DOCKET SECTION

UPS-RT-2

BEFORE THE
POSTAL RATE COMMISSION

POSTAL RATE AND FEE CHANGES, 1997	:	DOCKET NO. R97-1

REBUTTAL TESTIMONY OF STEPHEN E. SELLICK ON BEHALF OF UNITED PARCEL SERVICE

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REBUTTAL TESTIMONY OF STEPHEN E. SELLICK ON BEHALF OF UNITED PARCEL SERVICE

My name is Stephen E. Sellick. My rebuttal testimony addresses criticisms made by some witnesses of the methodology recommended by the Postal Service for distributing mail processing costs in Cost Segment 3. I have previously submitted testimony designated as UPS-T-2 and UPS-ST-2.

OVERVIEW

Several intervenor witnesses – including Rita D. Cohen (MPA-T-2), Halstein Stralberg (TW-T-1), and Lawrence Buc (DMA-T-1) – have filed direct testimony in this case criticizing the Cost Segment 3 cost distribution methodology proposed by the Postal Service as explained by Postal Service witness Degen (USPS-T-12). These witnesses urge the Commission to ignore significant methodological improvements proposed by the Postal Service and Mr. Degen. They would have the Commission disregard what the Postal Service's count of a substantial number of mixed mail IOCS tallies tells us: that distributing mixed mail costs in proportion to direct IOCS tallies clearly yields

inaccurate results and that certain item types are significantly correlated with particular classes of mail.

These witnesses also reject Mr. Degen's approach of distributing mixed mail and overhead costs within the cost pools in which those costs arise. However, it should not be a surprise – and it should not be ignored – that some operations experience a higher incidence of mixed mail and overhead costs than others. Mr. Degen recognizes this and accounts for it, whereas LIOCATT and the intervenors' proposals do not.

Ms. Cohen suggests that the Commission's rejection of the proposal put forth by UPS in Docket No. R94-1 somehow tars Mr. Degen's approach in this case.[1] That is not correct. Mr. Degen's approach differs in several important respects from the proposal put forth in Docket No. R94-1. These differences directly address some of the concerns raised by intervenors and cited by the Commission in its decision in Docket No. R94-1.

The primary criticisms of Mr. Degen's method focus on (1) subclass proxy assumptions; (2) the distribution of costs within cost pools; and (3) data thinness issues. I address each of these in turn.

SUBCLASS PROXY ASSUMPTIONS

Ms. Cohen essentially asserts that the results of the Postal Service's count of more than half of the mixed mail that is eligible for counting provides no

1. "Despite the record of Docket No. R94-1, witness Degen uses both the counted items and identified containers to distribute costs of uncounted items and unidentified containers." Tr. 26/14045. However, Ms. Cohen ultimately agrees that the Postal Service's proposal in this docket is "somewhat" different from the method proposed but not adopted in Docket No. R94-1. See Tr. 26/14081-82.

insight as to the contents of uncounted mixed mail items. In response to a series of interrogatories from the Postal Service, she states, for example, that "[n]either the Postal Service nor I have any data on how common Express Mail is in mixed-mail blue & orange sack tallies."[2]

Ms. Cohen states that "[a]n item does not always contain the subclasses or classes of mail 'associated' with that item," and she provides a table in support of her statement.[3] Based on that table, she concludes that counted and direct sacks containing 63% to 90% of one particular class of mail are not sufficiently associated with that class of mail to distribute the costs of uncounted sacks of the same type in the same proportion as the counted and direct sack costs. For example, mixed mail Orange & Yellow sacks – which, when counted, are found to be comprised of 86% Priority Mail – are, according to Ms. Cohen, not sufficiently associated with Priority Mail to be distributed 86% to Priority Mail, with the remaining 14% distributed to the other classes of mail found in the counted and direct Orange & Yellow sacks.

Table 1 below reproduces the information in Ms. Cohen's Table 4 and compares that data with how Ms. Cohen would distribute the costs in question.

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2. Tr. 26/14111. The same observation for other classes of mail can be found at Tr. 26/14112-15.

3. Tr. 26/14048. Mr. Degen's cost distribution method does not "always" distribute all of the costs of an item type to the subclass of mail associated with the item type. Rather, Mr. Degen uses the proportions of all mail subclasses found in counted and direct item types to distribute the costs of the uncounted item types.

Table 1

Are Sack Types Associated with Certain Mail Classes?

Sack Color or Type	Associated Class	% of Associated Class in Sack Type	Cohen Mixed Mail Distribution to Associated Class
Blue & Orange	Express	76%	0.6%
Brown	Periodicals	72%	4.6%
Green	First Class	73%	60.0%
International	International	90%	2.5%
Orange & Yellow	Priority	86%	3.4%
White	Standard A	63%	22.3%

Source: MPA-T-2, Table 4 (Tr. 26/14048) and Tr. 26/14092.

As Table 1 shows, Ms. Cohen's distribution (and, to a similar extent, the LIOCATT distribution) would distribute only 3.4% of the cost of a mixed mail Orange & Yellow sack to Priority Mail, for example, even though postal operations define these sacks as being used for Priority Mail and, when counted, 86% of what they contain is Priority Mail – over 25 times more than Ms. Cohen's approach would distribute to Priority Mail. On the other hand, under the Postal Service's method 86% of the cost of uncounted Orange & Yellow sacks would be distributed to Priority Mail, with the remaining 14% distributed to the other subclasses actually found in the counted Orange & Yellow sacks.

Ms. Cohen attempts to minimize this considerable discrepancy by pointing out that while her technique would allocate only 3.4% of the costs of mixed Orange & Yellow sacks to Priority Mail, her method would also allocate 3.4% of the cost of Brown sacks to Priority Mail (even if no Priority Mail were found in brown sacks), so that, somehow or other, it all balances out in the end.[4] In short, in her view, two wrongs make a right.

4. Tr. 26/14094.

In her Docket No. R94-1 testimony, Ms. Cohen acknowledged what she is reluctant to admit in this case, i.e., that different sack types are used by the Postal Service for different classes of mail; in Docket No. R94-1 she replied "Yes" to the question, "[t]he intent of having different colored sacks is to signify to postal processing personnel the type of mail in the sack. Is that correct?" Docket No. R94-1, Tr. 26A/12396-97.

Ms. Cohen's own Table 4 data show that item type is an important predictor of the mail contained within items. Mr. Degen makes use of this fact, whereas Ms. Cohen and the existing LIOCATT system ignore it.[5]

In Docket No. R94-1 Ms. Cohen relied on a chi squared test to determine whether the types of mail in (1) the counted mixed mail sample, (2) the uncounted mixed mail sample, and (3) the container sample were significantly different from each other.[6] This test is designed for the purpose of determining whether a known population (in this case, counted mixed mail) accurately represents an unknown population (uncounted mixed mail). She concluded that for the data available in Docket No. R94-1, counted mixed mail was not representative of uncounted mixed mail.

The data available in this case is significantly better than the data that were available in Docket No. R94-1. A substantially greater proportion of eligible items was counted in this case -- 52% versus 27% in Docket No. R94-1.[7] I have applied the same test used by Ms. Cohen in R94-1 to the expanded

5. The association between sack type and mail class is slightly less strong for counted sacks alone (as opposed to counted and direct sacks together), but the conclusion remains the same.

6. Docket No. R94-1, Tr. 26A/12358.

7. See USPS/MPA-T2-20(b), Tr. 14133-34. The 52% figure is derived by dividing the cost of uncounted items by the cost of all items subject to counting.

data available in this case, using the same methods and variables which she used.[8] The hypothesis tested is that counted mixed mail is not statistically different from uncounted mixed mail. For counted mixed mail compared to uncounted mixed mail not in containers, the test reveals that, for 11 out of the 14 variables tested, the hypothesis cannot be rejected at a stringent 99.5% confidence interval (the same standard used by Ms. Cohen in Docket No. R94-1). That is, the result in this case of Ms. Cohen's Docket No. R94-1 test is that for these 11 variables, *counted mixed mail is not statistically different from uncounted mixed mail not in containers.*

Of the remaining three variables, two are variants on Basic Function. If the confidence interval is adjusted to the commonly used 95% level, one of these would pass the test (i.e., the conclusion is that counted mixed mail is not significantly different from uncounted mixed mail for that variable). One of the other two variables is the data derived from the answer to IOCS question 18D Part 2, which is related to the type of mail processing operation sampled. Since Mr. Degen's distributions are stratified by MODS pools (which are related to mail processing operations), any differences between counted and uncounted mixed mail should be mitigated by virtue of his stratification. Finally, while for the remaining variable counted mixed mail does not pass the test, this one result does not negate the overwhelming conclusion that, on the whole, counted mixed mail is not statistically significantly different from uncounted mixed mail.

Similar results are found in comparing counted mixed mail to the mixed mail in containers. For 12 out of the 14 variables tested, the hypothesis cannot be rejected at a stringent 99.5% confidence interval; adjusting the confidence interval to 95% causes an additional variable to pass the test. The remaining

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8. One variable used in Ms. Cohen's analysis, F266, does not appear in the current data set and therefore is not included in this analysis.

variable is derived from the answer to IOCS question 18D Part 2. As stated before, since Mr. Degen's distributions are stratified by MODS pools, any differences between counted mixed mail and uncounted mixed mail in containers should be mitigated by virtue of this stratification.

As noted, these results are likely due to the fact that the Postal Service has made significant gains in the proportion of eligible mixed mail that is counted. In Docket No. R94-1, a little more than one-fourth (approximately 27%) of eligible mixed mail was counted; in this case, more than half (52%, or almost double the proportion in Docket No. R94-1) of eligible mixed mail has been counted. Mr. Degen has based his proposed distributions on the more robust data provided by this expanded count of mixed mail.

In Docket No. R94-1 Ms. Cohen also conducted t-tests in an attempt to investigate Mr. Stralberg's asserted suspicion that IOCS data collectors were more likely to count items with fewer pieces. She examined whether data collectors were more likely to count (1) certain item types, (2) mail in certain types of operations, or (3) mail in certain facility types.[9] Since Mr. Degen's proposed distributions in this case essentially stratify the distributions of mixed mail by these very variables (item type, MODS/BMC/Non-MODS, and, within MODS, operation-based cost pools), Ms. Cohen's Docket No. R94-1 findings in this regard are no longer relevant in this proceeding .

DISTRIBUTION WITHIN COST POOLS

Witnesses Stralberg and Cohen have asserted that Mr. Degen's use of cost pools as strata within which he distributes mixed mail and overhead costs should be rejected because of an alleged "automation refugee" problem. They

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9. Docket No. R94-1, Tr. 26A/12359-62.

assert that the Postal Service systematically sends surplus employees to operations where productivity is not measured, thus generating higher not handling mail costs in those operations. The result, they claim, unfairly penalizes those subclasses of mail with direct IOCS tallies in these operations.

There is no proof of this claim. The asserted automation refugee phenomenon was "reasoned" to be the cause of increases in Periodicals mail processing costs by witnesses Stralberg and King in Docket No. R90-1.[10]

Whether one believes that differing degrees of not handling mail costs by mail processing operation (in this case, MODS cost pools) are the result of shifting employee assignments or instead a manifestation of evolving mail processing environments, increased containerization, and other factors, the fact remains that not handling mail costs are higher in certain operations than in others. Mr. Degen merely proposes that the classes of mail which are handled in an operation bear the costs of not handling mail in that same operation.

Rather than inferring inefficient or devious Postal Service staffing decisions over a multi-year period, Mr. Degen uses actual data on the incidence of not handling costs by operation. This represents an improvement over LIOCATT, which allocated not handling costs at the most aggregate level.

DATA THINNESS

Several intervenors have expressed the concern that by parsing counted and direct mixed mail data into item and container types within defined cost pools, in some cases Mr. Degen has insufficient data points in his distribution keys. There are three important points to note on this issue: (1) using Ms. Cohen's own definition to determine the extent of the problem, it is limited to less than 5.7% of mixed mail costs; (2) the existence of data thinness in Mr. Degen's

10. See Tr. 26/14030.

distributions is significantly reduced relative to the distribution proposal that was before the Commission in Docket No. R94-1; and (3) the existing distribution system (LIOCATT) and the intervenors' counterproposals in this case also exhibit data thinness.

Ms. Cohen appears to agree that in this case 5.7% of mixed mail costs are distributed on the bases of five tallies or less.[11] However, that is not the same criterion she put forward in Docket No. R94-1. At that time, she stated that "[g]enerally accepted statistical practices dictate that there should be at least five observations in a cell to represent adequately a distribution."[12] While the difference may seem small (five tallies or fewer versus fewer than five tallies), using Ms. Cohen's original standard reduces the affected costs to 4.9% rather than 5.7%.

In either event, this result is a significant improvement over the situation the Commission faced in Docket No. R94-1. In that case, *at least 14%* of mixed mail costs would have been distributed on the basis of five or fewer tallies -- three times more than is the case under Mr. Degen's improved approach here.[13]

There is less "thinness" in this case in part because, unlike in Docket No. R94-1, Mr. Degen removes CAG as a stratification level. By aggregating many

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11. See Tr. 26/14101-02 and MPA-LR-9.

12. Docket No. R94-1, Tr. 26A/12365. Also, in oral cross-examination in that case Ms. Cohen replied "Yes" when asked, "And when you say adequate data, your test was five data points or more?" Docket No. R94-1, Tr. 26A/12381-82.

13. Docket No. R94-1, Tr. 26A/12382.

of the smaller CAG offices into a single Non-MODS strata, he provides a more robust set of distribution keys.[14]

It is important to recognize that data thinness is not unique to Mr. Degen's proposal. LIOCATT also exhibits thinness issues, as does Ms. Cohen's proposal.[15] In short, the data thinness concerns raised in this proceeding are not unique to Mr. Degen's approach. The significant improvements his distribution methods achieve should not be rejected because of a concern that is also applicable to the available alternatives.

CONCLUSION

Mr. Degen's approach is a significant improvement over both LIOCATT and the Docket No. R94-1 proposal previously reviewed by the Commission. LIOCATT is not without its own faults and assumptions. With his pool-based approach, Mr. Degen has made use of the expanded (relative to Docket No. R94-1) counted mixed mail data and has improved upon the R94-1 proposal. Intervenor criticisms of his approach are not compelling, especially in light of the shortcomings in the alternatives to it.

I strongly urge the Commission to adopt the cost distributions provided in my supplemental testimony, which result from Mr. Degen's approach and are based on returning the variability assumptions to those previously determined by the Commission.

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14. For the Non-MODS pools, Mr. Degen retains the Basic Function strata used in LIOCATT.

15. See UPS/MPA-T2-7(d)-(e), (f), Tr. 26/14101-02.