per-unit assessments for generic advertising in a particular marketing order do not vary by variety (i.e., assessment \( t_1 = t_2 = t \)), we consider this case as well as the hypothetical case where the marketing board may choose different assessments. Thus in the hypothetical case, the board sets a positive assessment of \( t_1 \) on firm 1 and \( t_2 \) on firm 2 to finance generic advertising with the objective of increasing industry profits.
Equivalent Assessment Rates

First consider the case under equivalent assessment rates, $t_1 = t_2 = t$, determined in order to maximize the sellers’ joint profit and to cover the fixed cost. The board chooses $t$ for maximizing the joint profit $\pi_1^*(n_1 + n_0, t, t) + \pi_2^*(n_1 + n_0, t, t)$ provided that the cost is covered, namely, $t[Q_1^*(n_1 + n_0, t, t) + Q_2^*(n_1 + n_0, t, t)] \geq A$, and that the generic advertising increases joint profit, namely, $\pi_1^*(n_1 + n_0, t, t) + \pi_2^*(n_1 + n_0, t, t) > \pi_1^*(n_0, 0, 0) + \pi_2^*(n_0, 0, 0)$.

The solution of this stage is very simple. As the market is completely covered, then $Q_1^*(n_1 + n_0, t, t) + Q_2^*(n_1 + n_0, t, t) = n_1 + n_0$, which leads via the joint-profit maximization condition to an assessment rate of $t = A/(n + n_0)$. In other words, if the board chooses an equivalent assessment rate, it will maximize industry profits by choosing that per-unit rate that just covers advertising costs. The first column of table 1 presents the assessment rate and incremental profit for each firm in this case. Notice that the sellers’ profits differ for $0 < \nu < 1$ but are equivalent in both the homogeneous goods case ($\nu = 1$) and the symmetric preferences case ($\nu = 0$). Specifically, for $0 < \nu < 1$, if both firms pay the same assessment rate, firm 1’s benefits from the increase in demand are greater than firm 2’s benefits.

Different Assessment Rates

With the exception, then, of the homogeneous goods case and the symmetric preferences case, there is no reason that the assessment rates need be equivalent. But, if goods are not homogeneous what is the objective of the marketing board? Noting that a marketing order for generic advertising cartelizes the advertising decisions of an industry, perhaps a board’s goal should be to simply maximize industry joint profits. However, it is worth noting that Schmalensee has shown that the maximization of industry joint profit is inadequate when
firms are heterogeneous. Alston, Chalfant and Piggott and Chung and Kaiser ask this same question if firm sizes differ. One possible answer is that a board should, indeed, maximize joint industry profits and then, using a Kaldor-Hicks criteria, redistribute the gains. Clearly, the practicality of such a requirement is daunting. Thus, in light of the political charge of marketing orders for generic advertising that no firm be advantageously promoted over another (1954 AMAA amendment), we turn to the question of whether there is another type of assessment choice that would increase industry profits such that the marginal benefits are equivalent to all firms?

Here it is assumed that the board may choose a “fair” assessment in order that both firms receive the same marginal benefit from the $n_1$ additional consumers. This fair assessment is determined such that the objective constraint,

\[(i) \quad \pi_2^* (n_1 + n_0, t_1, t_2) - \pi_2^* (n_0, 0, 0) = \pi_1^* (n_1 + n_0, t_1, t_2) - \pi_1^* (n_0, 0, 0)\]

and the budget constraint,

\[(ii) \quad t_1 Q_1^* (n_1 + n_0, t_1, t_2) + t_2 Q_2^* (n_1 + n_0, t_1, t_2) \geq A\]

are both satisfied. Constraint (i) leads to the relationship $t_1 = t_2 + \nu(1-\nu)$. The replacement of this equality in the budget constraint (ii), leads to the assessments and the profits given in the second column of table 1.\(^5\)

\(^5\) Note that under our demand specification, the result is the same if the objective function (i) is replaced by an objective function (i') given by $\pi_2^* (n_1 + n_0, t_1, t_2) = \pi_1^* (n_1 + n_0, t_1, t_2)$ that takes into account equivalent profits. In this sense, all the collusive solutions that depend on the producers’ bargaining power (see Schmalensee) may be extended to our problem. In particular, the two-thirds majority voting rule that puts a
A Comparison of the Two Assessment Mechanisms

With solutions under both types of assessments derived, we now turn to a discussion of the added gains from the increased consumers, $n_1$, and the effects on both firms under the two assessment policies. In table 1, the equivalent assessment policy (in the first column) is the current one where product homogeneity is implied (whether or not it is assumed) and the assessments are set equally for both firms at $A/N$. If, however, varieties are differentiated in consumers’ minds but the marketing board had chosen the same assessment rate for both firms (perhaps because of an assumption of homogeneous varieties, i.e., an erroneous assumption that $v=1$), then the benefits from the increased demand are not equally shared. As table 1 shows, unless consumer preferences are equally split between the two varieties ($v=0$) or the two firms produce the same variety ($v=1$), then if both firms face the same assessment rate, firm 1 benefits more than firm 2 from the increased demand under product differentiation.

On the other hand, the “fair” assessment policy is that where the assessment rates take product differentiation into account. The parameter $v$ indicates the intensity of firm 1’s preference advantage. For $0<v<1/2$, a fair assessment rate $t_2^*$ decreases with $v$, while $t_1^*$ increases with $v$ (because market share increases for firm 1). The converse is true for $1/2<v<1$ (as $v$ increases, competition becomes more intense due to converging consumer preferences). Notice that the optimal assessment rate is not just a function of market share; the intensity of competition is also an important factor.

The fair assessment rates insure that both the marginal demand and marginal profit from the additional consumers are equally shared between the two firms. Note that when firms are symmetric under product differentiation, namely $v=0$, both assessment rates are equivalent with $t_1^* = t_2^* = A/N$. Also notice that, as discussed above for $v=1$, when products marketing order in place may be reinterpreted under a Schmalensee-type approach.
are homogeneous, the gains to both firms from the additional consumers are symmetric and, again, \( t^*_1 = t^*_2 = A/N \).

The reader will also notice that the equivalent assessment actually leads to a higher joint profit. However, unless a Kaldor-Hicks mechanism for redistributing gains exists, the benefit of the fair assessment rate is that tensions among sellers are diminished as incremental profits are equivalent and further disputes stemming from any reallocation of welfare gains are avoided. Given the contentious history of generic advertising battles (Crespi and Sexton), the fair assessment would help avoid costly and bitter trials in an industry because the charge that one firm benefits more than another is no longer valid.

**Extensions**

*Implications for Branded Advertising.*

We may compare profits in the case of generic advertising with those under branded advertising. Again, we limit our consideration here to the case under our (perhaps unrealistically strong) assumption that private and generic advertising are equally beneficial. Under such an assumption, relative to private advertising, producers will benefit from generic advertising (under both fair and equivalent assessments) because the per-unit assessment cost is passed on to consumers. As there is no consumption reduction because the study is restricted to cases with \( u - p_1 - (x - v)^2 > 0 \) and \( u - p_2 - (1-x)^2 > 0 \), generic advertising is always implemented. With the equivalent assessment, firm 1 benefits from generic advertising compared to branded advertising, while firm 2’s profit remains unchanged. With the fair assessment, firm 1 benefits from generic advertising compared to branded advertising if \( A < (6v + v^2)/18 \), while firm 2’s situation is always improved under the fair assessment. Marketing orders that compel generic advertising are based on the idea that the free-rider effect results in a sub-optimal amount of generic advertising for the industry. Thus,
compelling growers to provide for generic advertising will increase profits for the entire industry even in a context of product differentiation and branded advertising. Again, this result is partly driven by our assumption of the effectiveness of generic advertising compared to branded advertising. A more complete analysis should take into account the potentially greater efficiency of branded advertising (see Crespi and Marette).

**Vertical Product Differentiation.**

This simple framework underlined the role of different assessments corresponding to heterogeneous demands. The methodology may also be applied under vertical differentiation. In such a case, a “fair” assessment systematically leads to a greater assessment rate for the high-quality firm. The difference between vertical differentiation and, what is called, horizontal differentiation in the model just outlined, is that all consumers have the same preference ranking in cases of vertical product differentiation. Under vertical differentiation, if both goods were offered at the same price, all consumers would purchase one of the goods (i.e., the higher quality good). When $v>1$, the model may be used to examine the case of vertical differentiation. Under this case, for equal prices, $p_1$ and $p_2$, all buyers will choose firm 2’s variety, which we construct to represent the preferred variety. For different prices, there is a tradeoff between consumer’s preferences for higher quality and the cost savings that come from purchasing a less desirable good. Demands are found as above using the indifferent consumer with a preference location $\hat{x}$. In the vertical product differentiation model, the demand for firm 1’s good is then $N(1-\hat{x})$ and the demand facing firm 2 is $N\hat{x}$ with $v > 1$.

Under equivalent assessments, the benefits of the increased demand are never equal for the two qualities, with the high-quality variety always receiving higher benefits in relation to the assessment paid. (Note there is no such necessary disproportional benefit under
horizontal differentiation.) A fair assessment rate developed under this vertical
differentiation case reveals that the firm with the higher quality product should be paying a
higher assessment rate than the firm producing a lower quality product. The fair assessment
rate increases (respectively decreases) for the high-quality sellers (respectively low-quality
sellers) with \( v \) as soon as \( v > 1 \). In the case of vertical differentiation, the fair assessments are
always different (while under horizontal differentiation, recall the fair assessments are equal
for \( v = 0 \) or \( v = 1 \)). The implications of this finding may be startling to some growers who are
trying to differentiate their product from lower-quality products. Our model shows that
growers of high-quality products must necessarily pay more in assessments since they receive
more of the benefits from an increase in generic advertising.

**Choosing the Actual Assessment**

We are currently extending this model to an econometric application of the marketing order
for California Table Grapes in order to determine the “fair” assessment rates based upon
consumer preferences for different varieties of grapes. In this extension, we will use data
gathered in part by Alston *et al.* in a 1997 study of the generic advertising expenditures of the
California Table Grape Commission (CTGC). California table grapes sold for the fresh
market make for an interesting analysis for the following reasons. First, table grapes are
horizontally differentiated, that is, consumers have preferences for different varieties that are
not based solely upon relative prices. Secondly, the CTGC has been involved in an ongoing
battle with certain producers over the legalities of the generic advertising programs. Thirdly,
there is virtually no branded advertising for table grapes sold on the fresh market. For these
three reasons, we feel table grapes will provide a nice case study for the model developed in
this paper.
Conclusion

The simple model in this paper is used to answer a question that has heretofore been neglected in research on commodity promotion. Namely, we address the issue of whether assessments for generic advertising should differ if products covered under a particular marketing program are differentiated. The simple framework presented here, based upon assumptions that are consistent with generic advertising programs, shows that the current equivalent assessment mechanism used by marketing boards should be re-examined.

Specifically, we show that only under two conditions should assessment rates be equivalent. The first condition would be if consumers perceive no difference in the varieties offered (i.e., consumers truly believe the goods are homogeneous). The second condition would be if consumers’ preferences were such that the market is, essentially, evenly split among varieties. With the exception of these two conditions, an equivalent assessment results in a producer of one variety benefiting more than a producer of another variety (which is consistent with the complaints raised by some growers in this last decade’s bout of generic advertising litigation). We also show that it is possible for a “fair” assessment mechanism to be developed such that the incremental benefit from generic advertising is equalized among all producers.
References


Figure 1 Change in Composition of Major Varieties for Selected Commodities Involved in Generic Advertising Challenges in the 1990s.

Table 1 – Equilibrium Profits under Alternative Assessment Rates.

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<tr>
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<th>Equivalent Assessment Rates</th>
<th>Fair Assessment Rates</th>
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<tbody>
<tr>
<td><strong>Firm 1</strong></td>
<td></td>
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<tr>
<td>( t_1^* )</td>
<td>( A/ (n_1 + n_0) )</td>
<td>( A/ (n_1 + n_0) + v(1-v)2 )</td>
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<tr>
<td>( \pi_1^* )</td>
<td>( (n_1 + n_0) (1-v)(3+v)^2 /18 )</td>
<td>( (n_1 + n_0)(1-v)/2 )</td>
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<td><strong>Firm 2</strong></td>
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<tr>
<td>( t_2^* )</td>
<td>( A/ (n_1 + n_0) )</td>
<td>( A/ (n_1 + n_0) - v(1-v)2 )</td>
</tr>
<tr>
<td>( \pi_2^* )</td>
<td>( (n_1 + n_0) (1-v)(3-v)^2 /18 )</td>
<td>( (n_1 + n_0)(1-v)/2 )</td>
</tr>
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