Negotiated Volume Discounts in a Regulated Post[1]

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1.   INTRODUCTION

In 2002, the US Postal Service (USPS) proposed to implement a ground-breaking deal with Capital One Services, Inc., then the largest user of First-Class Mail in the United States. This negotiated service agreement (NSA), as it was termed, represented a significant departure from the tariff rate structure that has historically been employed for domestic rates. For the first time, volume based discounts were offered to encourage growth in First Class marketing mail. The agreement consisted of two main features. The first feature was a cost-based proposal to provide Capital One with electronic notifications when its First-Class solicitations were found to be undeliverable, in lieu of physical return of such pieces.[2]   The second feature was a schedule of discounts designed as declining blocks, whereby Capital One would pay lower marginal rates as its First-Class volume achieved certain volume thresholds. The duration of the agreement was three years.

After review by the Postal Rate Commission (PRC),[3] the agreement was approved with the addition of a constraint that the total amount of discounts from the declining block provision could not exceed the estimated savings from the cost reduction provision. Four more customized agreements have since been

approved and implemented, as has a one-year extension of the Capital One agreement. In addition, two other agreements have been proposed.[4,5]

Volume discounts in regulated Posts are becoming more common, partly as a means of stemming diversion to electronic alternatives. There is a risk that these agreements could result in net losses for the posts. For posts that have been privatized this may not be a significant concern, as shareholders bear the risk of losses and management is accountable to shareholders. However, USPS is a public enterprise that has historically operated with a break-even constraint, so any losses from volume discounts would be recovered through rates paid by non-participating mailers.[6]

This paper will focus on analyzing the effects of volume-based discounts on the NSAs that have been implemented to date. Part 2 will attempt to estimate the net financial impact on USPS of the discounts, and discuss specific issues to each that complicate the analysis. Part 3 will examine the effects of changing circumstances on specific agreements. Part 4 will briefly discuss the limitations of various volume forecasting methods.

2.   EVALUATION OF EXISTING DISCOUNTS

2.1   Background

When USPS filed the first NSA with the PRC in 2002, several issues received public attention. The Capital One NSA (as well as the Discover, Bank One, HSBC, and Washington Mutual NSAs) contained two monetary features: cost savings to USPS through electronic Undeliverable as Addressed (UAA)

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[4] The USPS withdrew one of these agreements, with Washington Mutual, before the PRC completed its review, and the other, with Bank of America, is currently under review.
[5] The proposed NSA with Bank of America does not include volume-based declining block discounts, but instead provides performance-based incentives. At the time of this writing, the Bank of America NSA is being actively litigated before the PRC, and further discussion of it falls outside the scope of this paper.
[6] The passage of the PAEA in 2006 removed the break-even constraint, introducing a rate cap and permitting the USPS to make a profit. The implications of the new law for NSAs are discussed further in section 2.6.

returns, and volume discounts for the mailer aimed at driving marketing mail growth and creating "new" contribution to USPS.

The relatively non-controversial feature of the mailer foregoing physical returns in favor of electronic Address Correction Service (ACS) returns provided cost savings to USPS. When the NSAs with ACS return savings were filed, USPS was charging mailers for electronic returns of UAA mail, while providing physical returns as a bundled element of First-Class Mail.[7] To protect potentially sensitive customer information in statement mail, only the marketing mail was eligible for the electronic returns feature of the NSA.

The primary issue of controversy in the NSAs was related to the volume discounts, designed to create additional contribution. This contribution would come from new First-Class marketing mail, induced by volume discounts. A central concern was the ability of the USPS, in conjunction with the mailer, to accurately estimate future volumes under a given set of rates. The mailer provided USPS with estimates of volume it would send without the agreement (before rates volumes). These estimates were filed publicly with the PRC in the request for approval of the agreement. USPS and the mailer agreed to a schedule of declining block rates, whereby the mailer would receive increasing marginal discounts as it increased its volume of First-Class Mail. Based on this agreement, the mailer provided an after rates forecast predicting how much its volume would grow in response to the volume discounts. The reliability of these before rates and after rates forecasts has been a key issue for both interveners and for the Commission.

Predicting mailing patterns for long-term periods (over a year in advance) is considered difficult to do with accuracy. Direct mail marketing is driven by the expected profitability of each mailing; influenced by diverse factors ranging from interest rates to real wages. The difficulty of long-term forecasts will be discussed in greater detail in section three. In each NSA, the co-proponents of the NSA provided the volume forecasts. The Commission was concerned that

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[7] In R2006-1 the USPS proposed, and the Commission approved, an option to receive the first two ACS notices per address free of charge for First-Class Mail.

inaccuracies in the forecasts could result in discounts being awarded to "anyhow" volume; i.e., volume that would have been mailed regardless of the discounts. Providing discounts for anyhow volumes in excess of new contribution from volume growth due to the discounts results in less contribution to the Service than would have been achieved without the NSA.

In its first recommended decision on an NSA the Commission capped total discounts at the level of savings from the electronic ACS provision. This meant that in the worst case scenario where all discounted volume was anyhow volume, the Service would still break even on the NSA. The cap was met with heavy criticism from USPS and the mailer who claimed that limiting the discounts would prevent the NSA from reaching its full potential. The cap has also led to assertions that many potential NSA partners have abandoned the process for fear of having their discounts capped. A savings-based cap is particularly burdensome for mailers who may not easily be able to generate savings for the USPS.

When the Commission again used the ACS savings cap for the Bank One NSA in MC2004-3, the USPS Board of Governors requested the Commission reconsider its decision, the circumstances of which will be discussed in more detail in section 3.1. As part of its response to the request, the Commission developed a framework for designing NSAs that would not require a savings-based stop loss cap.[8]

2.2 Model Description

In the Commission's Decision in Response to the Reconsideration request in MC2004-3 (the Bank One NSA), a model to explain volume growth in response to NSA discounts and determine net contribution to the USPS was outlined.[9] The model works in the following manner. The price elasticity is used to draw a demand curve through the point defined by the after rates volume and

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[8] The framework and model were developed in consultation with Ted Pearsall and others.
[9] The framework and model are described in Docket No. MC2004-3, Opinion and Further Recommended Decision, pages 21-38.

the discounted rate. The before rates volume is estimated by moving back up the demand curve to the full rate. The net effect on contribution can then be estimated. In Figure 1 below, the shaded area marked as A represents the contribution from mail above the initial quantity, and the area marked as B represents the revenue lost to discounts on mail that would have been sent at the full rate.[10] In this example, A is greater than B, indicating a net increase in USPS contribution.

Figure 1.
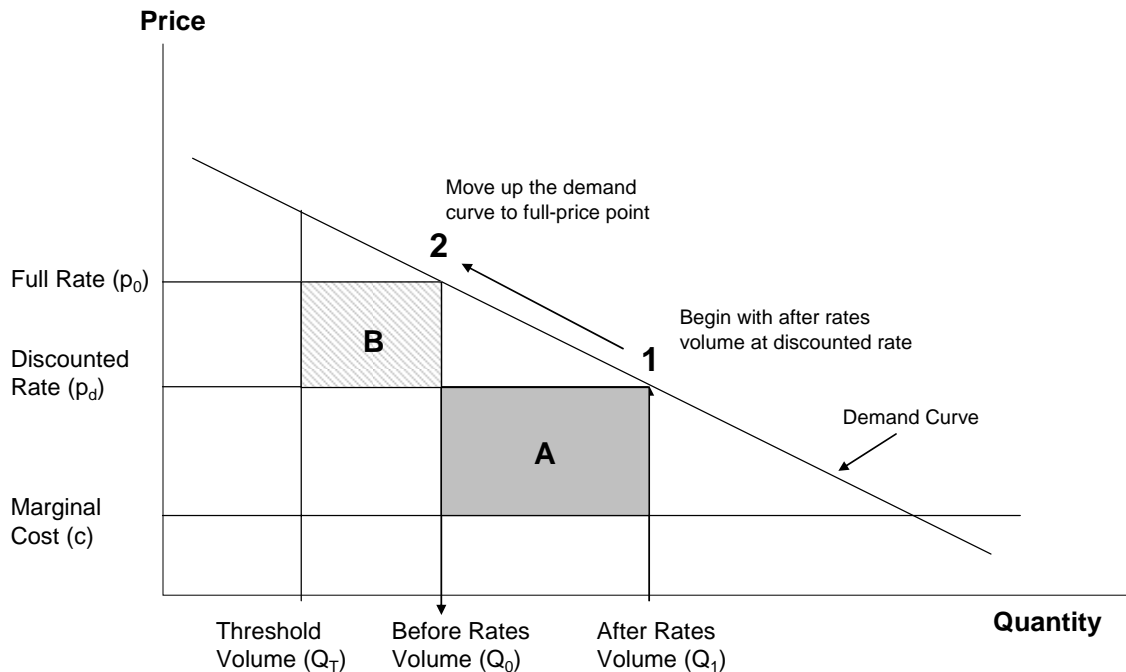
For this paper, our analysis uses a range of econometrically devised elasticities[11] to construct demand curves for each of the NSAs for which periodic data reports have been submitted. Using the actual after rates volumes reported in the periodic data reports we then move back up the demand curve to the full price rate and determine what the before rates volume would have been. We

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[10] The demand curve in the figure is drawn as a straight line to simplify the graphical presentation. The model assumes a constant elasticity.
[11] Elasticities have been provided by the USPS in every rate case under the PRA of 1970.

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have termed the difference between the calculated before rates volume and the discount threshold as anyhow volume. Discounts paid to anyhow volume constitute leakage discounts, or revenue lost on discounts for mail that would have been sent without the NSA (area B in figure 1). These discounts reduce the value of the NSA to USPS. Combining the leakage discounts with the new contribution[12] from the volume responsive to the discount (area A in figure 1) gives the net contribution of the NSA discounts to USPS. Thus, the model provides an independent and empirical analysis of the range of profitability to USPS of either growth or an intra-class shift in volume due to NSA discounts.

The formula for calculating the before rates volume with the own price elasticity is:

$$V_b = V_a \left[\frac{P_O}{P_d} \right]^{E_p}$$

Where V_a is the after rates volume, P_o is the original price, P_d is the discounted price of the last mailed piece, and E_p is the own price elasticity.[13]

Since the NSA discounts have been intended to increase the use of First-Class Mail for advertising, it is likely that some volume that the mailers would have otherwise send using Standard Mail (an lower-priced advertising class) would shift to First-Class in response to the discounts. To reflect the effects of this shift, we incorporate a discount elasticity that captures cross-price effects based on the average rate difference, or "discount", between First-Class and

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[12] New contribution is the difference between the new revenue and the new costs. Our analysis uses the unit costs provided in the periodic data reports. For pieces converting from Standard Mail to First-Class Mail the difference in unit contribution between these two classes is used.

[13] Since Docket No. R80-1, the USPS has been using log-log or constant-elasticity demand equations to estimate elasticities and forecast volumes. The constant-elasticity demand equation evaluated at the initial (undiscounted) price p_0, assuming all other variables, such as income and population, held constant, is: $Q_0 = a p_0^e$; where Q_0 is the initial quantity (or before rates volume), and e is the constant own-price elasticity of demand. Similarly, the constant-elasticity demand equation evaluated at the discounted rate p_d is: $Q_1 = a p_d^e$; where Q_1 is the new quantity (or after rates volume). The ratio of Q_0/Q_1 can be expressed as: $\dfrac{Q_0}{Q_1} = \dfrac{a p_0^e}{a p_d^e} = \dfrac{p_0^e}{p_d^e} = \left(\dfrac{p_0}{p_d} \right)^e$; Therefore,

$$Q_0 = Q_1 \left(\frac{p_0}{p_d} \right)^e$$

Standard Mail. The formula for calculating the before rates volume with both own price elasticity and the discount elasticity from Standard Regular mail is:

$$V_b = V_a \left[\frac{P_O}{P_d} \right]^{E_p} \left[\frac{P_O - P_S}{\left(P_d - P_S \right)} \right]^{E_C}$$

Where P_s is the price of Standard and E_c is the discount elasticity.

For this paper, we evaluate the NSAs using three scenarios with different assumptions about the elasticity of the mailers' marketing mail. The following table shows the elasticities used in this paper:

Table 1. Elasticities Used in Model

	R2006-1 Elasticities
First-Class Workshared Own Price	-0.013
Standard Regular Own Price	-0.296
Average Standard Regular Letter Dicount (Relative to First-Class)	-0.111

These elasticities represent subclass averages developed by the USPS in the most recent rate case.[14] While subclasses are typically understood to share common market characteristics, there is undoubtedly some degree of variation in elasticity among the mailers that make up each subclass. In the NSAs we are evaluating, the mail eligible for discounts is workshared First-Class Mail. Therefore, we use the average elasticity for that category of mail as the starting point for our analysis. However, the discounts are designed to leverage the mailers' use of First-Class for advertising, and our analysis assumes that it is the advertising mail that will respond to the discounts. Since workshared First-Class mail includes large volumes of mail that are unlikely to be very price-elastic (e.g., statements), we also utilize the elasticity of Standard Regular (an advertising subclass) which is about twice that of workshared First-Class. We also

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[14] Docket No. R2006-1, USPS-T-7, pages 73 and 114

incorporate the effects of shifts in volume from Standard Mail to First-Class in response to a reduction in the difference between the prices of the two classes.

Using these elasticities, and the model described above, this paper will develop a range of possible net contribution to the USPS of NSAs thus far.[15] First, a review of some basic data from each NSA is helpful. The following table contains the volume (in millions of pieces) of First-Class marketing mail projected in the after rates forecast (AR Projected Volume) as well as the volume actually sent (Actual Volume). It also includes the discounts received (in millions of US$). Because the NSAs do not run concurrently, a standardized time label is used. Each NSA is filed with three years of historical data and will run for three years. Thus, year -3 to -1 contain historical volumes before the NSA, and years 1 to 3 contain volumes during the NSA.

Table 2. NSA Data Summary

		NSA Data					
		Historical Volume			Active NSA Volume		
		Year -3	Year -2	Year -1	Year 1	Year 2	Year 3
Capital One	**AR Projected**				757.5	744.4	713.6
	Acutal	753.6	788.9	1,137.9	843.0	811.7	704.6
	Discounts				$ 1.83	$ 2.57	
Discover	**AR Projected**				169.0	174.0	174.0
	Acutal	209.0	196.0	138.0	196.9	192.5	
	Discounts				$ 2.82	$ 2.65	
Bank One	**AR Projected**				232.7	260.5	266.4
	Acutal	103.9	270.6	207.8	261.9		
	Discounts				$ 8.81		
HSBC	**AR Projected**				174.2	265.2	319.3
	Acutal	107.7	95.7	95.7	24.6		
	Discounts				$ -		

(1) Marketing Volumes in Millions

(2) Discounts in Millions

(3) Bank One Forecasts are Merger Adjusted

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[15] A Technical Appendix providing a detailed example of the calculations is available on the Commission's website at www.prc.gov.

2.3   Capital One

With three full years completed, the Capital One NSA provides the richest data for examination. The basis for the NSA was to retard the escalating shift by Capital One from First-Class marketing mail to Standard Mail by providing an incentive to continue mailing First-Class, for which mail pieces make a higher contribution to institutional costs.[16] Table 3 shows the breakdown of Capital One's mail volume (in millions of pieces).

Table 3.

	Captial One Historical Volume					
	Historical Volume			Active NSA Volume		
	Year -3	Year -2	Year -1	Year 1	Year 2	Year 3
FC Marketing	753.6	788.9	1137.9	843.0	811.7	704.6
FC Operational	338.6	470.6	582.9	553.3	493.7	496.4
Std Marketing	538.2	980.4	896.3	1057.7	1084.7	1426.3

The NSA began in 2004, and the First-Class to Standard shift, even with the NSA, is quite pronounced. The overall marketing mail dropped by over 133 million pieces, with First-Class declining by 295 million. In the first year of the agreement Capital One received discounts totaling $1.83 million on 69 million pieces. In the second year of the agreement, Capital One received discounts of $2.57 million on 80 million pieces. In the third year, the discount threshold was not reached.

The difference between the projected First-Class marketing mail and the actual First-Class marketing mail is explained in the periodic data reports provided by USPS as an increase purely in response to the discounts for the first two years of the agreement. This explanation does not discuss the increase in Standard volume, nor does it attempt any empirical economic analysis.

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[16] At the time of the proposal, the per-piece contribution from First-Class letter mail was approximately 8 cents higher than that of Standard Mail.

Using the elasticities provided in Table 1 and the volume analysis model described above, we calculated a range of net contribution from the new Capital One volume. Our results are shown in Table 4.

Table 4.

	Estimate of Net Contribution from Discounts: Capital One		
	FC Workshared	FC with Cross Price	Std with Discount
Year One	200,220	2,740,705	5,595,563
Year Two	(669,161)	869,305	3,154,567
Year Three	-	-	-

The net contribution is the difference between the increase in contribution resulting from mail generated in response to the discounts and the contribution lost by providing discounts for mail that would have been mailed at full price. In year one the net contribution ranges from $0.2 million, assuming an elasticity equal to the own-price elasticity of First-Class workshared mail, to $5.6 million assuming an own-price elasticity equal to Standard Regular Mail and a discount elasticity between First-Class workshared and Standard Regular.[17] In year two the range is between negative $0.7 million and positive $3.2 million. While the true elasticity of Capital One is not known, we believe that it likely falls between the own price elasticity of First-Class workshared and Standard Regular and that

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[17] The $5.6 million is calculated using inputs from the required periodic data reports :
After rates marketing volume = 843 million
Marginal revenue = .292; Discounted revenue =.257; Standard revenue = .177
Own price elasticity = .296; Discount elasticity = .111
Discount threshold volumes: Tier 1 = 773.8; Tier 2 = 823.8
Tier 1 discount = .03; Tier 2 discount = .035
Contribution: Tier 1 = .141; Tier 2 = .136; Standard = .0914
Thus:
Before rates volume = $843 \times (.292/.257)^{-.296} \times ((.292-.177)/(.257-.177))^{-.111} = 779.7$
Leakage = (779.7-773.8) x .03 = $0.2
Contribution = ((823.8 – 779.7) x .141) + ((843 – 823.8) x .136) = $8.8
Net new contribution = $8.8 - $0 .2 = $8.6
Because some of the new First-Class marketing mail is volume that has shifted from Standard Mail the loss in Standard contribution from these pieces must be subtracted from the new contribution. This loss is calculated as follows:
Before rates volume using elasticity discount alone = $843 \times ((.292-.177)/(.257-.177))^{-.111} = 809.8$
Loss in contribution = (843 – 809.8) x .0914 = $3
Net contribution = $8.6 - $3 = $5.6
A technical appendix including a more detailed description of the calculations is available at www.prc.gov

a First-Class/Standard discount elasticity applies. Consequently, according to our analysis it is likely that USPS had a net gain in contribution from the declining block rates. The savings from electronic returns generated by the agreement provided an additional benefit.

2.4   Discover

The next NSA implemented was with Discover, another financial institution. Filed with the PRC as MC2004-4, this agreement was the first functionally equivalent NSA; available to co-proponents who were in similar mailing situations to Capital One. While Discover does not mail as much as Capital One, it still represents a significant portion of the mail stream. In addition, both firms use a mix of First-Class and Standard Mail to solicit new customers. The deal contained the same elements of the Capital One NSA: foregoing physical returns in favor of electronic ACS, and new First-Class solicitation mail driven by volume discounts.

Discover's volume history was more stable than Capital One's in the immediate period before implementation of the NSA. Its overall use of the mail, and its mix of Standard Mail and First-Class Mail, was more consistent than that of Capital One. Only two years of the NSA have been completed to date.[18]

Table 5.

	Discover Historical Volume				
	Historical Volume			Active NSA Volume	
	Year -3	Year -2	Year -1	Year 1	Year 2
FC Operational	309.0	333.0	313.0	300.4	300.3
FC Marketing	209.0	196.0	138.0	196.9	192.5
Std Marketing	591.1	499.8	483.8	471.6	692.4

The primary issue of contention with the Discover NSA was the fact that the volume threshold for discounts was below the before rates volume forecast provided by Discover. This meant that for the first time the Commission and the

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[18] Due to the filing in the middle of 2004, there is a gap in the volume data available.

interveners had to consider leakage discounts a nearly unavoidable aspect of the deal made between the co-proponents. In the first year of the NSA, Discover received discounts on First-Class marketing mail that even USPS agrees would have been sent without any discounts. The leakage incorporated into the deal produces net losses with all elasticities considered in our analysis.

Discover responded to the NSA by sending an amount of First-Class marketing mail consistent with its historical pattern, raising questions about the efficacy of the discounts in inducing new mail volume. In the periodic data reports, USPS cites the decrease in Standard Mail and the increase in First-Class Mail as an indication that the deal is working better than expected at developing new First-Class contribution. However, the data suggest that while some mail may have been encouraged to remain in First-Class, a significant amount of the First-Class Mail was anyhow volume. The resulting leakage is very difficult for the Discover NSA to overcome with new contribution. Table 6 examines the range of net contribution from the Discover NSA estimated in the same manner as the Capital One case outlined above.

Table 6.

| | Estimate of Net Contribution from Discounts: Discover | | |
	FC Workshared	FC with Discount	Std with Discount
Year One	(2,154,692)	(1,071,760)	(300,966)
Year Two	(1,941,493)	(1,112,960)	(334,244)

Our analysis shows that unlike Capital One, the Discover NSA discounts are likely to have resulted in negative contribution for USPS. Because of this, we performed additional analysis on the data whereby we used an iterative process to calculate the own price elasticity assumption that would have resulted in breakeven contribution. Interestingly, our analysis found that the volume discount feature of the NSA breaks even for the USPS if Discover's marginal piece of First-Class marketing has an own price elasticity of -0.362, just a little more elastic than the class-wide average for Standard Regular Mail.[19]

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[19] The existence of ACS savings makes the deal profitable regardless.

An important lesson from our analysis is that minimizing leakage volume is essential for volume discount agreements to be profitable for the post. In the Discover filing, the co-proponents estimated the before rates First-Class marketing volume at 156 million pieces and the after rates at 169 million,[20] with discounts starting at 105 million.[21] Using the assumption that the marginal piece has the elasticity of Standard Regular Mail, and is responsive to discount elasticity with Standard Mail, our analysis shows that an after rates volume of 169 million pieces of First-Class marketing mail corresponds to a before rates volume of 152 million pieces; remarkably close to the forecasted before rates volume. This suggests that, assuming the above elasticity, the 28 million piece discrepancy between the projected after rates marketing volume and the actual after rates marketing volume is likely due to economic factors other than the discount. Furthermore, based on the forecasts provided in the proposal, the model indicates the USPS would realize $1.7 million in contribution from new First-Class marketing mail but lose nearly $1.5 million in leakage discounts in the first year; a net gain in contribution of just $0.2 million.[22] Had the discount threshold been set at the estimated before rates volume, the USPS would have earned an additional $1.5 million.

2.5   Bank One/Chase

The third NSA to be implemented was with Bank One, again a financial institution. Due to a merger between Bank One and JP Morgan/Chase (Chase), this case presents unique problems that are discussed at further detail in section 3.1. It is very difficult to distinguish historical volumes of the merged bank. In the following table, no Chase volumes are included for the first year (Year -3).

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[20] See Docket No. MC2004-4, USPS-T-1, Appendix A.
[21] These numbers assume the discounts are only aimed at Marketing mail, the large base of operational mail means that the discounts started at a volume of 405 million pieces of total FC mail in the first year of the agreement.
[22] In the initial proposal the co-proponents expected any gain in contribution to come primarily from the ACS savings feature.

Table 7.

Bank One/Chase Historical Volume

	Historical Volume			Active NSA Volume
	Year -3	Year -2	Year -1	Year 1
FC Operational	479.1	825.4	846.6	676.3
FC Marketing	103.9	270.6	207.8	261.9
Std Marketing	967.0	1606.1	1232.1	2391.0

(1) Chase Volumes are included for 2002 and 2003

(2) Chase FC Marketing and Std Volumes are 95% estimates form interrogatory OCA/BOC-T1-18

(3)Th Postal Service estimates that Bank One and Chase integrated mailstreams halfway through year one

When the two companies merged, the provision in the NSA was for the discount threshold to increase by the volume of the new company in the previous year. The USPS appears to have had some difficulty in implementing this NSA. The full periodic data report concerning the Bank One discounts was filed late and contained incomplete data.[23] In this data report, the USPS states that the mailstreams of the merged institution were integrated halfway through the year (October 1, 2005). The 2005 volume of "heritage" Chase volume was reported by USPS to be 373 million pieces, and the threshold was increased based on this volume, per the merger provision in the NSA. In the Chase comments concerning the Commission reconsideration, Chase states that the 2005 volume of First Class mail was 574 million pieces, and that mailstream integration occurred on January 2, 2006. This discrepancy appears as if it may be similar to the difficulty that Washington Mutual and USPS had reconciling volume figures.[24] Furthermore, the cap will be increased by only 373 million pieces for each year of the Chase NSA. If Chase is correct in its estimate of 574 million pieces of heritage volume, the difference represents 201 million pieces of anyhow volume that will receive discounts. In fact, if the thresholds were incorrectly adjusted then further leakage occurred in a manner for which our model cannot accurately account.

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[23] A half-year data report was filed at the beginning of 2006, before the mailstream of the merged companies had integrated. This data report provides insight into a possible result of the NSA had the institutions not merged.

[24] The Washington Mutual NSA is discussed further in section 3.

Table 8 combines the data from the first two data reports. Using the data from the first data report, which contained only heritage Bank One volumes, combined with the full year data report, which contained between ½ year (USPS estimate of integration date) and ¼ year (Chase declaration of integration date) of integrated volumes, we can separate volumes under the NSA before and after integration. The first two columns represent one half of the after rates projection provided by the co-proponents in the NSA filing. Column three combines these projections to estimate a half-year of volume for the combined company. Column four is actual merged volume for the second half of year two, calculated using the periodic data reports.

Table 8.

	Bank One	Chase	Merged	
	1/2 of Year 2	1/2 of Year 2	columns (1) + (2)	October1 to March 30
	Projection	Projection	Projection	Actual
	(1)	(2)	(3)	(4)
FC Operational	253.3	190.3	443.6	444.3
FC Marketing	81.7	48.6	130.3	238.4
Std Marketing	468.4	200.0	668.4	1922.5

A comparison of the projected (column 3) and actual (column 4) volumes for the merged company suggests that something dramatic and unexpected happened when the two banks merged. The post-integration merged company sent nearly 2 billion pieces of Standard Mail in the 6 months directly following the merger. This is far in excess of the projections. Since Standard Mail is not eligible for the negotiated discounts, it seems likely that the high volume was due to non-price factors. Therefore it is also likely that the variance of First-Class marketing mail volume from the projection is at least partly due to non-price factors. This is discussed further in section 3.1.

While something anomalous occurred with the volumes, the USPS considered the result both reasonable and profitable. The full year data report states that USPS realized $7.5 million of new contribution as a result of the

NSA.[25] After the discount threshold was modified to account for the volume of the new bank, the deal remained in place. The significant losses estimated by the model are presented in Table 9.

Table 9.

Estimate of Net Contribution from Discounts: Chase

	FC Workshared	FC with Discount	Std with Discount
Year One	(7,671,150)	(6,389,294)	(5,063,731)

An elasticity-based analysis of the Chase NSA is quite striking. The USPS lost between $5.1 and $7.7 million under the elasticity estimates used in the analysis. Given the discrepancy between the USPS and Chase over the heritage Chase volume, it is likely that the Chase leakage is greater than that of other NSAs. In order for the net financial position of the USPS to have improved due to the volume discounts given in the first year of the Bank One NSA, the marginal piece of marketing mail would need to have had an own-price elasticity of over -0.983. [26]

2.6   Summary

Table 10 summarizes all of the model values for the NSAs that have provided periodic data reports at this time. The final row contains a range of possible net contributions to the USPS from NSAs to date. The overall value of the NSAs under an assumption that all the participants' marketing mail had own-price elasticities equal to Standard Mail as well as cross-price elasticity with the price of Standard Mail is positive, in spite of losses from all but one of the mailers receiving discounts. Under both other elasticity assumptions, the net results from volume discounts are negative. These results illuminate the risks to USPS, and

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[25] This result is calculated in the excel file attached to the data report. The report elsewhere states that a reliable estimate of the financial impact of the agreement cannot be calculated due to the merger.

[26] As well as a discount elasticity with Standard Mail of -0.111

perhaps other Posts, of entering into volume discount agreements, particularly when the own-price elasticity of the mailer is not known.

Table 10.

| | | Estimate of Net Contribution from Discounts | | |
		FC Workshared	FC with Cross Price	Std with Discount
Capital One	**Year One**	200,220	2,740,705	5,595,563
	Year Two	(669,161)	869,305	3,154,567
	Year Three	-	-	-
Chase	**Year One**	(7,671,150)	(6,389,294)	(5,063,731)
Discover	**Year One**	(2,154,692)	(1,071,760)	(300,966)
	Year Two	(1,941,493)	(1,112,960)	(334,244)
HSBC	**Year One**	-	-	-
Total		**(12,236,276)**	**(4,964,004)**	**3,051,188**

Under the Postal Reorganization Act (PRA), the USPS operated under a break-even constraint. Therefore, any losses from unprofitable volume discounts would ultimately be recovered by charging higher rates to non-participating mailers. To protect against this, the PRC placed significant restrictions on NSAs. However, the implementation of the Postal Accountability and Enhancement Act (PAEA) will remove the breakeven constraint and replace it with a price cap mechanism.

This has important implications for the regulation of NSAs. First, losses from unprofitable agreements will not automatically be recovered through increased rates on non-participants. Second, the USPS will be permitted to generate a net profit. However, these changes alone will not place the USPS in the same situation as competitive, private companies for whom regulation of negotiated rates would be unnecessary and counterproductive.

For USPS products that face little meaningful competition, the potential for harm to the competitors of mailers who are offered NSAs still exists.[27] Also, the

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[27] While to date no competitor has alleged that harm would result from a proposed NSA in any PRC proceeding, the PRC has indicated that it would take allegations of competitive harm into consideration.

ability for the USPS to generate net profits does not, in the absence of a shareholder or residual claimant, assure that it will behave as a profit maximizer. At this time it is not known what incentives will be put in place as a result of the new law to encourage profit maximizing behavior by USPS management.

Finally, the price cap will be imposed at the class level which potentially could allow the USPS to use NSA discounts to offset larger increases on mail in the same class that is not sent under an NSA. This could occur whether or not the NSAs were profitable. To protect those mailers who may be too small to justify incurring the transaction costs of an NSA, it may be desirable to exclude discounts awarded to NSA mailers from the test of compliance with the rate cap.

3. VOLUME DISCOUNTS IN CHANGING CIRCUMSTANCES

Some of the NSAs filed with the Commission included aspects that were uniquely challenging. A review of these unusual situations illuminates the problems that can arise in trying to evaluate volume discounts when economic and business conditions change. The merger of Bank One and JP Morgan/Chase shortly after the filing of the agreement and the withdrawal of the request for the Washington Mutual NSA provide two examples of the potential effects of changing circumstances.

3.1   Bank One/ Chase

Less than two weeks after the filing of the Bank One NSA, Bank One and J.P. Morgan/Chase (Chase) merged. In anticipation of the merger, the agreement included enhanced provisions to adjust the discount structure by increasing the volume thresholds for discounts to account for the additional volume of Chase.[28] The merger provisions were structured to allow the merged entity (which retained the Chase name) to receive discounts on only the "heritage

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[28] Previous NSAs included merger and acquisition provisions, but the Bank One agreement expanded on them.

Bank One" volume until it chose to integrate the volume of the merger partner ("heritage Chase").[29] This rendered the analysis of the financial impact of the agreement provided by USPS obsolete almost as soon as it was filed. The bank-wide impact of the merger combined with the timing of the integration made it impossible for the USPS to generate a reliable post-merger financial analysis.

In its initial response to discovery, USPS took the position that it was not possible to estimate the effects of the merger on the value of the agreement. In order to facilitate settlement discussions, USPS provided an estimate of the financial effects under a hypothetical scenario that assumed integration of Chase's volumes would occur in January 2005. The analysis also assumed that, without the NSA, heritage Chase marketing volume would adopt the same proportional mix of First-Class and Standard Mail as the heritage Bank One. The combination of these assumptions, and Chase's heavy use of First-Class for its marketing mail, lead to aggressive projections of both growth and savings, and the analysis put forth by USPS suggested that the merger would increase the three-year value of the agreement from $11.6 million to $20.3 million.[30]

As a condition for recommending approval, the Commission added a provision to the agreement that limited the discounts to the level at which they would not exceed the estimated savings from electronic returns of undeliverable mail. After implementing the agreement, Chase and USPS requested that the Commission reconsider the addition of the discount cap. In its pleadings to the Commission, Chase argued that the cap would severely limit the potential benefits of the NSA because it was responding to the incentives so aggressively that it was likely to exhaust the maximum allowed discounts before the end of the first year. Because the mailer-provided forecasts indicated that the cap would not be reached during the entire 3-year term of the NSA, this raised concerns that the re-branding of heritage Bank One credit cards as Chase might potentially

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[29] Chase was required to provide 90 days notice before the date of integration, and provide evidence to the USPS that mail preparation requirements stipulated in the agreement were met by the "heritage Chase" mail.

[30] In short, this occurred because heritage Chase First-Class marketing volumes before integration would force increases in the threshold volumes to qualify for discounts. The assumption that, absent the NSA, most of the heritage Chase volume would shift to Standard resulted in an estimate of virtually no post-integration leakage.

lead to the awarding of discounts to heritage Chase mail before integration and the attendant adjustment of thresholds.

In later comments, Chase attempted to assuage these concerns by explaining that in the last year before integration (2005), about 574 million pieces of First-Class Mail were sent under heritage Chase permits.[31] Since the forecast volume was only 419 million, it was unlikely that Chase had shifted heritage Chase volume to heritage Bank One permits in order to receive unjustified discounts. This logic is reasonable; however, it raises a different possible explanation for the higher than expected volume of heritage Bank One mail. A post-merger, re-branded but pre-integration Chase presents a situation akin to a controlled experiment. Heritage Chase and heritage Bank One credit card solicitations were sent out concurrently by the same company operating in the same market environment, and one (heritage Bank One) was eligible for volume discounts while the other (heritage Chase) was not. Yet both experienced large increases in First-Class marketing mail volume. If discounts were not available for heritage Chase volumes before integration, one can conclude that the massive heritage Chase volume increase was due to non-price factors. It seems very likely that the same non-price factors that caused the increase in heritage Chase volume also caused some of the increase in heritage Bank One volume.

In approving each NSA to date (including the Bank One NSA), the Commission included a requirement that the USPS file annual data collection reports that include an evaluation of the impact on contribution. However, the most recent Bank One report[32] states that "[t]he occurrence of the merger precludes any reliable evaluation of the impact on contribution [.]" This means that two years into a three-year agreement, the USPS cannot reliably determine the extent of its success or failure. This presents a significant obstacle to evaluating the desirability of extending the Bank One agreement or offering similarly designed agreements to other mailers. It also greatly reduces the value

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[31] In the USPS data report on the first full year of the NSA, it reported that Chase's 2005 First-Class volume was 373 million pieces. This 200 million-piece discrepancy is discussed in Section 2.

[32] The report, due January 29, 2007, was filed on April 12, 2007 and covered the first year of the agreement (April 1, 2005 to March 31, 2006).

of the provision in the agreement that allows USPS to unilaterally withdraw if it determines that continuing would not be in its best interest. The existence of the unilateral withdrawal provision was cited by parties opposing the imposition of the savings-based stop-loss cap, because the USPS could terminate the agreement if it began to lose money. However, if USPS is unable to determine whether or not it is losing money, the ability to terminate is not especially useful.

Finally, while this paper focuses on examining the volume discount aspect of NSAs, the Bank One data collection report indicates that much of the anticipated savings from avoiding the costs of physically returning undeliverable mail has not occurred. The Commission approved the agreement with the expectation that USPS would realize about $7.6 million in savings over three years, $6.1 million of which would come from not having to physically return flat-sized mail pieces. This figure was estimated based on an assumption that Bank One would continue to make use of flat-sized First-Class marketing mail at levels similar to those it had in the past. [33]   Because flats are relatively expensive to handle, avoiding the physical return of even a few would bring large benefits. However, USPS reports that Chase has discontinued its use of flat-sized First-Class marketing mail, and therefore 80 percent of the expected first-year savings did not materialize.

3.2   Washington Mutual

The proposed NSA with Washington Mutual was structured to be very similar to previous agreements, except that the savings from avoided physical return costs were excluded from the expected value to the USPS. Thus, the reliability of the mailer-provided forecasts was again a central issue during the discovery process. The first-year (2006) volume forecast coincided with the litigation period, which led to requests for comparisons between the year one forecast and the actual volume as that year progressed.

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[33] While limiting the maximum number of flats eligible for discounts, the NSA was not designed to discourage Bank One from continuing to use flats at levels consistent with its history.

In late July 2006, Washington Mutual indicated that volume through the first three months was trending very close to the forecast, within 10 to 20 million of a before rates forecast of 450 million pieces.[34] Later in the year, however, the situation had apparently changed. Attempting to respond to a similar request for actual year-to-date volume in November, USPS and Washington Mutual were unable to reconcile discrepancies between their estimates. Washington Mutual believed that it had sent more volume than USPS records indicated. Washington Mutual explained that it had increased its volume of First-Class marketing mail because it was achieving better than expected response rates. This success caused it to increase its marketing budget and direct more of the budget to First-Class Mail. It pointed out that "[t]his highlights the difficulty in precisely forecasting mail volumes given the competitive nature of our business." The changed circumstances led USPS to withdraw its request for the NSA.

The conclusions that can be drawn from these events are mixed. While the discovery process was able to bring to light information that prevented the implementation of an agreement that "would not be in [Washington Mutual's and USPS's] common best interests,"[35] the events seem to suggest that mail volume for some individual mailers is very sensitive to ordinary changes in business conditions. Designing volume discount schedules that will continue to benefit both USPS and the mailer when these types of changes occur is difficult.

4. DETERMINING AN APPROPRIATE VOLUME FORECASTING METHOD

As can be seen from the analysis in Section 2, model results are highly dependent on the elasticity that is used. We modeled volume using elasticity assumptions that have passed rate-case scrutiny: the own-price elasticity for First-Class workshared mail; the own-price elasticity for Standard Regular Mail, and the discount elasticity of First-Class and Standard Mail. The method

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[34] Docket No. MC2006-3, Transcript Vol. 2 at 245.
[35] Docket No. MC2006-3, United States Postal Service Notice of Withdrawal of Request for Recommended Decision on Negotiated Service Agreement with Washington Mutual, December 8, 2006.

employed to develop these elasticity estimates dates back to docket number R80-1.

This method has proved successful in forecasting volume at the subclass level. However, it produces an average elasticity of all rate categories in the subclass. Necessarily, the true elasticity will be higher than the average for some mailers and lower than the average for other mailers. Consequently, using the average elasticity of a subclass to forecast the volume of an individual firm is not ideal. It may be possible to develop elasticities for subsets of mail, such as First-Class advertising, providing the appropriate data is available. As the number of negotiated discount agreements increase, more data should become available.

To date, parties to NSAs have relied on volume forecasts that arise from marketing budgets. Marketing decisions are driven by many factors other than the price of the chosen advertising medium. These factors include, but are not limited to, response rates, overall economic conditions, company profits, and strategic marketing decisions. These factors fluctuate continually and are not easily quantified. Marketing campaign volumes are determined by reviewing all of these factors. In the Bank One case, Buc described the process as follows:

> For a particular marketing campaign, the firm must estimate (1) the probability of response for each individual on the list ("response rate") and (2) the present value of the stream of profits over the duration of that individual's relationship with the firm (the "lifetime expected value"). By multiplying the response rate by the lifetime expected value, the firm can determine the expected value of the mailing for each individual. The expected value can then be compared with the costs of producing the marketing material and the postage charges (totaling "costs per piece") to determine whether the economic benefit from a mailing is positive.[36]

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[36] Docket No. MC2004-3, Direct Testimony of Lawrence C. Buc on behalf of Bank One Corporation, pg. 3.

The profitability of marketing campaigns under different discount scenarios can then be calculated and volumes forecast.

The primary problem with relying on volumes forecast in this manner is the asymmetry of available data. Mailers are reluctant to share the value of their customers because the data is commercially sensitive. This leaves the USPS with no way to independently verify volume forecasts during negotiations or to determine the extent of anyhow volume after the discounts are put into place. Until this asymmetry is overcome, the USPS will not be able to ensure that it is not losing money on these agreements.

5. CONCLUSIONS

Many in the postal community want fewer restrictions on negotiated discounts, and the commission has received criticism for the stop-loss caps added to NSAs to reduce risks to the USPS. There is valid and influential economic theory that speaks to the potential value of volume discounts. However, our analysis demonstrates the potential for losses to result from inaccurate forecasts. Capping discounts at the level of cost savings limits the loss in contribution but it does little to encourage additional volume.

Using a volume estimation model similar to the one outlined in the Commission's Recommended Decision in MC2004-3 can result in volume discount agreements that are beneficial to both the mailers and the post. Close and constant monitoring of each negotiated discount is critical to realizing its maximum potential value. Knowledge gained from careful analysis should allow improvements in subsequent agreements.

The newly passed legislation may allow the USPS more flexibility to implement agreements, but it also recognizes that future deals incorporating volume discounts must improve the net financial position of the USPS. While the USPS will be permitted to earn a net profit, the lack of a residual claimant means that the incentive to maximize profit cannot be assumed. Furthermore, the price cap must be carefully implemented if non-participating mailers are to be insulated

from financing the discounts of NSA mailers.

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Technical Appendix 1- Bank One Model Explanation

This technical appendix will explain the calculations behind two of the three elasticity assumptions used in this papers analysis of all NSAs, using specific data from the Bank One NSA.

The first scenario assumes that the FC marketing mail has the subclass average elasticity of FC workshared.

The second scenario assumes that the FC marketing mail has the subclass average elasticity of Standard Regular, and is discount elastic from Standard.

1. Actual FC Marketing Volume.

Volume:	261,895,183
Source:	MC2004-3 Periodic Data report filed 4/12/07 page 2

2. Elasticities

Values:	-0.130 FC Workshared letters	
	-0.296 Standard Regular letters	
	-0.111 Average Standard Regular discount (relative to FC)	
Source:	USPS-T-7 Thress	
	FC Workshared	pg 73
	Std Regular	pg 114
	Std discount relative to FC	pg 73

3. Cost Information

FC Marketing Cost:	$0.1106
FC Marketing Revenue:	$0.2879
Std Cost:	$0.080
Std Revenue:	$0.173

Source: MC2004-3 Periodic Data report filed 4/12/07

FC Marketing Cost:	Appendix A pg 4
FC Marketing Revenue:	Appendix A pg 5
Std Cost:	Appendix A pg 9
Std Revenue:	Appendix A pg 9

4. Discount tier information

Source: MC2004-3 Periodic Data report filed 4/12/07 page 4
The official discount tiers contain statement mail, but for this paper we analyze only the effect of discounts on marketing mail. The following table contains the official discount declining block.

Starting block	Ending block	Incentive	Incentives Earned
721,500,000	746,500,000	$0.025	$ 625,000
746,500,000	771,500,000	$0.030	$ 750,000
771,500,000	796,500,000	$0.035	$ 875,000
796,500,000	831,500,000	$0.040	$ 1,400,000
831,500,000	866,500,000	$0.045	$ 1,575,000
866,500,000	>	$0.050	$ 3,583,488
		TOTAL	$ 8,808,488

The statement mail was 676,274,574 in the first year, so applying the discount structure to only the marketing mail, the discount declining block looks like:

Starting block	Ending block	Incentive	Incentives Earned
45,225,426	70,225,426	$0.025	$ 625,000
70,225,426	95,225,426	$0.030	$ 750,000
95,225,426	120,225,426	$0.035	$ 875,000
120,225,426	155,225,426	$0.040	$ 1,400,000
155,225,426	190,225,426	$0.045	$ 1,575,000
190,225,426		$0.050	$ 3,583,488
		TOTAL	$ 8,808,488

Thus, the final marginal discount is $.05

5. Calculate Before Rates Volume- see figure One in text.

Scenario 1
Calculating the before rates volume using only the own-price elasticity uses this formula:
$$V_b = V_a * (P_o/P_d)^{\wedge}(E_p)$$

Thus, Vb=261,895,183 *($0.2879/($0.2879-$0.05)^(Ep)
Using -0.130 as the own-price elasticity, the before rates volume is 255,479,980

Vb=261,895,183 *($0.2879/($0.2879-$0.05)^ (-0.130)= 255,479,980

Scenario 2
Calculating the before rates volume using both the own-price elasticity and the discount elasticity uses the formula:
$$V_b = V_a * (P_o/P_d)^{\wedge}(E_p) * (P_o-P_s)/(P_d-P_s)^{\wedge}(E_c)$$

Thus Vb=261,895,183 *($0.2879/($0.2879-$0.05))^(Ep)*($0.2879-$0.173) /(($0.2879-$0.05) - $0.173)^(E_c)

Using -0.296 (the own-price elasticity of Standard) and -0.111(the discount elasticity of FC relative to Standard) the before rates volume is 232,383,027

Vb=261,895,183 *($0.2879/($0.2879-$0.05))^(-0.296)*($0.2879-$0.173) /(($0.2879-$0.05) - $0.173)^(-0.111)= 232,383,027

6. Calculate the Net Contribution.

Scenario 1
Calculate the Leakage Discounts: All discounts paid before the calculated BR volume is leakage discounts.

Thus, for only FC own-price, from 45,225,426 to 255,479,980 is all leakage totaling $8,487,728

Starting block	Ending block	Incentive	Incentives Earned
45,225,426	70,225,426	$0.025	$ 625,000
70,225,426	95,225,426	$0.030	$ 750,000
95,225,426	120,225,426	$0.035	$ 875,000
120,225,426	155,225,426	$0.040	$ 1,400,000
155,225,426	190,225,426	$0.045	$ 1,575,000
190,225,426	255,479,980	$0.050	$ 3,262,728
		TOTAL	$ 8,487,728

Then, the new contribution is equal to

$C_n = (V_a - V_b)*(P_d) = (261,895,183 - 255,479,980)*(\$0.2879 - \$0.05 - \$0.1106) = \$816,655.34$

Thus, the Net Benefit is :New Contribution-Leakage=$ 816,655-$8,847,728= (7,671,072.36)

Scenario 2
With Std Own-price, and discount price response
BR volume is : 232,383,027

Starting block	Ending block	Incentive	Incentives Earned
45,225,426	70,225,426	$0.025	$ 625,000
70,225,426	95,225,426	$0.030	$ 750,000
95,225,426	120,225,426	$0.035	$ 875,000
120,225,426	155,225,426	$0.040	$ 1,400,000
155,225,426	190,225,426	$0.045	$ 1,575,000
190,225,426	232,383,027	$0.050	$ 2,107,880
		TOTAL	$ 7,332,880

Thus, leakage discounts total $7,332,880

Then, the new contribution is equal to

$C_n = (V_a - V_b)*(P_d) = (261,895,183 - 232,383,027)*(\$0.2879 - \$0.05 - \$0.1106) = \$3,756,897.46$

However, with the discount elasticity, we also need to calculate the loss of standard contribution from the mail that would have been sent standard without the discount. Using the formula from above, we can isolate the pieces that upgrade from standard with:
$$V_b = V_a*(P_o - P_s)/(P_d - P_s)^{\wedge}(E_c)$$

$V_b = 261,895,183*(\$0.2879 - \$0.173)/((\$0.2879 - \$0.05) - \$0.173)^{\wedge}(-0.111) = 245,882,894$

Thus, from 245,882,894 to 261,895,183, each piece sent gained the new contribution of First Class, but lost that of Standard

The benefit of this is:
$C_s = (V_a - V_b)*(C_s)$, where C_s is the contribution of a standard letter
$C_s = (261,895,183 - 245,882,894)*(\$0.173 - \$0.080) = \$1,489,143$

The Overall Contribution is equal to the new contribution minus the leakage discounts minus the lost contribution from Std
$C = C_n - L - C_s = \$3,756,897.46 - \$7,332,880 - \$1,489,143 = \$(5,063,375)$

Summary

Scenario 1: Own Price Elasticity of -0.130

Before Rates Volume		255,479,980
Leakage Discounts	$	8,487,728
New Contribution	$	816,655
Net Contribution	**$**	**(7,671,073)**

Scenario 2: Own-Price Elasticity of -0.296, Discount Elasticity of -0.111

Before Rates Volume		232,383,027
Discount Before Rates Volume		245,882,894
Leakage Discounts	$	7,332,880
New Contribution	$	3,756,897
Lost Std Contribution	$	1,487,392
Net Contribution	**$**	**(5,063,375)**