

**BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, DC 20268-0001**

Notice of Price Adjustment)
Standard Mail Incentive Pricing Program)
Docket No. R2010-3)

**Comments of Robert W. Mitchell on
Proposed Summer Sale 2010**
(March 22, 2010)

On February 26 (2010), the Postal Service Noticed a Market-Dominant Price Adjustment, specifically a “Standard Mail Volume Incentive Pricing Program (‘Summer Sale 2010’) similar to the Summer Sale previously introduced [] in May 2009” (Notice, p. 1). On March 2, the Commission issued Order No. 416, inviting comments by March 18. Order No. 422 extended the deadline to March 22.

I am interested that the practical underpinnings of such sales be understood and recognized. Summer Sale 2010 provides an excellent vehicle for pursuing this interest; at the same time, aspects of it can be illuminated.

I. Clarifying the Properties of Statistically Derived Demand Relationships

Statistical techniques have been used routinely to quantify market demand relationships for mail categories. Generally, horizontal supply curves at market prices (average prices or price indexes) have been assumed and attention has

centered on the quantities the market purchased voluntarily. Demand curves are part of these relationships. Beyond telling us that such curves should be downward sloping, theory does not predict their shape.

Several properties of the resulting demand relationships should be noted.

(1) They were derived predominantly from prices that were viewed by mailers as *permanent*, at least for a rate cycle. Thus, mailers may well have invested around the prices, incurring fixed costs.

(2) In the data from the observation periods, the market prices have been the prices paid by *all* buyers in the market. Also, they have been (for each buyer) the price paid for *all* of the quantity purchased.

(3) The findings have been that responses to new prices are *lagged*. That is, mailers move over some period of time toward full adjustment.

(4) During the observation periods, changes in volume had two sources: the first is existing mailers changing volume; the second is mailers entering and leaving the market. Applying such relationships to existing mailers who remain in the market, then, would on this account overestimate their response. This effect could be small.

(5) They are a reflection of the decision processes of the mailers who sent volumes during the observation period. Importantly, then, there is quite a lot of substance behind them. Use of such a relationship would be appropriate only if the decision processes being studied are similar to those during the observation period.

(6) Although demand relationships can change over time, there are reasons for believing in a degree of stability. This is because they are based on mailers' *hard analyses* of preferences and structures, neither of which would be expected to change rapidly. Also, they are aggregates of the behavior of a considerable number of mailers.

(7) To account for the effects of all important influences, it is common for demand functions to have a number of independent (right-hand-side) variables, including the price of the product in question, commonly called the own-price.

(8) Demand curves are *ceteris-paribus* plots with own-price on the vertical axis and quantity on the horizontal axis, with price thought of as the independent variable.

(9) Interest in demand relationships or demand curves often centers in the first instance on the own-price elasticity of quantity demanded, which is the percentage change in quantity divided by the percentage change in price, *ceteris paribus*. Elasticity is a dimensionless statistic.

(10) It is generally presumed that each mailer has an elasticity, which would result from each having a need or applying an objective to a situation with a structure. If computers are used to help make mailing decisions, a mailer could change the input price and the computer would provide the volume response.¹ To the extent products bear similarities and the structures faced are of the usual kind, elasticity differences among mailers would not be large.

(11) Market elasticities, usually for full adjustment to a new price, may be thought of as weighted averages of the elasticities of the firms in the market.

Whenever consideration is given to applying a derived demand relationship to a question, attention needs to be given to whether the conditions underlying the question are consistent with the data behind the demand relationship. If they are not consistent, the differences need to be recognized.

II. Demand Relationships and Non-Linear Pricing, One Mailer

For an agency like the Postal Service, it is generally the case that additional volume would be profitable at a lower price, if the lower price could be limited to the additional volume. In order to gain from such a volume increase, discounts can be offered for volume beyond *anyhow* thresholds.

¹ That mailers engage in such analyses was explained by the American Catalog Mailers Association: "Catalogers ... are able to calculate a breakeven for each mailing[,] ... mail as deep into their house files [] as possible until breakeven is reached[, and] ... will typically mail first to all of their best customers in a mailing, then continue to work their way down a stratified customer list until the expected gross margin dollars generated from that customer segment equals the total cost of reaching that segment." Initial Comments, pp. 5-6, February 1, 2010, Docket No. ACR2009. Clearer support for the existence of anyhow volumes and demand relationships at the level of the firm could not be provided.

Suppose a mailer knows that he would send 1,000 pieces at a rate of 44 cents. The agency could offer a discount of 12 cents on pieces beyond the anyhow level of 1,000. He could put a rate of 32 cents into his decision models and mail all year *as though* the rate were 32 cents, making his decision process consistent with the processes behind the market demand relationships. He would pay 44 cents for the first 1,000 pieces, all of which are profitable at 44 cents. He would pay 32 cents for pieces over 1,000, all of which are profitable at 32 cents. He would undoubtedly prefer to pay 32 cents for *all* pieces mailed, which is the rate he used in his models, but that option is not available. In the end, he would not have sent any unprofitable pieces.

The question becomes: What can be said about how a mailer, as in an NSA, would respond to such a price schedule, and how would his response relate to the market demand relationships? Drawing on the properties discussed in Section I, several things can be said:

- (1) To the extent the price reduction is not permanent, he might stop short of making investments around it. On this account, his response might be smaller than that suggested by the market elasticity.
- (2) Since the discount is not available to his competitors, his response could be greater than that suggested by the market elasticity. That is, competition among mailers around the discounted price does not exist, and mailers always do better without competition.
- (3) To any extent his response is lagged, it would build up slowly instead of rapidly. On this account, applying a full-adjustment market elasticity would overestimate his response.
- (4) Because of the absence of mailers entering and leaving the market, his response would tend to be smaller than that suggested by the market elasticity.

But, it is very difficult for even the mailer himself to know his anyhow volume ahead of time. This is because many factors affect volume, and they can change during the year. One further consideration, then, becomes important:

(5) The market demand relationships relate to observation periods where mailers knew the prices that would apply to all of their mail during the entire year. If he does not know whether he will reach the discount threshold, then his response may be more limited than the market elasticity would predict.

The latter point is that the decision processes that underlie the market demand relationships may not be occurring in this situation. Specifically, at the first of the year, or even some way into the year, the mailer may not know for sure what his volume for the year will turn out to be. Under these conditions, he would not know what rate to apply, and thus his decision process may be different from the decision processes that generated the market demand relationship. At the least, he may be making decisions under uncertainty.

Clearly, not being able to predict the anyhow volume causes problems all around. The agency does not know if offering the discount will be profitable and the mailer may not make decisions in the usual way, the way in fact that underlies the market demand relationships.

Using a Back-Casting Approach to Evaluate the Outcome. After the fact, the Commission on some NSAs has used a back-casting approach to estimating their profitability. The approach says essentially: "It is very difficult to know the anyhow volume ahead of time. It is better to guess at a mailer's elasticity than to guess at his anyhow volume." The procedure is to begin with the volume that actually occurred and to apply an elasticity to estimate what the

volume would have been without the discount. It would be best, of course, to know the elasticity of the mailer in question. In default, the elasticity of the market has been used.

Assuming the effects of consideration No. 2 to be negligible, the five considerations above suggest that the back-casting approach provides an overestimate of the mailer's response.

The application of consideration No. 5 is of special interest, particularly given the wide swings recently in non-price variables such as the economy, which have made selecting a threshold more difficult and much riskier than usual.² Specifically, the back-casting approach presumes that the mailer mailed all year as though the lower rate applied to all volume sent. If he was not sure ahead of time that he would reach his threshold, he would not likely do this. To my knowledge, this consideration has not been recognized in the past.

Can We Ask What the Mailer Did with the Rebate? In terms of *ex post* evaluation, one additional observation is relevant. Suppose the anyhow volume at 44 cents is 1,000 pieces, and the actual volume with the 12-cent discount is 1,200 pieces. The mailer receives a rebate check for 200 times 12 cents, which equals \$24. Does it make sense to ask the mailer what he did with the \$24?

Without the discount, the mailer would have spent \$440 (1,000 * 44¢). With the discount he spends \$528 (1,200 * 44¢), but later receives a rebate of \$24. So, after paying net additional postage of \$60 (\$528 - \$440 - \$24), he

² It is common to reason that incentive programs are needed much more when the economy is faltering than when it is moving along steadily. On the other hand, it needs to be recognized that these are precisely the times when setting up such a program is the most difficult, by far. When swings due to the economy are large, outcomes will tend to be explained by the swings instead of by other factors, such as price.

hopes his profits are higher than if he had quit after the original 1,000 pieces. The rebate was spent to reduce the additional postage of \$88 ($200 * 44\text{¢}$) to a profitable level of \$64.³ Other than that, it does not make sense to ask what he did with the rebate. The rebate does not exist as a separate, discretionary amount.

Could the Response Go Beyond Anything Predicted By Statistical Demand Relationships? The demand relationships we have are averages for markets. It is possible for the behavior of a few mailers to be substantially different from the average. Also, the averages might not predict the response of a mailer presented with an uncommon rate schedule, such as an unusually large discount for mail beyond a threshold.

For example, a mailer could see that reaching his threshold is feasible and decide, in view of a large discount, to perform an experiment or move a large block of promotional funds into mail from some other channel.⁴ Were this to occur, the implied elasticity could be an order of magnitude greater than those in our demand relationships. If an NSA or some other program is predicated on

³ In a more complete financial analysis, the mailer would borrow (perhaps from himself) \$88 to finance the additional volume. Later he would use the rebate of \$24 to help repay the \$88. The remaining \$64 would have to be repaid as well, with interest, with additional profit from the additional 200 pieces. The mailer would hope that some net profit remains, which would belong to the shareholders.

⁴ While such a response is possible, it may not be likely. In Docket No. ACR2009, the American Catalog Mailers Association explained: "Customers who have demonstrated the propensity to respond to email when being prospected or reactivated will tend to get emails in subsequent order gathering activity. Those who respond to mail offers will tend to get future mailings through the postal network." It also explains that postage "can be half of" the cost of sending a catalog. Initial Comments, pp. 6-7. If postage were to be a full half, a 30 percent discount would reduce the cost of sending a catalog by 15 percent. It is an open question whether a difference in cost of 15 percent would prompt shifting an email-propensity customer back to the mail.

supra-responses dominating, it would have to be based on knowledge that goes beyond that contained in ordinary demand relationships.

III. Demand Relationships and Non-Linear Pricing, All Mailers

The issue addressed in Section II relates to establishing a threshold and discount for *one mailer*. It is also possible to establish thresholds and a discount for a *group of mailers*. This has now been done (or proposed) several times — Summer Sale 2009, First-Class Sale 2009, and Summer Sale 2010. Summer Sale 2009 may be used as an example.

Candidates for Summer Sale 2009 were mailers of Standard letters and flats, including Nonprofit and ECR. The discount period was July 1 through September 30. The thresholds were (for each mailer separately) equal to the SPLY volumes inflated by growth rates equal to the SPLY growth rates for the period October 2008 through March 2009. The rebates were 30 percent of the postage on the volumes above the thresholds, before any adjustments.

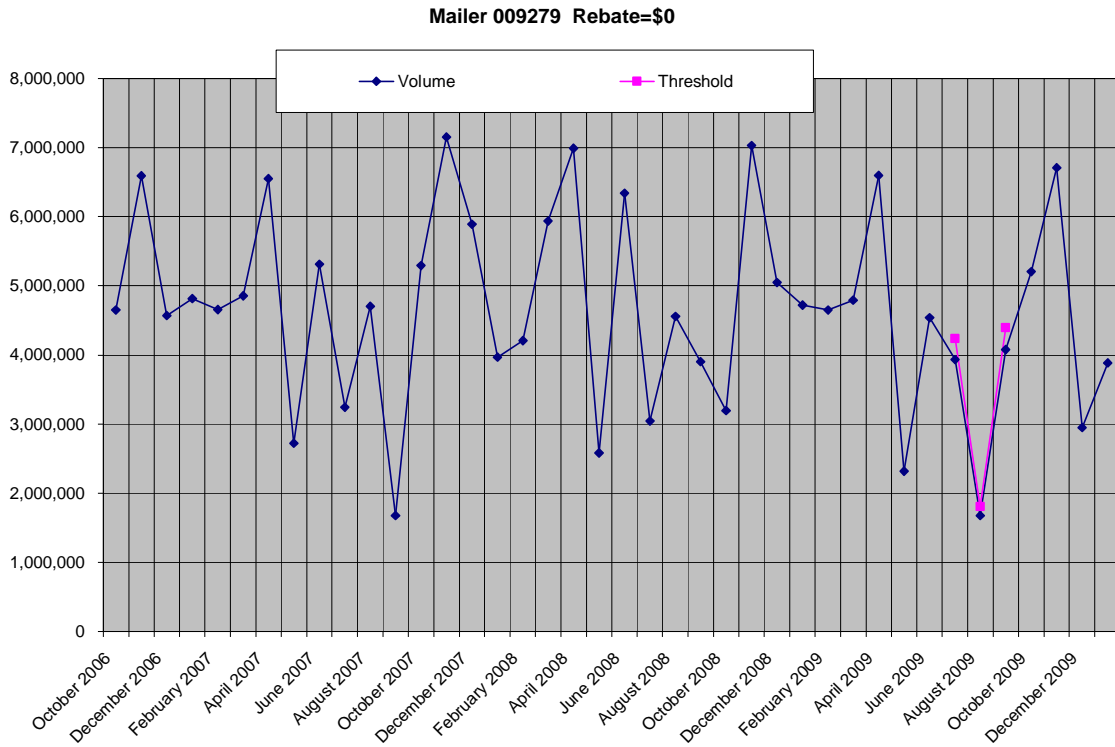
Since this scheme does not allow for negotiations with each mailer, plus since seasonality now becomes important, the difficulties of selecting thresholds here are much greater. The assumption that the anyhow volume for July-September can be estimated by inflating SPLY by an earlier growth rate, given the wide swings occurring in the economy, overlaid onto seasonal patterns, has almost no chance of being a good one.

All 5 difficulties of assessment listed in Section II apply here as well. In short, the responses might be more limited than that suggested by applying the market elasticities.

Also, in terms of *ex post* evaluation, it is difficult to see that the back-casting approach is less applicable here than for discounts for one mailer. In fact, the back-casting approach could be more applicable here, because: (1) the period is short enough that the mailers would be more likely to know their anyhow volumes in advance; (2) more mailers are included, reducing effects due to a lack of competition; and (3) applying an average elasticity to a large group of mailers would tend to self-correct for differing mailer elasticities.

Actual Outcomes for Summer Sale 2009 Are Now Available, and Can Be Examined. The following graph shows volumes and thresholds for mailer 009279, who received a rebate of zero. The thresholds are just above the actual volumes. If it is assumed that this mailer knew in time that a rebate could not be achieved profitably, then it is implied that the actual volumes are anyhow volumes. In order, the actual and threshold volumes for July are 3,931,154 and 4,235,798, a difference of about 305,000 pieces. If a 30 percent discount had been acted on nevertheless, an elasticity of -0.26 would have put this mailer at his threshold. An elasticity much higher than -0.26 would have been needed to put him far enough above the threshold to lend overall profitability to the

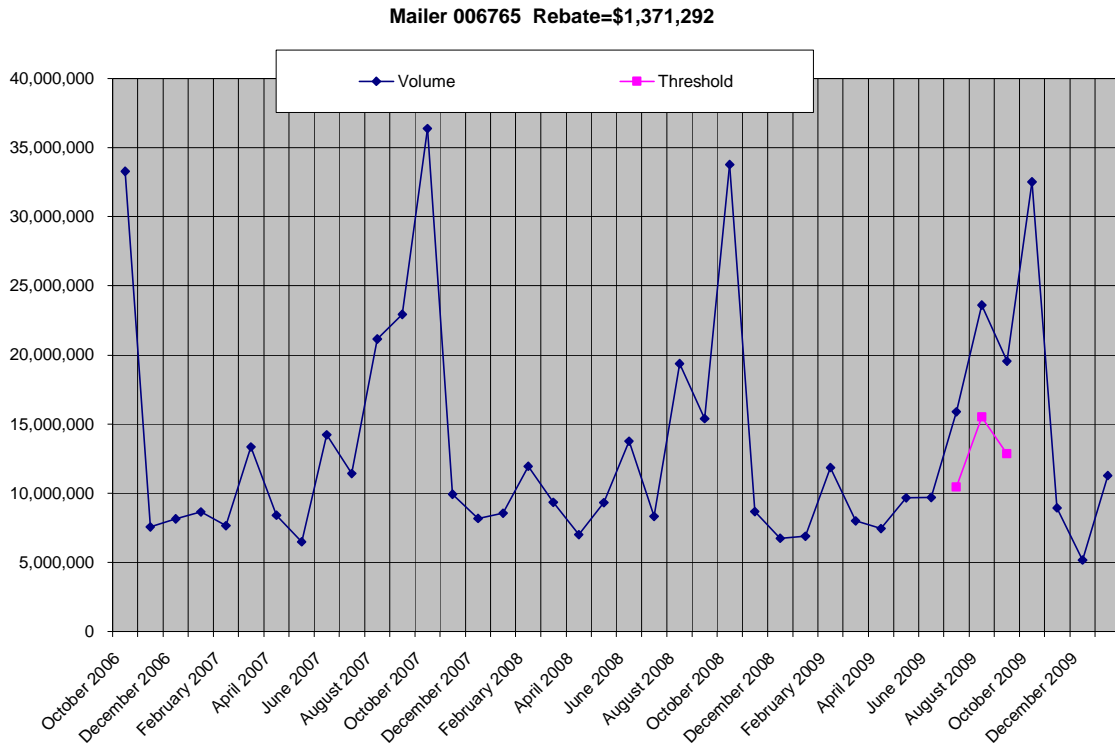
response.⁵ Note also: (1) the swings due to apparent seasonality are very large; and (2) some decline due to the economy may exist in the summer of 2009, but it is not overwhelming.



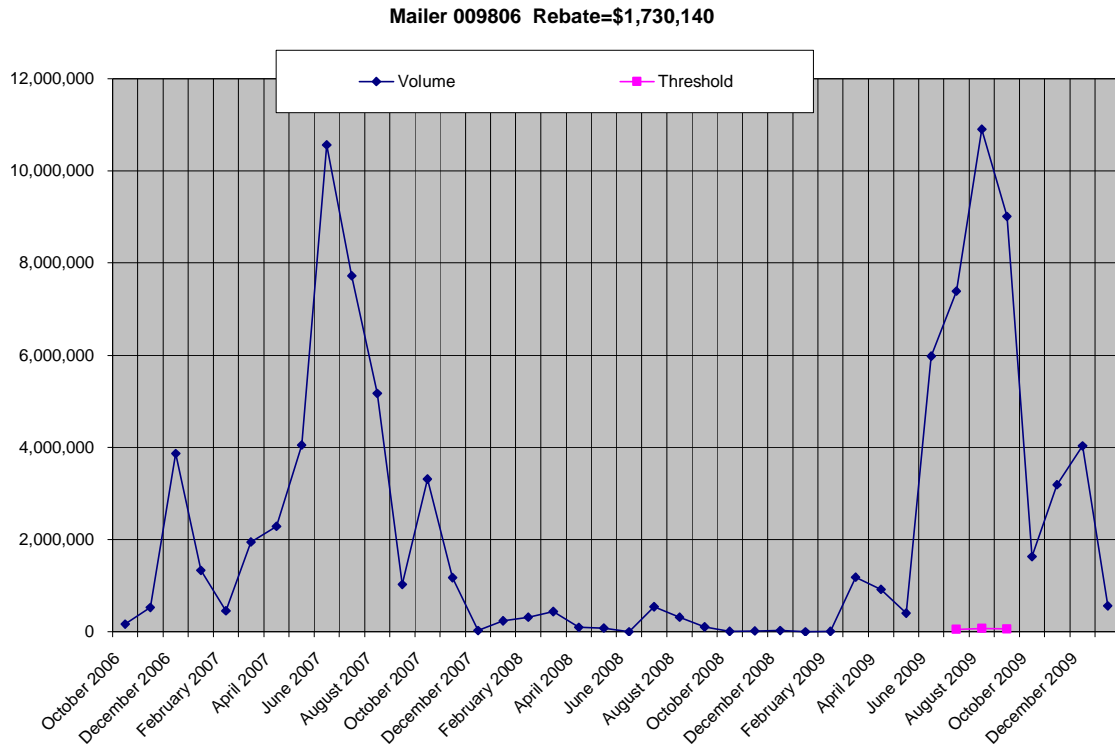
The same information is shown in the next graph for mailer 006765. This mailer received a rebate of \$1,371,292, and no October adjustment. On the questionnaire, this mailer indicated additional volume due to the Sale, but did not say how much. A strong seasonal pattern is apparent. If one accepts the seasonal pattern and rolls it forward with a slight downward trend due to the economy, the actual outcomes during the Sale period appear fully explained. Yet

⁵ An elasticity of -0.52 would put this mailer about 305,000 pieces above the threshold. Thus, he would have to ask about sending 305,000 unprofitable pieces (those paying regular rates and getting him up to the threshold) and then another 305,000 pieces that are profitable (those above the threshold, getting the discount). Since such a response seems unlikely to be profitable on balance, an even larger elasticity would be needed.

the historical growth rates provided a threshold that is notably below the actual outcome. If the threshold volume is accepted as the anyhow volume, the actual outcome suggests an elasticity of 1.74, much higher than one might expect.



Now consider mailer 009806, shown below. This mailer received a rebate of \$1,720,140, and no October adjustment. A response to the questionnaire for this mailer is not provided. A seasonal pattern is reasonably apparent in 2007 and 2009, but not in 2008; something, maybe the economy, caused this mailer’s volumes to be down substantially in 2008. The threshold is so low that it appears to be zero on the graph. If the volume beyond the threshold is due to the 30-percent discount, an elasticity of -484.5 is implied, a truly astonishing level.



These graphs and observations do not constitute a balanced assessment of Summer Sale 2009, although they raise questions. They do show that seasonality can be a dominating influence and that the economy is likely an important factor in explaining outcomes. Also, if the rebate volumes are accepted as due to the discount, they show the possibility of some extremely large implied elasticities, consistent with mailer behavior during the Sale that is substantially different from the averages captured in the market demand relationships, a possibility discussed at the end of Section II.

IV. What Can Be Said about Summer Sale 2010?

For each mailer, the threshold for Sale 2010 is SPLY plus 5 percent. Effects from seasonality, then, are more remote than for Sale 2009. The Postal

Service explains that the 5-percent figure “was selected because [it] forecasts less than one percent volume growth for [the Sale period] in Standard Mail letter and flat volume” (Notice, p. 4). It is not clear that this reason justifies the discrimination involved. An equally logical statement could be made to support any of a wide range of hurdles. A simple preference to limit any benefits from the Sale to firms whose volume is growing at least 4 percentage points faster than the average is not enough. Why should these firms be singled out for unusually favorable treatment?⁶

The trough of the recent recession will probably be June 2009.⁷ This means Sale 2009 took place during the first three months of a recovery. The graphs above appear consistent with this view. Sale 2010, then, will be during months 13 through 15 of a recovery, bringing about an effect that will likely be pronounced. The interpretation of the 1-percent growth rate becomes that the secular trend will be downward but the effects of the economy will bring volume up to a growth rate of about 1 percent.

A normal expectation would be for some firms to grow faster than others, if for no other reason than that some will be more effective in competing. But the behavior of the economy adds another dimension. Specifically, some firms

⁶ In Summer Sale 2009, the threshold for each mailer was based on a prior growth rate *for that same mailer*. The contract with the mailer, then, took on aspects of a classical naïve model: “If your growth next year is the same or above your growth last year, you can have a discount on any volume above last year’s growth rate, including additional volume due to the discount.” The growth rates, of course, could be negative. This year, the growth rates have no content whatever derived from the mailers involved. The growth rate of positive 5 percent is an arbitrary level applied to all mailers. Those above it receive special treatment; those below it are left out in the cold.

⁷ See: <http://blogs.wsj.com/economics/2009/09/11/is-the-recession-over-wait-until-2010-for-nbers-answer/?KEYWORDS=recession+trough+june+2009>.

would be expected to be pro-cyclical, some relatively neutral, and some counter-cyclical. With the vicissitudes of competition, secular trends, and the cyclicity of the economy, combined, some firms will have high growth rates and some not, an average of 1 percent seeming possible.

Against a backdrop of such differential growth rates, the Postal Service's selection of 5 percent presents a strange result. Firms growing at rates of 10 and 15 and 20 percent will receive rebates on significant portions of their anyhow volumes plus will be eligible for further rebates on volumes made profitable by the discount. Declining firms and those growing at less than 5 percent will not get anyhow rebates and will not have an incentive to send extra volume at the discount.

An obvious question is whether a firm growing at zero percent might stretch to reach the 5-percent threshold, and then mail even more at the discounted rate. This is an unlikely possibility, not one on which a sale platform should be anchored. More particularly, a zero-growth firm would have to send 5 percent at unprofitable rates, and therefore at a loss, in order to be able to send another 5 percent or so at the discount. It seems unlikely that the gain on the discounted volume would cover the loss on the unprofitable volume. Only those firms with unusually large elasticities might be able to make such a response work.

Again here, as discussed in Section II, it is possible that some mailers will reach their thresholds and then be occasioned by the discount to expand volume beyond anything suggested by the demand relationships we have.

Do the Bases for Sale 2010 Qualify As Anyhow Bases? Another factor is important. The bases that determine the 2010 thresholds are precisely the volumes that occurred in Sale 2009.⁸ Thus the bases are elevated by any responses to last year's sale. Any argument to the contrary would be to reject that last year's rebates were due to the discount. The simple conclusion is that any firm that participated in last year's sale is thereby disadvantaged in this year's sale, because it is being asked to use its elasticity to grow beyond a base that is already elevated by its elasticity.

In more detail, consider the following example. Suppose a mailer had an anyhow volume for Sale 2009 of 100 pieces. Next, assume this mailer had a threshold of 100 and has an elasticity of -1.0, so that the discount of 30 percent led to a volume in 2009 of 130 pieces. The Postal Service projection is that the market will grow about 1 percent, so this mailer's anyhow volume for 2010 would be 101 pieces. However, a growth of 5 percent on the *actual* 2009 volume gives a threshold for 2010 of 136.5 pieces ($1.05 * 130$). Applied to his anyhow volume of 101 pieces, this mailer's elasticity would give him an actual 2010 volume of 131.3 pieces, not enough for a rebate.

The situation in which this mailer finds himself is the theoretical reference point made manifest. His anyhow volume in 2009 was equal to his threshold. His demand is quite elastic. He increased his volume last year, receiving a rebate and increasing the profits of the Postal Service. His anyhow volume for

⁸ It may be noted, then, that graphs like those in Section III could be drawn now for mailers that are candidate for Sale 2010. Volumes are available from 2006 or before. The thresholds for 2010 are known. The only thing missing is actual data from March through September, 2010. Such graphs would provide some initial perspective on what is coming.

2010 is known. If his threshold were calculated fairly, he could do the same this year. But he will not be able to participate. This conclusion is not unique to an elasticity of -1.0.

Conclusion. Whether or not Sale 2010 is implemented, 2010 will roll out. It can be hoped that the economy will expand. Mailer growth rates will vary substantially. Many mailers will have growth rates below 5 percent. A few mailers will have growth rates in the neighborhood of 5 percent. A number of other mailers will have growth rates in excess of 5 percent, some substantially in excess.

If Sale 2010 is implemented: (1) Mailers with growth rates below 5 percent will not be able to participate. I see no reason to view these mailers as less worthy than their faster-growing compatriots. (2) Mailers with growth rates in the neighborhood of 5 percent may be able to help both themselves and the Postal Service by trading on their elasticities. (3) Mailers with growth rates in excess of 5 percent will receive rebates on a portion of their anyhow volume, plus they will use their elasticities. (4) There is a possibility of some supra-responses. (5) Mailers who received rebates in Summer Sale 2009 will be substantially disadvantaged, if their rebates last year were on new volume.

V. Summary

Section I presents the properties of statistically derived demand relationships, such as those available for many categories of mail, and emphasizes that these properties should be recognized if the relationships are

applied to specific questions. Section II discusses a threshold and discount for one mailer, and reviews the application of the Section-I properties. Also, it discusses supporting conditions for the back-casting approach to *ex post* evaluation, the use mailers make of rebate amounts, and the possibility of responses that go beyond anything predicted by the demand relationships.

Section III presents a related discussion of a discount beyond thresholds for a group of mailers, and includes a review of Sale 2009. Section IV proceeds to proposed Sale 2010, noting specifically its relation to the economy and to Sale 2009.

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