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BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D. C. 20268-0001

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

REBUTTAL TESTIMONY
OF
CARL G. DEGEN
ON BEHALF OF THE
UNITED STATES POSTAL SERVICE

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of
Carl G. Degen

AUTOBIOGRAPHICAL SKETCH

My name is Carl G. Degen. I am Senior Vice President of Christensen Associates, which is an economic research and consulting firm located in Madison, Wisconsin. My education includes a B. S. in mathematics and economics from the University of Wisconsin-Parkside and an M. S. in economics from the University of Wisconsin-Madison. I earned an M. S. by completing the course work and qualifying exams for a Ph.D., but did not complete a dissertation. While a graduate student, I worked as a teaching assistant for one year and a research assistant for two years. In 1980 I joined Christensen Associates as an Economist, and was promoted to Senior Economist in 1990 and Vice President in 1992. In 1997 I became Senior Vice President.

During my tenure at Christensen Associates I have worked on research assignments including productivity measurement in transportation industries and the U. S. Postal Service. I have also provided litigation support and expert testimony for a number of clients. In Docket No. R94-1, I gave testimony before the Postal Rate Commission on the reclassification of second-class in-county tallies for the In-Office Cost System. In Docket No. MC95-1, I gave direct testimony on letter bundle handling productivities and the makeup of First-Class presort mailings. I also gave rebuttal testimony on savings from automation, the demand for greeting cards, and analysis of qualifiers for the proposed Publications Service subclass. In Docket No. MC96-2, I

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gave testimony regarding corrections to Periodicals-Classroom unit costs, the associated standard errors, and possible changes to the sampling system. In this proceeding, Docket No. R97-1, I have given direct testimony on the Postal Service's costing methodology and the reliability of MODS data.

I. The purpose and scope of my testimony is to explain that the underlying theory dictates the required distribution methodology and to rebut criticisms of the new method.

My direct testimony in this proceeding described enhancements to the Postal Service's costing methodology. The new method develops costs by mail processing operation pools, estimates variability factors[1] and volume variable costs for each pool, and distributes the volume-variable costs to subclass using a method consistent with the variability analysis. I will explain why the distribution of mail processing costs must be done the way the Postal Service has done it in order to provide economic marginal cost. I will also explain why the new method produces more accurate estimates of costs than past Postal Service and current intervenor methods. In the process of explaining these points I will rebut the unfounded and incorrect criticisms by the intervenor witnesses.

The supporting documents for my analysis appear as Library Reference LR-H-348, which was prepared under my direction, and I sponsor it as part of my testimony. I will reference specific sections below.

II. The distribution methodology is dictated by the theory underlying the development of marginal cost as unit volume variable costs.

Several intervenors seem to want to choose among the components of the new methodology. In particular, witnesses Cohen, Shew, and Stralberg recommend the adoption of Dr. Bradley's estimated mail processing variabilities and their application to

[1] The mail processing variability analysis was conducted by Witness Bradley (USPS-T-14).

cost pools. But, they then call for distribution methods that are inconsistent with the causal relationships between costs and cost drivers demonstrated in Dr. Bradley's results. This is wrong. The new costing methodology is an integrated, consistent system, designed to produce estimates of marginal cost in the form of unit volume-variable costs.

The theory underlying the new costing methodology was set forth in the testimony of Dr. Panzar (USPS-T-4). The development of the costs pools, the estimation of variabilities, and the distribution keys that are applied to each cost pool follow the road map to marginal cost that Dr. Panzar specified. Picking and choosing from the proposed enhancements, as if ordering from a menu, undermines the economic basis for the system. Each piece of the new costing system is as it is, because it needs to be, to form accurate estimates of marginal cost. Testimony by Dr. Christensen (USPS-RT-7) corroborates Dr. Panzar's underlying theory and the need for consistent application of the methodology.

Failure to distribute costs as the new method specifies will result in bias and double counting, in addition to being inconsistent with the theory. I discuss this further below.

THE NEW METHOD ADDRESSES THE MAIN CRITICISMS OF LIOCATT

III. The new method substantially reduces reliance on not-handling tallies.

In my direct testimony, I described past criticisms of the Postal Service's costing methodology as falling into three categories. The first of these is the increase in not-

handling tallies. It is true that the new method does not reduce the number of not-handling tallies. However, the new method minimizes reliance on not-handling tallies. LIOCATT is dependent on not-handling tallies to estimate the costs associated with each pool (basic function). The new method replaces the estimation of costs by pool with accounting data from the National Workhour Reporting System and MODS. Under the new method, not-handling tallies are effectively ignored in most cost pools.[2]

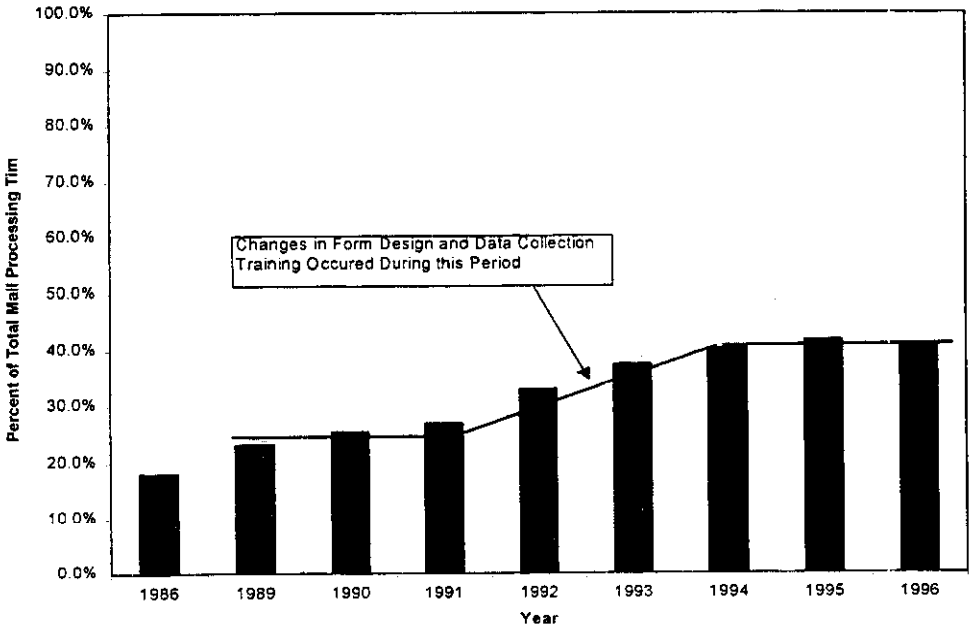
The growth in the number of mixed and not-handling tallies is being incorrectly interpreted as evidence of inefficiency. It is not. Part of the growth in not-handling tallies is simply the result of a change in the IOCS question 20 instructions.[3] Beginning in FY1992, the Postal Service instructed data collectors not to ask employees to pick up mail if the employee was not handling mail at the time of the reading.[4] This change was designed to eliminate any possible bias due to non random sample of employee activities. Figure 1 shows that the increase in not-handling costs occurs in FY1992 and FY1993 when these reporting changes were taking effect.[5]

Another reason the proportion of mixed and not-handling tallies has increased is that the technology of mail processing has changed. More centralized mail processing in larger facilities, and increased automation are contributing to higher proportions of

[2] Where not-handling tallies are used, they only determine the distribution of costs between mail and special services.
[3] IOCS question 20 responses are used to determine whether or not an employee was handling mail.
[4] There had never been any instruction that data collectors should ask employees to pick up mail, but there was concern that this was happening.
[5] For FY1996 data collectors were instructed to choose mail from the machine being operated—the not-handling proportion declines in FY1996.

not-handling tallies. The proportions of not-handling costs vary across cost pools because the not-handling activities of the operations in each pool vary. I will discuss, below, the essential and productive nature of the large portion of employees' effort that does not involve handling mail.

Figure 1
Not-handling Costs as a Proportion of Total Mail Processing Costs, 1986 - 1996



IV. The new method improves the accuracy of mixed-mail distribution.

The second category of past criticism is the accuracy of mixed-mail distribution methods. Accuracy has two dimensions, bias and efficiency. Historical criticisms of LIOCATT have focused on bias, arguing that LIOCATT fails to account for compositional differences between mixed-mail and direct mail (Docket No. R94-1, TW-T-1, at 11, Tr. 15/7134). The new method also eliminates any bias that results from the distribution of costs from an operation to subclasses that are not handled in that

operation. I further discuss the bias in different mixed-mail distribution methods in Section X.

To the best of my knowledge, efficiency of the mixed-mail distribution has not been a major criticism of LIOCATT, however, it has been raised as criticism of the new method. I discuss efficiency in Section XIII.

V. The new method replaces the assumption of 100 percent variability with econometric estimates of variability.

The final category of past criticisms discussed in my direct testimony was the traditional assumption of 100 percent variability. Dr. Bradley has answered that issue well, as described in his testimony. It must be clear, however, that his methods dictate that all volume-variable costs within each pool must be distributed to the subclasses handled in the operations in that pool. Several intervenors embrace Dr. Bradley's less than 100 percent variability estimates, but overzealously seek to further reduce variable costs—picking through cost pools for institutional costs that they can pare away from their subclasses before calculating volume variable costs. This is wrong.

When Dr. Bradley estimates variabilities, he is using all the costs in each cost pool as his dependent variable. The fact that Dr. Bradley's variability estimates are less than one indicates some of each cost pool's costs are not related to mail volume. When his estimated variability is applied to each cost pool, it produces volume-variable costs—the subset of that pool's costs that is volume related. It would be double counting to first try to identify which of the costs in each pool are not volume variable and remove them, and then apply the variability estimate only to the remaining costs.

The new costing methodology has squarely addressed each of the categories of past criticism that I described in my direct testimony. The new method nearly eliminates reliance on the not-handling tallies. The improved distribution of mixed-mail represent a less biased and equally efficient method of mixed-mail distribution. The new method properly estimates marginal costs when the estimates of variability and the distribution method are consistently applied as the theory dictates.

RESPONSE TO CRITICISM OF THE NEW METHOD

VI. The assumptions of the new method are not new. The new method, LIOCATT, and the Stralberg/Cohen method all assume that mixed-mail costs have the distribution of direct costs within a cost pool.

The Postal Service's new cost distribution method for mail processing has been criticized as relying on new assumptions. The Postal Service's new method, LIOCATT, and the Stralberg/Cohen method all make the same assumption for distribution of mixed-mail processing costs. Each method assumes that, for each cost pool, the costs for which the subclass distribution is not known, have the same underlying distribution as the costs for which the subclass distribution is known. The question comes down to: which partitioning of costs into pools produces unbiased estimates under this assumption. LIOCATT and the Stralberg/Cohen method use very aggregate cost pool definitions derived exclusively from sample results (basic function).

The Postal Service's new method uses very specific operation, item, and container-based cost pools. Operations, items, and containers can have very strong subclass associations. (Tr. 26/14048) Cost pools defined along these dimensions will,

therefore, have less bias, because each pool's costs are only distributed to the subclasses of mail handled in that pool's operations and associated with that item or container type.

Witness Stralberg recognizes the value of precisely defined cost pools when he argues for the treatment of pallets as items (Tr. 26/13838). His reasoning would seem to directly contradict his proposed method which relies on very aggregate cost pools.

The Stralberg/Cohen method and LIOCATT redistribute not-handling costs in a complicated way. The new method uses not-handling costs only to determine the relative share of not-handling costs between mail and special services.

VII. The new method is no more untested than LIOCATT or the Stralberg/Cohen method.

The Postal Service's new method is criticized as being untested. (Tr. 26/14046) During my oral testimony I indicated I had not done any testing of the distribution assumptions, though I made it clear that my methods were determined by the need to be consistent with Dr. Bradley's work (Tr.12/6666). Dr. Bradley's regression results relate costs to the mail handled in that operation group. In that sense, Dr. Bradley's work could be viewed as confirmation of the assumptions of the new distribution method.

Witnesses Panzar and Christensen show formally that the Postal Service methodology actually estimates the underlying causal relationships between volume-variable costs and the subclasses of mail. Dr. Christensen also shows that LIOCATT

and the Stralberg/Cohen method are inconsistent with economic theory even under the untested and, I believe, untrue assumption that there is cross-pool causality.

It is ironic that intervenor witnesses argue that the new mail processing distribution method should be rejected because it is based on untested assumptions. The methods they would have us fall back on (LIOCATT or Stralberg/Cohen) are based upon truly untested assumptions. Instead of rejecting the new method because it makes different assumptions than LIOCATT, a careful comparison of the assumptions of each distribution method should be used to determine which system more accurately estimates the unknown distribution of mixed-mail costs.

VIII. Tradition is no reason to accept the biases in LIOCATT and the Stralberg/Cohen method.

While the Postal Service's new method is fully grounded in reliable operational data and economic theory, Witness Stralberg argues for adoption of the method that he and Witness Cohen propose on the grounds that their method is "closer to the traditional approach" (Tr.26/13819). I am not aware of any cost causality tests that supported the "traditional approach." Indeed, Dr. Christensen indicates that it is unlikely that LIOCATT properly represents any empirically verifiable patterns of causality (USPS-TR-7). An abundance of criticisms have been leveled at LIOCATT by numerous intervenors—including witnesses Cohen and Stralberg. Indeed, in Docket No. R94-1, witness Stralberg contended that the LIOCATT mixed-mail distribution assumptions—the basis for his current proposal—were "highly questionable" (Docket No. R94-1, TW-

T-1 at 10, Tr. 15/7133) and that the resulting cost distribution was "in all likelihood severely distorted" (Tr. 15/7135). Witness Stralberg specifically criticized LIOCATT for distributing mixed and not-handling costs to subclasses that could not have caused those costs (see Docket No. R94-1, Tr. 15/7136-40).

We know that the proportions and composition of direct, mixed, and not-handling tallies vary across the MODS-based cost pools. This fact alone would argue definitively for the use of these cost pools. It also should not be surprising to anyone with a good understanding of mail processing. I have observed these operations in many plants. Employees actually have mail or items in their hand only a surprisingly small portion of the time, and that portion depends on the nature of the operation.

IX. Pool definitions for the distribution of mail processing costs must be *evaluated for bias using knowledge of mail processing.*

The major point of departure between the new method and LIOCATT is the definition of the cost pools. The cost pools in the new method are defined using technological and operational distinctions that have been used in the Postal Service for more than twenty years, while LIOCATT defines cost pools using basic function[6]. Basic function is a nebulous, ill-defined concept of mail processing activity created by IOCS and used only by IOCS.[7] Witness Stralberg argued in his testimony that MODS-based cost pools should not be used because they are "impure". Under cross-examination,

[6] The critics may argue that I have left off the CAG dimension. While it is true that there is also a CAG dimension, the great majority of mail processing costs occur in only one CAG (CAG A plants).
[7] There are more than two pages in the IOCS operating procedure handbook devoted to explaining the rules for assigning a basic function to a tally. (See USPS LR-H-49, pages 135-138.)

witness Stralberg conceded that basic function is impure in the same way in which he criticized MODS-based pools as impure (Tr. 26/13985).

The choice of a basic function by a data collector depends on the data collector's knowledge of mail processing operations and understanding of IOCS reporting rules. MODS hours data are based on the same clock ring data that support the payroll system. These data have been used by the Postal Service and the Inspection Service for years. MODS is the source of operational data for Postal operations.

Basic function was employed in LIOCATT in recognition of the fact that outgoing and incoming mail would be likely to have different underlying operational mixes and, therefore, different subclass profiles. Using that same reasoning leads naturally to the further refinement of the cost pools in the new method. Distributing mixed-mail costs within a basic function ignores the canonical technological and operational boundaries. The result is a bias against non-presorted mail, because non-presorted mail has a high proportion of its cost in operations where it is likely to be observed as a single piece (and result in a direct tally). Thus, the costs associated with tallies of containers in opening units, where presorted mail is relatively more common and is likely to result in "mixed" tallies, are distributed to the subclasses which dominate piece-sortation operations.

Witness Stralberg argues that LIOCATT is biased to overstate Periodicals costs because items and containers that are known to have fewer pieces will be recorded as direct tallies (Tr. 26/13831). Witness Stralberg argues that, within operations where mail is being handled as a container or an item, Periodicals will make up a larger

proportion of the direct tallies than of all mail being handled in the operation. This is wrong.

Item and container handling costs are distributed using the distribution of direct and, as applicable, counted item costs within a cost pool. There is no evidence that brown sacks, with Periodicals in them, are any more likely to be counted than brown sacks that have other classes. In fact, data collectors expect all brown sacks to contain Periodicals because that is standard operating procedure.

Similarly, there is no evidence that mixed-mail costs would not have the same subclass distribution as the direct costs in a pool defined by operation group and item or container type. Most mixed-mail tallies are the result of a data collector observing an employee who is not handling mail, but who is working in a sortation operation. The data collector records these facts and IOCS assigns a mixed-mail code. Witness Stralberg would have us believe that there is some important difference between the underlying distribution of direct costs and the distribution of costs associated with mixed-mail. It is difficult to see how this could be true when most mixed mail costs are not associated with any particular mail, but rather, the presence of the employee in a particular operation group.

Witness Stralberg's assertion that data collectors are more likely to count certain mailings is simply an assertion, but an assertion with which witness Cohen does not appear to agree (Tr. 26/14148). He points to the varying proportions of counted items and containers by type, but does not consider in which operations each item or container is counted and how the exigencies of that operation or the preparation of

items, such as the shrinkwrapping of sacks on pallets, would cause different proportions of counting. However, his accurate observation, that the proportion of counted items varies by type, clearly argues for item as a mixed mail distribution category.

X. Operation, item, and container-based cost pools reduce bias and more accurately account for shape when distributing mixed-mail costs.

Instead of large cost pools defined by basic function, the new methodology makes use of the MODS operation, item, and container information to restrict distribution of mixed-mail costs. The distribution of mixed-mail costs by cost pool requires two straightforward assumptions: 1) that the subclass distribution of uncounted items is the same as the subclass distribution of counted items within each cost pool, and 2) that items in containers have the same subclass distribution as items handled individually within each cost pool.[8] Common sense tells us that these assumptions are true or at least more nearly true for the detailed MODS-based cost pools than for basic functions.

By arguing for the use of the shape-specific activity codes, witnesses Stralberg and Cohen are endorsing, no doubt unwittingly, operation-based cost pools. Shape-specific mixed-mail codes are defined by operation groupings in IOCS. They are primarily created when an employee is observed not handling mail within an operation that has a dominant shape association. The new method extends that compelling line

[8] For uncounted items in platform, the pool is broadened to include all allied operations in recognition of the fact that many items are not directly handled until they reach other allied operations.

of reasoning by using operation-based pools even in the absence of a dominant shape relationship, recognizing that there may still be a strong subclass association. The new method also defines the operational cost pools using the MODS data—eliminating sampling error and tally weighting bias in determining total costs for the operation.

Witness Cohen (Tr. 26/14048), in an apparent attempt to discredit the use of item and container type to define cost pools, presents substantial evidence of the strong correlation between item type and subclass distribution. She argues that, since this correlation is not perfect, use of item distributions or mixed-mail proxies is invalid. She completely misses the point. The existence of any correlation between item type and subclass means that bias will likely result if item type is not used to partition mixed-mail costs. LIOCATT and the Stralberg/Cohen method make the more questionable assumption: that the contents of uncounted items and containers have the same subclass distribution as all direct costs associated with mail being handled in all operations throughout the plant, regardless of item or container type, at that general time.[9]

To illustrate the point that the MODS-based cost pools distribute costs to the subclasses handled in an operation better than the Stralberg/Cohen method, we analyzed the cancellation and mail preparation cost pool 1Canc MPP. This cost pool is not exclusively cancellation (Tr. 12/6138), but that is the predominant activity. We looked at the distributed volume-variable costs occurring in this cost pool. Table 1

[9] Time of processing can be viewed as an approximation of basic functions: outgoing (tour 3) and incoming (tour 1).

compares the distribution of these costs under the Postal Service's new method to the proposed Stralberg/Cohen method. The Postal Service's new method distributes these costs by item and container type in proportion to direct costs within 1Canc MPP. The Stralberg/Cohen method distributes these costs in proportion to all direct costs by basic function. The results are very different. Clearly the MODS-based method is more consistent with our understanding of cancellation operations. The Stralberg/Cohen method distributes over 40 percent of mixed flat costs from cancellation to Periodicals and Standard (A).

Table 1
1Canc MPP Mixed Mail Distribution
New Method v. Stralberg/Cohen

	Letters		Flats	
	New	*Stral/Cohen*	*New*	*Stral/Cohen*
Subclass	Method	5610	Method	5620
First	95.5%	83.1%	79.1%	49.2%
Periodicals		0.2%	4.7%	12.3%
Standard A	2.5%	13.9%	3.6%	28.7%
Standard B			0.6%	0.3%
Priority			10.5%	5.6%
Express			0.5%	1.5%
Other	2.0%	2.8%	1.1%	2.5%

XI. The new method eliminates bias by incorporating across-LDC wage differences.

Wages for mail processing labor vary greatly across LDCs. The new method allows the implicit wage rate to vary across LDCs eliminating any bias in estimated costs. However, the tally cost weights used in the LIOCATT system and in the alternative distribution proposed by witness Buc don't take this into account. For example, LIOCATT overestimates the costs associated with single piece

letters to some extent, because letters are processed in automation and remote encoding operations where wages are lower. Presort subclasses will have a much smaller proportion of their costs in these low-wage operations. During cross-examination, Witness Buc confirmed that cost distributions could be biased when there are wage differences across operations and the cost distribution does not account for them (Tr. 28/15451-15455, 15470-15473).

XII. The new method's MODS-based costs pools have no sampling error and less non-sampling error than cost pools based on basic function and mixed-mail codes because the MODS-based pools are from an accounting system rather than a sampling system.

Use of MODS codes to assign costs to cost pools replaces a sample-based assignment with a reliable, accounting-based assignment. MODS data are compiled from the same clock-ring data that are used to generate employees' paychecks. Both the employees and the Postal Service have strong incentives to get them right. It is true that employees are sometimes misclocked in MODS. However, the robust relationships that Dr. Bradley finds between hours and workload strongly suggest that this is not a problem for the level at which the operation groups have been defined. However, to whatever limited extent there are misclockings present in the cost pools, they are the same as those used by Dr. Bradley to estimate variabilities. Intervenors, who accept Dr. Bradley's estimated variabilities and recommend their use, cannot credibly argue that MODS misclockings are a problem or that cost pools can be defined any other way than the way that they were constructed for estimation of those variabilities.

As an accounting system, MODS contains no sampling error and, the recording of MODS codes in ICOS should embody less non-sampling error than basic function since having data collectors determine the nature of an observed employee's activity is subjective. (Tr. 26/13984-13985) The Stralberg/Cohen method also relies on the shape-specific mixed-mail activity codes which depend on data collectors' ability to

consistently identify a sampled employee's activity. These are certainly subject to more non-sampling error than MODS operation recording.

XIII. The new method does not create sample thinness problems—the CVs for the new method are comparable to the CVs for the old method. Even if the new method had substantially higher CVs, it would still be preferred because it has less bias.

Witnesses Buc and Cohen have tried to suggest that LIOCATT must be preferred over the new method simply because the number of distribution keys in the new method is too large and number of sample points underlying some of the keys is too small. They argue that partitioning costs into operation group yields distribution keys that are too "thin" (Tr. 28/15378). Witness Buc offers several pages of analysis arguing that the distribution keys have coefficients of variation that are too large to support reliable cost distribution.

There are two problems with this line of reasoning: 1) elimination of bias is the top priority which nearly always take precedence over efficiency, and 2) the most meaningful measure of efficiency for a costing system is the efficiency of the final cost estimates. As I discuss above, the new method uses a more detailed partitioning of costs to eliminate bias. As it turns out, this reduced bias has not caused any appreciable decline in efficiency.

The arguments of Witness Buc and Cohen focus on the large number of pools with "thin" distribution keys. What they don't point out is that these "thin" distribution keys apply to very small pools of costs. Any meaningful analysis would have to account for this fact. I can only surmise that they had to resort to these partial, misleading

analyses because coefficients of variation could not be obtained for final estimates from the different methods.

In response to these criticisms, we have used bootstrapping techniques to estimate coefficients of variation for the mail processing cost estimates for both the new method and LIOCATT. The results in Table 2 show the efficiency of the final estimates, including the effects of mixed-mail cost distribution. This is now a meaningful comparison, and the new method has only marginally higher CVs. Section B of LR-H-348 describes our methods. These results make it clear that the elimination of bias was achieved with no significant loss of efficiency.

Table 2
Coefficients of Variation
Comparison of LIOCATT vs. MODS-Based Distribution 1996

Subclass	LIOCATT CV	MODS-Based CV	Difference (LIO - MODS)
First Class			
Letters and Parcels	0.4%	0.4%	0.0%
Presort Letters and Parcels	1.2%	1.4%	-0.1%
Postal Cards	20.7%	21.1%	-0.4%
Private Mailing Cards	2.8%	3.6%	-0.8%
Presort Cards	5.9%	6.8%	-1.0%
Priority	1.8%	1.7%	0.1%
Express	4.1%	3.8%	0.3%
Periodicals			
Within County	10.9%	10.5%	0.4%
Regular	1.8%	2.0%	-0.2%
Non Profit	4.1%	4.7%	-0.6%
Classroom	17.0%	20.5%	-3.5%
Standard (A)			
Single Piece Rate	4.2%	4.9%	-0.7%
Regular Carrier Route	2.5%	2.7%	-0.1%
Regular Other	0.9%	1.0%	-0.2%
Non Profit Carrier Route	7.0%	8.2%	-1.3%
Non Profit Other	1.9%	2.1%	-0.3%
Standard (B)			
Parcels - Zone Rate	2.7%	3.4%	-0.7%
Bound Printed Matter	4.2%	4.8%	-0.6%
Special Rate	4.0%	4.4%	-0.4%
Library Rate	8.6%	9.5%	-0.8%
USPS	4.2%	4.8%	-0.6%
Free for Blind/Handicapped	11.9%	11.1%	0.8%
International	2.0%	2.5%	-0.5%
Registry	3.1%	4.3%	-1.2%
Certified	5.9%	7.6%	-1.7%
Insurance	38.2%	40.2%	-2.0%
COD	21.1%	24.0%	-2.9%
Special Delivery	25.5%	33.9%	-8.4%
Other Special Services	3.4%	3.8%	-0.5%

OTHER ISSUES RAISED BY INTERVENORS

XIV. Proportions of not-handling costs cannot be compared between 1986 and 1996 because of a substantial change in data collection instructions.

The IOCS is designed to sample employees at designated points in time. As I have discussed, a large portion of some employees' productive time will not be handling mail. In the early 1990s data collectors were overzealous in terms of associating a piece of mail with a sampled employee. This may not appear to be a problem but, when an employee is not actually handling mail, the data collector must make a subjective determination which can result in non-sampling error, or even bias. Once aware of this problem, the Postal Service took steps to correct this misperception among its data collectors. Section C of LR-H-348, describes the change that the Postal Service made to its data collection and includes the relevant excerpts from the training materials. Since there has been a change in data collection methods, one cannot conclude that the increase in the proportion of not-handling tallies indicates inefficiency.

XV. The growth in not-handling costs is not evidence of inefficiency—not-handling costs represent productive work that is integral to all operations, though the proportions may vary across operation groups.

Witness Cohen argues that the "explosion" in not-handling tallies is prima facie evidence of inefficiency, with the large portion of not-handling in activity codes 5750 and 6523 being particularly suggestive (Tr. 26/14061). Witness Cohen's statement that "costs for these codes, almost by definition, indicate inefficiency" is wrong. It denies the reality that some activities involve a portion of time not handling by their nature and that

equipment must be maintained and moved around a facility. Even the process of equipment movement and maintenance involves return trips, etc., where sometimes even empty equipment is not being handled. To suggest that the Postal Service could operate efficiently, in a system where every employee was always handling mail, is absurd.

Pony Express riders may have always been able to keep their saddlebags full, but today's mechanized mail processing plants rely on the handling of mail in containers. These containers require movement which results in not-handling time, that IOCS accurately records. Witnesses Stralberg and Cohen have both admitted that there are valid reasons why not-handling costs are observed and that the associated costs can be directly related to handling certain types of mail (Tr. 26/14017, 14149-14150). In addition, witness Cohen admits that she doesn't "...know what the number is for not handling" (Tr. 26/14152). When witnesses Stralberg and Cohen recommend that all not-handling costs be treated as institutional, they are recommending that we deliberately understate costs for subclasses of mail that are handled in operations with inherently high levels of not-handling time, because they believe some of these costs are unproductive.

Witnesses Stralberg and Cohen justify treating all not-handling costs as institutional with the simple fact that the proportion of not-handling costs is rising (Tr. 26/13818-13819, 14017-14018). As I explained above and will explain further below, there are valid reasons for the increase in not-handling tallies. However, even absent an explanation for increasing not-handling proportions, I am disturbed by the

suggestion that we should misallocate not-handling costs we know to be directly related to specific subclasses on the pure conjecture that some not-handling costs represent inefficiency. The proposal is even more disturbing given that witnesses Stralberg and Cohen would have us remove these costs before calculating volume variable costs, so they would be double counted.

Application of the variability factors allows us to identify non-volume variable costs by cost pool and not distribute these to subclasses. When Witness Sellick (Tr. 26/14174) uses the new distribution method with 100 percent variability, he is assuming, not only that mail processing is 100 percent variable overall, but, that every cost pool has the same volume variability and it is 100 percent (Tr. 26/14174). Based on my understanding of operations, I would not expect any econometric analysis by cost pool to find the same variability for all cost pools.

For the Stralberg/Cohen proposal (treating all not-handling costs as institutional) to make any sense at all, it would be necessary that we estimate volume variabilities after these costs are removed from the cost pool. Further, there would have to be some evidence that the vast majority of not-handling cost were, in fact, non-productive volume-variable costs. This is simply not the case. On the contrary, my first-hand observation of hundreds of work floor situations and my understanding of Postal Service incentive and accountability leads me to conclude that nearly all not-handling costs are associated with productive activities.

All operations involving movement of mail from one point to another will have very large proportion not handling. For example, dock operations like loading and

unloading trucks can have upwards of fifty percent not handling because waiting time is all not handling, and moving in and out of the truck is at least half not handling.

The reality of the workroom floor is that there are many essential and productive activities that do not involve handling mail or empty items or containers. Here are some other examples:

- walking to another machine to work there while the machine you were working on is being repaired
- turning back to the belt to pick up another piece after you have pitched the one you were holding
- walking back to the pallet of mail to pick up another bundle after depositing a heavy bundle that could not be accurately pitched in a sack or container.

In nearly every activity, a thoughtful observer would see that there are large portions of time where employees do not actually have mail in their hands. The data collectors are instructed to sample an employee at an instant in time. There should be many such instances. The results of Table 3 show the variation in the proportion of not-handling costs by cost pool. Operations involving mail movement and waiting time, like platform, opening, and bulk prep, have larger proportions of not-handling costs than the piece sortation operations.

Table 3
Percent of Not-Handling Time by Cost Pool

Cost Pool	1996
11 bcs/	33%
11 ocr/	32%
12 1SackS_m	55%
12 fsm/	30%
12 lsm/	25%
12 mecparc	41%
12 spbs Oth	42%
12 spbsPrio	44%
14 express	67%
14 manf	32%
14 manl	30%
14 manp	41%
14 priority	41%
14 Registry	55%
15 LD15	36%
17 1Bulk pr	51%
17 1CancMPP	38%
17 1EEQMT	29%
17 1MISC	77%
17 1OPbulk	43%
17 1OPpref	45%
17 1Platfrm	56%
17 1POUCHNG	45%
17 1SackS_h	51%
17 1SCAN	55%
17 1SUPPORT	92%
18 BusReply	43%
18 MAILGRAM	70%
18 REWRAP	64%
41 LD41	48%
42 LD42	32%
43 LD43	34%
44 LD44	33%
44 LD48 Exp	79%
44 LD48 Oth	72%
48 LD48_SSv	65%
49 LD49	43%
79 LD79	80%
BM BMCs	45%
NM Non Mods	25%
Total	41%

XVI. There is no evidence of automation refugees—not handling costs are rising in non-Allied operations faster than they are rising in Allied operations.

The allegation that excess employees are sent to allied operations is completely counter to my understanding of field operating procedures.[10] I am not aware of any supervisors or managers at any level who would allow excess labor to be charged to their operation. Further, having clerks clock into mailhandler-dominated operations, like platform, is problematic given the strong delineation of jobs enforced by the unions.[11]

The pattern of increase in not-handling proportions is not consistent with the current version of the automation refugee theory. The data in Table 4 clearly show that the proportion of not-handling costs in allied operations has increased about 50 percent, while in the non-allied operations, the not-handling proportion has almost tripled. This directly contradicts the theory that employees are being sent to allied operations in increasing numbers.

[10] See also the testimony of Postal Service witness John Steele (USPS-RT-8).
[11] See the earlier testimony of witness Stralberg (Docket No. R90-1 Tr. 27/13284) and Regional Instruction 399, part of the agreement between the Postal Service and the National Postal Mailhandlers' Union.

Table 4
Percent of Not-Handling Time for Allied and Non-Allied Operations
FY 1986 - FY 1996

Percent Not-Handling

	Allied	Non-Allied
1986	37%	12%
1989	43%	16%
1990	45%	18%
1991	46%	20%
1992	49%	25%
1993	53%	31%
1994	54%	33%
1995	55%	35%
1996	55%	33%

Growth in Non-Handling by Epoch

Epoch	Allied	Non-Allied
86-89	16%	34%
89-91	8%	21%
91-94	19%	68%
94-96	2%	-1%
86-96	51%	170%

XVII. The increase in Periodicals mail processing costs is being exaggerated, and the actual increase in recent years appears to be explained by the use of more aggregate pallets.

Witness Stralberg and others have argued that Periodicals unit costs are rising faster than the inflation in overall Postal Service costs since 1986. This basic assertion is true, but the rate of increase is being exaggerated, and what real increase occurs appears to be explained by a change in mail preparation. Figure 2 is a plot of mail processing unit costs for regular rate Periodicals. It certainly creates the impression that Periodicals costs are outstripping the increase in the average wages of clerks and

mailhandlers. Figure 3 is the same plot with the series rebased to be equal in 1989. Figure 3 is more informative, in that it is easier to see that Periodicals costs increased faster than wages in 1987-1989, tracked wages closely in 1990-1991, declined substantially relative to wages in 1992, and then increased somewhat relative to wages. By 1996, Periodicals costs were slightly higher in real terms[12] than they had been in 1989.

In Figures 2 and 3 the inflation measure is the average wage for clerks and mailhandlers. With the opening of Postal Service-operated remote encoding centers (RECs) beginning in 1993, the growth in the average wage for all clerks and mailhandlers has slowed because REC site clerks, who are predominantly transitional employees paid at relatively low wages, are increasing as a proportion of the total. Only letter mail benefits from the use of REC sites. Periodicals, which are predominantly flats, get minimal benefits from any REC site labor. The phenomenon of REC site wages pulling down the average will stop once the REC site share is stable. Hence, the comparison of mail processing unit costs for Periodicals to the average clerk and mailhandler wage, over the 1993-1996 period, is misleading.

We have calculated the average wage for clerks and mailhandlers as an index using average clerk and mail handler wages by LDC. The details of these calculations appear as Section D in LR-H-348. The weights for the index are based on the cost shares of regular rate Periodicals for each LDC. That index is based to the overall clerk

[12] By real terms we mean adjusted for inflation. If inflation rises five percent and costs rise five percent over some period, we say prices have not changed in real terms.

and mailhandler wage index in 1993 and the result is plotted in Figure 4. Now we see that the substantial decline relative to inflation in 1992 has not quite been offset by 1996.

The issue of increased Periodicals costs has been used to argue for rejection of the enhancements to the costing methodology. The changes to the distribution of mail processing costs are not causing Periodicals costs to rise faster. In fact, if we apply the MODS-based methodology to 1993 and compare the resulting unit costs to 1996, we see that under the new methodology, the unit costs of regular rate Periodicals grow even less than under LIOCATT. See Figure 5.

Overall, this is a far less disturbing picture than the one painted by the intervenor witnesses. From 1989 to 1996, Periodicals real unit costs have declined somewhat. Nonetheless, the increase in mail processing unit costs relative to inflation since 1991 still warrants analysis.

Since the early 1990s, there has been a significant increase in container and bundle handlings. Bundle-based rate qualifications, meaning a 5-digit bundle on an SCF pallet would be paid at the 5-digit rate, were introduced in 1983. Previously, that bundle had to have been in a 5-digit sack to be paid at the 5-digit rate. Bundle-based rate qualifications were part of the Postal Service's movement away from sacks, toward pallets. The change in qualifications did not immediately cause a big shift to pallets, but increased mailer awareness and printers' realization that mailings were less costly to prepare on more aggregate pallets have greatly increased the use of pallets.

Comparing the 1993 and 1996 mail characteristics studies, we see that the

Figure 2
Comparison of Regular Periodicals Mail Processing Costs
and Clerk and Mailhandler Wages
(Indexed, 1986 = 1)

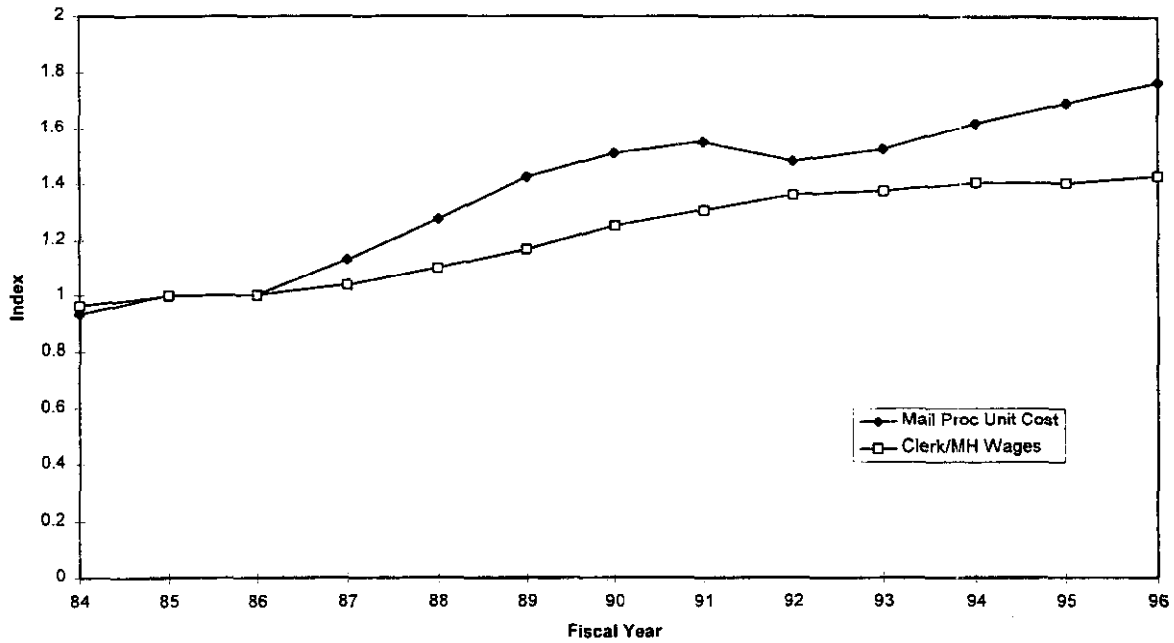


Figure 3
Comparison of Regular Periodicals Mail Processing Costs
and Clerk and Mailhandler Wages
(Indexed, 1989 = 1)

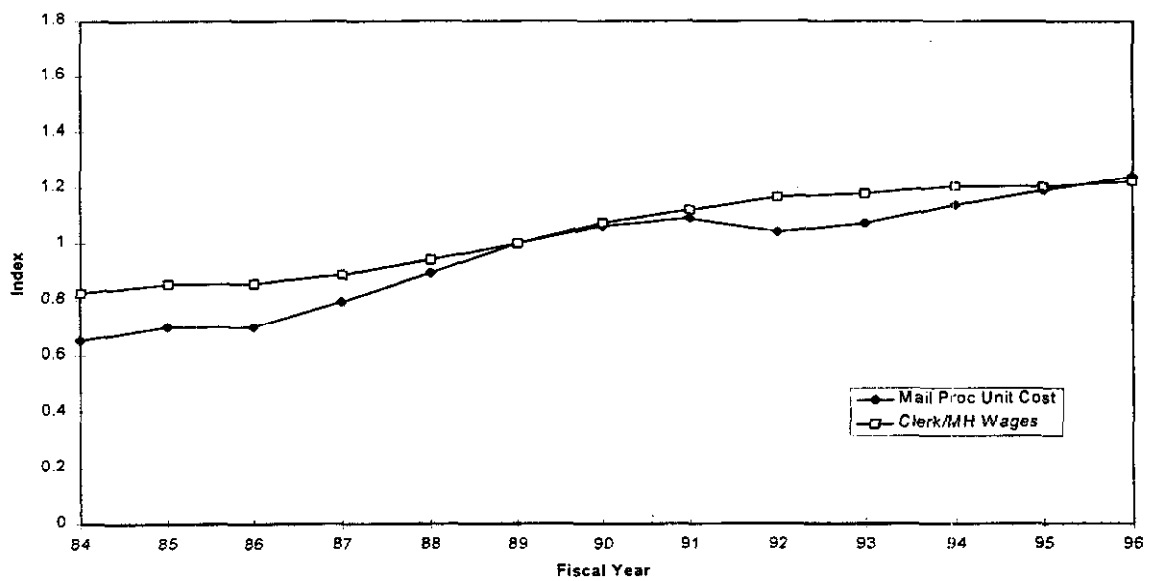


Figure 4
Comparison of Regular Periodicals Mail Processing Costs and Regular Periodicals Wages (Using LDC Weights)
(Indexed, 1989 = 1)

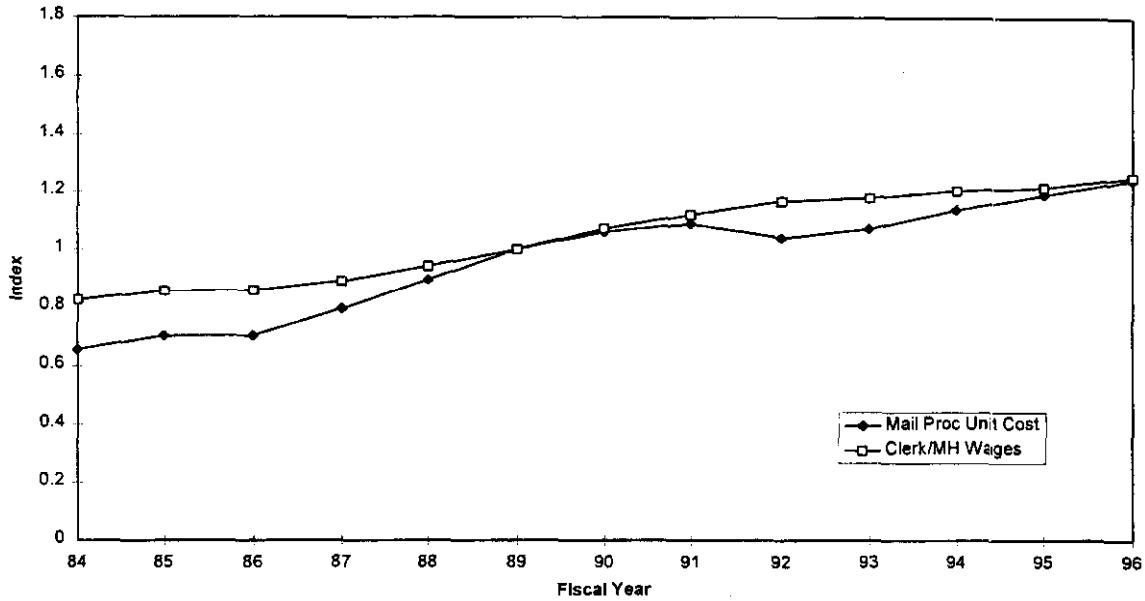
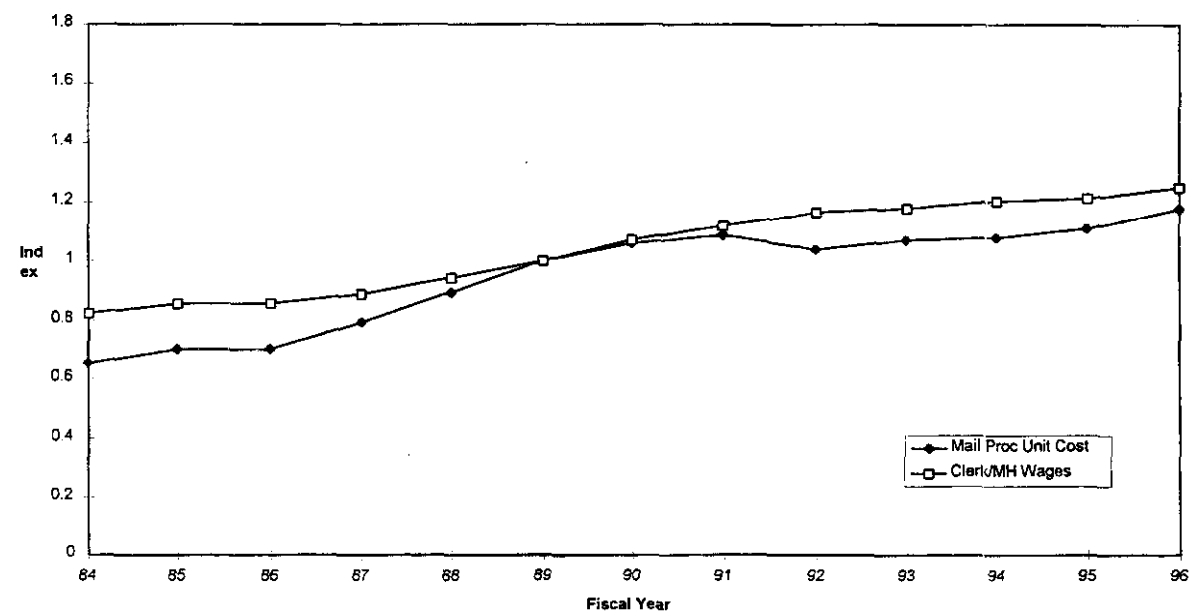


Figure 5
Comparison of Regular Periodicals Volume Variable Mail Processing Unit Costs* and Regular Periodicals Wages (Weighted by LDC)
(* Variable Costs computed for FY 93 - FY 96, Linked to CS 3.1 in FY 93)
(Indexed, 1989 = 1)



percentage of palletized mail on 5-digit pallets has decreased from 43 percent to 11 percent. Further details of the comparison showing the movement to more aggregate pallets appear in Section A of LR-H-348. The trend toward more aggregate pallets has, undoubtedly, been partially driven by drop shippers wanting to improve the cube utilization of their trailers. Less aggregate pallets reduce weight per unit of floor space even when stacked to allowable levels.

Bundle-based rate qualifications have allowed a migration toward more aggregate pallets, (e.g., 3-digit pallets replacing 5-digit pallets) so that the Postal Service is having to do more bundle sortation. The workload of breaking down pallets and sorting the bundles sometimes falls into the platform and opening unit operations—precisely where some of the "unexplained" cost increases are occurring.

In Docket No. MC95-1, the Postal Service presented an analysis of Periodicals costs partitioning mailers into qualifiers and non-qualifiers, corresponding to the classification reform proposed (but not adopted) in that proceeding. We have updated that analysis and the calculations appear as Section E of LR-H-348. Qualifiers, the large-volume, high-density mailers, have substantially lower mail processing unit costs than non-qualifiers. However, since 1993, the unit costs for qualifiers have risen much faster than the unit costs for non-qualifiers (+15 percent vs. -5 percent). Large mailers are clearly the primary users of more aggregate pallets and their costs are rising.

Another way that IOCS data can be partitioned is to sort mailers by volume and then separate them into groups so that each group accounts for approximately one-tenth of total volume. This analysis also appears in Section E of LR-H-348. The cost

and volume estimates for each group should have equal and acceptable statistical reliability. The results appear in Table 5. The real unit costs for the top group, which has only one mailer using predominantly 5-digit pallets, decline 36 percent since 1993. The next two groups by size are dominated by publications that use more aggregate pallets. The real unit costs for these two groups increase 46 and 27 percent respectively. The fourth group has some pallet mailers, though the extent is smaller. This group's costs increase 10 percent. Groups five through ten are smaller mailers, whom we believe have minimal pallet use, and we see that none of the groups' real unit costs increase.

The evidence that the use of more aggregate pallets has increased costs is very strong. My discussions with field personnel support the fact that bundles on pallets requiring several sorts are driving up costs. Bundle handlings may be cheaper than sack handlings, but more aggregate pallets mean more bundle handlings. Moreover, the fact that bundles average fewer pieces than sacks means that the cost of handling a bundle is spread over fewer pieces.[13] Repeated handlings also cause bundle breakage that results in piece handlings.

More aggregate pallets appear to be causing the increase in unit mail processing costs, but more aggregate pallets should be reducing certain preparation costs for mailers. It is the net effect that matters. The increase in postage costs should probably be offset, at least partially, by mailers' savings from the use of more aggregate pallets.

[13] The average number of pieces per bundle has also declined, as the result of a substantial decline in 5-digit bundle size only partially offset by increases in other bundle sizes. These changes also mean more workload for the Postal Service.

As my analysis demonstrates, Periodicals costs are not out of control. The increase in Periodicals costs relative to inflation has been exaggerated. The increases we do observe appear to be very correlated with the increases in the use of more aggregate pallets. However, none of this discussion is relevant for evaluation of the enhancements to the costing system. If it were, it would argue in favor of the new method, since, under it, measured Periodicals costs would rise less than they have under LIOCATT as shown in Figures 4 and 5.

Table 5
Regular Perdiodicals
Unit Volume Variable Mail Processing Costs by Volume Decile

Decile	Number of Publications	Real Growth
1	1	-36%
2	3	46%
3	6	27%
4	14	10%
5	31	0%
6	58	-5%
7	116	-7%
8	268	-17%
9	685	-1%
10	8305	-25%
Total*		4%

Deciles are created by sorting publications in decreasing order of annual mail volume and then dividing the list into ten groups of approximately equal mail volume.

* Total includes all publications, but deciles only include publications mailed all four years at PERMIT offices.

XVIII. Comparisons of Periodicals unit costs to other subclasses are meaningless without adequate control for the relevant work-causing characteristics such as shape and presort level.

Witness Little includes in his testimony a plot of unit costs for various classes of mail over time and uses it to argue that Periodicals costs are out of control (Tr. 27/14543-14547). He is correct that unit costs grow at different rates for different classes, but his conclusion that Periodicals costs are out of control is simply not justified by this naïve analysis. Comparing unit costs by class is extremely misleading.

Letter automation programs have greatly reduced letter sorting costs, so that any class with a higher than average proportion of letters will show faster declines or slower growth in its unit costs. Flat automation has also been deployed during the period, but the proportional savings from flat automation are much smaller than those for letters. Additionally, flats may have different levels of machineability by class. Obviously, the more machineable classes will experience the faster declines or slower increases in units costs. Mail preparation has a substantial impact on costs. Increases in presortation, drop shipping, or mail piece readability can all have substantial impact on the observed trend in aggregate unit costs.

The few factors listed above are just some of the factors that must be considered before trying to draw any conclusions from a comparison of unit costs across classes. I have not studied the issue sufficiently to offer a comprehensive plan for a meaningful analysis. My point is only that witness Little's analysis fails to provide any useful insights.

XIX. Changes in the relative cost shares of subclasses under the new method do not result in unfair increases to the presort subclasses—they are corrections of the understatement of presort costs and relief to the single-piece subclasses that had been previously overstated.

Table 6 compares cost shares by subclass under the new method with those from LIOCATT. It shows that there have been shifts in the cost shares among the different subclasses. There is a pattern of cost share increases for presort subclasses and decrease for single-piece subclasses. The previous allegations of bias were correct, but until the corrected methods were fully implemented the direction of the bias was not clear. Under the new method, presort categories no longer get any substantial costs from operations like cancellation, but they now get a larger share of some of the allied operations and their overall share of volume variable costs has increased. Single-piece First-Class, with proportionately more piece sortation, was being charged with costs that were caused by the presorted subclasses.

This may be a surprise to some, but it is not surprising to anyone with a good understanding of how the different subclasses are processed. Under LIOCATT, single-piece First-Class volumes were incorrectly being charged a disproportionate share of mixed and not-handling costs from allied operations because piece handling operations were disproportionately represented among direct tallies. The distribution of mixed-mail costs, using item and container type by MODS-based pool, eliminates this bias.

Table 6
Cost Shares by Subclass
LIOCATT v. New Methodology

Subclass	LIOCATT	New Methodology
First Class		
Letters and Parcels	47.7%	46.2%
Presort Letters and Parcels	10.2%	10.6%
Postal Cards	0.0%	0.0%
Private Mailing Cards	1.5%	1.4%
Presort Cards	0.4%	0.4%
Priority	4.0%	4.8%
Express	0.6%	0.8%
Mailgrams	0.0%	0.0%
Periodicals		
Within County	0.1%	0.2%
Regular	4.1%	4.6%
Non Profit	0.7%	0.8%
Classroom	0.0%	0.1%
Standard (A)		
Single Piece Rate	0.8%	0.8%
Regular Carrier Route	2.4%	2.6%
Regular Other	15.2%	15.4%
Non Profit Carrier Route	0.3%	0.3%
Non Profit Other	3.7%	3.7%
Standard (B)		
Parcels - Zone Rate	1.6%	1.6%
Bound Printed Matter	0.8%	0.7%
Special Rate	0.8%	0.7%
Library Rate	0.2%	0.2%
USPS	0.8%	0.8%
Free for Blind/Handicapped	0.1%	0.1%
International	2.3%	2.1%
Registry	0.5%	0.4%
Certified	0.3%	0.2%
Insurance	0.0%	0.0%
COD	0.0%	0.0%
Special Delivery	0.0%	0.0%
Special Handling	0.0%	0.0%
Other Special Services	0.8%	0.8%

XX. The Postal Service has initiatives underway that will improve service, control costs, and work with mailers for further improvements.

EQUIPMENT DEPLOYMENTS

The Postal Service has some significant deployments and/or modifications of flats processing equipment scheduled for FY98. First, all 812 of the model 881 Flat Sorting Machines (FSMs) will be retrofitted with an Optical Character Reader (OCR). Deployment of the OCR modification will begin in June, 1998 and is scheduled to be completed in July, 1999. This modification should help to improve the overall barcode utilization, since some barcoded flats are inadvertently keyed today because of the lack of segregation of barcoded and nonbarcoded flats. The modification functions so that barcoded flats are processed by the barcode reader (BCR) and nonbarcoded flats are processed by the OCR. This modification should help improve service since it eliminates the potential for keying errors when the FSM is operated in OCR/BCR mode.

Another significant initiative is the deployment of an additional 240 FSM 1000s. The FSM 1000 can process a wider variety of flats including flats that are non-machineable on the FSM 881. For instance, the FSM 1000 can process some larger tabloid size flats as well as flats that are enclosed in non-certified shrinkwrap. Today, sites that do not have an FSM 1000 must process non-machineable flats (per FSM 881 machineability requirements) manually. The initial deployment of the first 100 FSM 1000s was completed in May, 1997, and the deployment of the additional 240 FSM 1000s to smaller sites started in July, 1997 and should be completed by July, 1998. As

FSMs proliferate throughout the nation, plants should be able to reduce manual flat processing.

The Postal Service's Board of Governors recently approved the addition of barcode readers to all 340 of the FSM 1000s. Deployment of this modification is scheduled to begin in July, 1998 and be completed by February, 1999. All of the aforementioned flats processing equipment initiatives are intended to increase the proportion of flats that the Postal Service can process on the flat sorters as well as improve the efficiency with which they are processed.

MAIL PREPARATION INITIATIVES

The Postal Service recognizes that the mail preparation requirements and options provided to Periodical mailers have a direct impact on the level of service that they receive. Accordingly, the Postal Service has acted upon input received from many Periodical mailers, publishers, and their associations regarding mail preparation requirements. Just recently, the Postal Service reinstated the SCF sack as an optional level of preparation solely for Periodical flats. Although the SCF sack adds an additional level of sort to the existing preparation hierarchy, the Postal Service recognized that allowing Periodical mailers to prepare an SCF sack would help keep mail at the local plant level. Therefore, the Postal Service reinstated the SCF sack as a optional level of preparation in January of this year. Moreover, the SCF sack will become a required sack level in Periodicals effective with the implementation of this rate case.

Another change to mail preparation that was recently proposed in the Federal Register, 63 FED.REG. 153-56 (Jan. 5, 1998), is to eliminate the mailer's option to prepare mixed pallets of flat packages. Many mailers are preparing carrier-route and 5-digit packages on mixed pallets. While this level of preparation may yield reduced costs to the mailer in a production environment, it is far from optimal from a service standpoint. Packages on mixed pallets must be distributed by origin plants to ADC separations and then require additional distribution(s) once they reach the destinating ADCs. In contrast, if these packages were instead placed in a 5-digit or 3-digit sack per the specified sacking requirements, it is conceivable that many of these packages would not require sortation until they reached the destinating plant or delivery office. Therefore, in order to improve the levels of service on packages that are not prepared to direct pallets because of a lack of density, the Postal Service has proposed that packages that are currently prepared on mixed pallets will be prepared in sacks upon implementation of the final rule later this year.

JOINT INDUSTRY/POSTAL WORK GROUPS

Over the past year, several joint Mailers Technical Advisory Committee (MTAC) and Postal Service work groups have been formed to study various issues affecting the mailing industry. One of these work groups is specifically focused on identifying opportunities to improve Periodical mail service. The work group is comprised of publishers, printers, and postal representatives that are all familiar with various aspects of the preparation, movement, and processing of Periodicals. While the work group is still in its infancy, opportunities to improve service have already surfaced during the first

couple of meetings. For instance, many of the work group's members identified the need for an SCF sack in Periodicals and were therefore strong proponents of its reinstatement. The work group members possess a vast level of knowledge and experience related to Periodicals and are working together to identify concerns that are affecting service as well as possible solutions to those concerns.

Another joint MTAC/USPS work group is working on initiatives related to presort optimization. As I mentioned, earlier in my testimony, mailers are making more aggregate levels of pallets. Initial findings of this work group have indicated that packages are often prepared on these aggregate levels of pallets inadvertently because other mail for the same service area was prepared on finer level pallets. For instance, mail for an SCF service area may inadvertently fall back to an ADC pallet because a 5-digit or 3-digit pallet was prepared for other mail that is part of the same service area. This work group is working to define the logic that is needed in presort software in order to retain more mail on SCF pallets and minimize the amount of mail that falls back to an ADC pallet. Retaining more mail at the SCF pallet level could help qualify more mail for DSCF dropship discounts and also improve service since the mail would otherwise be prepared on an ADC pallet.

SUMMARY

The initiatives that will be occurring this year represent significant changes to how Periodicals are prepared by mailers and processed by the Postal Service. Accordingly, the sum of the various initiatives should have a positive impact on Periodicals service. These initiatives may also slow down, stop, or reverse current unit

cost trends for Periodicals. The Postal Service recognizes that there are opportunities to improve service and control costs. My understanding is that the Postal Service will continue to work jointly with publishers and printers to explore those opportunities.

XXI. The Christensen Associates' possible benchmarking results cannot be correctly characterized as inefficiencies associated with not-handling costs.

Witness Cohen cites a Christensen Associates report entitled "Performance Analysis of Processing and Distribution Facilities: Sources of TFP Improvement" dated February 22, 1994. The report includes an estimate of possible cost savings from a benchmarking effort that was never completed. Witness Cohen applies that estimate to mixed and not-handling costs to obtain what she terms "inefficient mixed- and not-handling costs" (Tr. 26/14060-14061). Witness Cohen's application of the result of our report to mixed and not-handling costs is inappropriate and incorrect.

The benchmarking process involves identifying the most efficient facilities and finding comparable, but less efficient, facilities that could learn from them. In the case of the Postal Service, the first step is development of a statistical model of workload to measure efficiency. Any workload dimensions not measured in the model will show up as cost differences. The actual benchmarking process involves in-depth study comparing the facilities. This may result in identification of ways to increase efficiency or it may results in identification of additional workload dimensions not included in the statistical model. Examples of additional elements of workload could include congestion, weather, and average quality of the local labor force.

Our preliminary analysis was designed to demonstrate how a benchmarking analysis can be built on a workload model. The underlying workload model is still under development today. At this point, no in-depth study of facilities has been undertaken, so no actual estimate of inefficiency exists. Our report also undertook a very crude analysis of the possible sources of savings.

Witness Cohen's use of the possible savings estimate from our report is misleading because the report clearly identifies portions of the estimate that are not included in Cost Segment 3.1 (such as supervisory time) and portions that have no direct connection to mixed and not-handling costs (such as overtime and automation deployment).[14] The possible savings estimate includes savings from additional deployment of automation. This makes witness Cohen's application of this estimate to historical mixed and not-handling costs particularly ironic, given her theory that automation deployment increases not-handling costs.

Finally, Witness Cohen's use of the possible savings estimate from benchmarking mischaracterizes the estimate as inefficiencies rather than what it is:

[14] In the context of our benchmarking analysis "use of automation" refers to deployment of equipment.

costs that have not been explained by the variables in the model. In fact, our continuing work on the model has reduced the unexplained variation in costs across facilities. We have not updated the benchmarking potential estimate, but, using the newer model, I would expect to find much lower possible savings estimates for a benchmarking analysis. However, as I explained above, even an updated result could not be correctly used in the way witness Cohen proposes to use it.

Lest we be accused of having misled anyone, I should point out that the report was clearly labeled "DRAFT - Not for Distribution." The Commission should ignore the misapplication of this inchoate result by Witness Cohen.

XXII. Declining productivities by operation group are an expected and well understood result of automation—not evidence of inefficiency.

Witness Cohen uses the MODS data to calculate an estimate of the cost of inefficiency due to declining productivity. The premise of her analysis is wrong. Declines in productivity by operation are an expected and well understood result of automation deployment. When new technologies are first deployed, the mail with the highest expected success rate is segregated for that operation. In the case of letter sorting operations this meant the cleanest, most readable mail went to the OCRs first. This had the effect of reducing LSM and manual productivities. As more OCRs were deployed, the readability of the mail being processed on the OCRs declined and OCR productivity declined. The quality of the mail remaining in LSM and manual operations also declined resulting in declining productivities. The benefit of automation comes

from the shift of mail to the newer technology. Overall mail processing productivity can be increasing while productivities are declining in individual operations.

Even when new technology is not being deployed, there are other factors that impact productivity by operation. These would include address readability, mail piece design, and required sortation accuracy.[15] Any estimate of efficiency would have to control for all such factors before a decline in productivity could be interpreted as a loss of efficiency.

Clearly, Witness Cohen's estimate of "inefficiency," based on the declining productivities by operation group, is a fallacy and the Commission should not give it any credence.

XXIII. Partitioning non-MODS office costs into operational subgroups does not change the overall non-MODS variability or subclass distribution.

Witness Andrew argues that the application of the overall MODS variability of 78.7 percent to non-MODS office costs ignores the fact that the "impact of the interaction between individual cost pool variabilities and distribution key can distort the differences between shapes" (Tr. 22/11711). The issue of using the overall MODS office productivity for non-MODS offices was addressed by Dr. Bradley in response to OCA's interrogatory (Tr. 11/5357). Dr. Bradley uses a partition of non-MODS costs into subgroups, prepared by me, to calculate an average non-MODS variability. This

[15] If management requires that workers achieve a higher level of sortation accuracy, they may have to sort at a slower rate to do so. This would appear as a decline in productivity, but could not be correctly interpreted as inefficiency as witness Cohen suggests.

method produces an overall non-MODS variability of 77.9 percent, essentially the same as Dr. Bradley's assumption.

Witness Andrew argues that one also needs to distribute non-MODS costs by subgroups. We have done so. Table 7 compares the subclass distribution for non-MODS offices from the Postal Service's proposed method with the results based on distribution by subgroup. The results show how little difference it makes. Witness Andrew's criticism may have theoretical validity, but, in this instance, the empirical results show that it is not a problem.

Table 7
Comparison of Subclass Cost Shares for Non-MODS Offices

Subclass	Postal Service New Method	Using Subgroups
First Class		
Letters and Parcels	43.5%	45.1%
Presort Letters and Parcels	11.7%	12.2%
Postal Cards	0.1%	0.0%
Private Mailing Cards	1.4%	1.4%
Presort Cards	0.4%	0.4%
Priority	3.6%	3.1%
Express	1.1%	0.7%
Mailgrams	0.0%	0.0%
Periodicals		
Within County	0.3%	0.3%
Regular	5.0%	5.1%
Non Profit	0.8%	0.8%
Classroom	0.1%	0.1%
Standard (A)		
Single Piece Rate	0.7%	0.6%
Regular Carrier Route	4.4%	4.7%
Regular Other	16.4%	16.7%
Non Profit Carrier Route	0.4%	0.4%
Non Profit Other	3.3%	3.3%
Standard (B)		
Parcels - Zone Rate	1.1%	1.1%
Bound Printed Matter	0.7%	0.6%
Special Rate	0.5%	0.4%
Library Rate	0.1%	0.1%
USPS	0.9%	0.8%
Free for Blind/Handicapped	0.0%	0.0%
International	0.4%	0.3%
Registry	0.8%	0.2%
Certified	0.7%	0.2%
Insurance	0.0%	0.0%
COD	0.1%	0.0%
Special Delivery	0.0%	0.0%
Special Handling	0.0%	0.0%
Other Special Services	1.6%	1.3%

XXIV. *I am not aware of any analysis that indicates that the number of* Postal Service facilities varies with volume. In fact, such a conclusion would be counter to my understanding of Postal Service operations.

During cross-examination, witness Neels indicated that he believed that the number of Postal Service facilities could be expected to vary with volume and that witness Bradley's models fail to account for this fact (Tr. 28/15791). Witness Neels does not reference any studies or analysis that support his opinion. In fact, under subsequent cross-examination, he explains that the nature of the mail flow is such that the entire system is impacted by an increase in volume because mail flows throughout the network (Tr. 28/15810).

Given witness Neel's apparent understanding that the workload associated with increased volume cannot be isolated to a single location, I cannot believe that he could conclude that additional overall volume could be handled by building a new facility. Witness Neels also seems to understand that the growth in MODS offices should not be misinterpreted as evidence that the number of facilities varies with volume (Tr. 28/15810). Existing facilities are constantly being added to the MODS system to improve accountability. Very few of the "new" MODS offices since 1988 are actually new facilities. I am at a loss to explain how witness Neels could have reached his opinion that the number of facilities varies with volume.

When there is an overall volume increase, <u>every</u> facility in the country will experience additional workload which, in virtually all instances, will be absorbed without building new facilities. The additional mail pieces cannot be segregated for processing at a single new facility or group of new facilities that will then process the <u>new</u> mail.

Manufacturers can produce their products wherever it is most economical to do so, and ship them wherever consumers are willing to buy them. But, the Postal Service is a delivery service. Processing facilities exist to process the mail that originates and destinates in a particular area. In the relatively infrequent case where a new facility is added to the system (as opposed to simply replacing an existing facility), the new facility is dedicated to a particular area that was previously served by one or more existing facilities.[16] However, this is, as I said, an infrequent occurrence. Nearly all volume growth is absorbed by existing facilities. Incremental workloads are too small to justify redefining service areas and building new facilities to serve them.

The system-wide interdependence of the Postal Service requires that we think of increases in overall volumes as increases in every plant in the country—exactly as witness Bradley does in deriving his variability factors.

[16] There are many factors, besides volume growth, that enter into the decision to build a new mail processing facility.