DOCKET SECTION

RECEIVED DMA-T-1

DEC 30 4 26 PM '97

POSTAL RATE COMMISSION
OFFICE OF THE SECRETARY

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

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

TESTIMONY OF
LAWRENCE G. BUC
ON BEHALF OF
THE DIRECT MARKETING ASSOCIATION, INC.

CONTENTS

I. AUTOBIOGRAPHICAL SKETCH 1

II. PURPOSE AND SCOPE OF TESTIMONY 2

PART ONE - REVENUE REQUIREMENT

III. CORRECTING AN OBVIOUS ERROR IN COST REDUCTIONS FOR SUPERVISORS AND TECHNICIANS WILL REDUCE THE TEST YEAR COST ESTIMATE BY $51 MILLION 4

PART TWO - MAIL PROCESSING COSTS

IV. COMPARING THE POSTAL SERVICE'S FY 96 AND BY 96 METHODS FOR DETERMINING MAIL PROCESSING COSTS, FORMING COST POOLS, DETERMINING VOLUME VARIABILITY, AND DISTRIBUTING VOLUME-VARIABLE MAIL PROCESSING COSTS TO CLASSES AND SUBCLASSES . 7

A. Determining Mail Processing Costs and Forming Cost Pools 7

B. Determining Volume Variability 8

C. Distributing Mail Processing Costs to Classes and Subclasses 9

1. Fiscal Year 1996 Distribution Method 10

2. Base Year 1996 Distribution Method 11

a. Direct Tally Costs. 12

b. Mixed Mail Tally Costs 12

c. Not-Handling Mail Tally Costs 14

V. WITNESS DEGEN'S MAIL PROCESSING COST DISTRIBUTION METHODS ARE FATALLY FLAWED 15

A. Witness Degen's Reweighting of Tallies Produces Internal Inconsistencies and Implies Flawed Distribution Keys 17

B. Witness Degen's Untested Assumptions Produce Unreliable Distribution Keys for Mixed Mail with Huge Coefficients of Variation 20

C. Witness Degen's Distribution of Not-Handling Mail Costs Within Cost Pools Is Unfounded 25

VI. WITNESS DEGEN'S METHODS IMPROVED 27

EXHIBIT DMA-1: FY 96 and BY 96 Methods for Distributing Mail Processing Costs to Subclass/Special Service

EXHIBIT DMA-2: Ratio of Not-Handling Tally Cost to Direct and Mixed Tally Cost by MODS Cost Pool

EXHIBIT DMA-3: DMA's Alternative Methodology and Witness Degen's Proposed Methodology for Distributing Volume-Variable Mail Processing Costs to Subclasses

DIRECT TESTIMONY
OF
LAWRENCE G. BUC

I. AUTOBIOGRAPHICAL SKETCH

My name is Lawrence G. Buc. I am the President of Project Performance Corporation (PPC), a consulting firm headquartered in Sterling, Virginia. PPC provides economic, information technology, and environmental consulting services to private and public sector clients. The firm has grown rapidly since our inception in 1991; last year we were number 272 on the ***Inc. 500***, a compilation of the fastest growing private companies in America. At the firm, I direct a practice which focuses on economic and cost analysis and performing and reviewing cost estimates. I also manage the finance group of PPC and am directly responsible for the firm's financial performance.

I attended Brown University and graduated in 1968 with an AB with honors in mathematics and economics. In 1978 I received a masters degree in economics from the George Washington University of America. While there, I was a member of Omicron Delta Epsilon, the national honorary economics society. I am currently a member of the American Economic Association.

I have been involved in Postal Service rate and classification cases for a large part of my professional career. I joined the Revenue and Cost Analysis Division of the United States Postal Service ("Postal Service") in March of 1975 and have analyzed postal costs ever since, working not only for the Postal Service, but also for the United States Postal Rate Commission ("the Commission") and a variety of private clients. I have participated in six previous rate cases: R74-1, R76-1, R77-1, R84-1, R87-1, and R90-1. In these, I have performed analyses on all elements of the case, drafted direct and rebuttal testimony, prepared and drafted responses to interrogatories, and provided support to cost, pricing, revenue requirement, and volume witnesses. In R84-1 and in R90-1, I appeared as a witness before the

Commission; I also appeared as a witness for the Postal Service in MC76-1 and for the Office of the Consumer Advocate in MC77-2.

II. PURPOSE AND SCOPE OF TESTIMONY

In Part One of this testimony, I review the Postal Service's treatment of cost reduction programs and other programs for supervisors. Because the Postal Service has an obvious flaw in its treatment of this part of the rollforward program, I suggest a correction and calculate savings which better reflect the logic of the rollforward methodology.

In Part Two of this testimony, I analyze the Postal Service's proposed method for distributing volume-variable mail processing costs among the classes and subclasses of mail. The mail processing component of Clerks and Mailhandlers, Cost Segment 3, is the single most important component in determining the volume-variable cost for each class and subclass of mail. This component (3.1) has the largest accrued costs of any cost component of the Postal Service. In the Base Year for this proceeding (1996), it comprises more than $13 billion in costs, or almost 25 percent of the total accrued costs for the entire Postal Service. (Exhibit USPS-5A at 22). In fact, the mail processing component of Cost Segment 3 alone is larger than any of the other 18 cost segments. Moreover, the distribution of costs within many other components depends in whole or in part upon the distribution of costs within this component.

In this case, the Postal Service employs new and very different approaches for (1) determining mail processing costs, (2) estimating their volume variability, and (3) distributing the volume-variable costs to classes and subclasses of mail. In particular, witness Degen proposes a new method for partitioning the accrued costs of Cost Segment 3 among each of its components: mail processing (3.1), window service (3.2), and administration (3.3). Witness Bradley then uses a new method for estimating the volume variability of mail processing costs. Finally, witness Degen implements a new method for distributing volume-variable mail

processing costs to classes and subclasses of mail.

This part of my testimony focuses on witness Degen's distribution of volume-variable mail processing costs to classes and subclasses. To set the proper context for my discussion, I first briefly describe the current (Fiscal Year 1996, or "FY 96") and proposed (Base Year 1996, or "BY 96") Postal Service methods for the first two steps described above. I then describe in much greater detail the FY 96 and BY 96 methods for distributing the Postal Service's volume-variable mail processing costs to classes and subclasses.

Following these descriptions, I evaluate witness Degen's distribution method. I find that his method is fatally flawed for two reasons. First, distributing the costs in Management Operating Data System ("MODS") cost pools with In-Office Cost System ("IOCS") distribution keys is inconsistent. Second, notwithstanding witness Degen's assertions that his method improves upon the previous method for distributing these costs, which used IOCS data and the LIOCATT distribution program, I show that his new method is, in fact, based on untested implicit assumptions and unreliable data.

In its Opinion and Recommended Decision in Docket No. R94-1 ("Op. R94-1"), the Postal Rate Commission explicitly outlined four substantive issues which caused them concern regarding the Postal Service's use of IOCS/LIOCATT to distribute mail processing costs to classes and subclasses: (1) the lack of resources devoted to IOCS, (2) the increase in the number and proportion of mixed mail tallies, (3) the lack of analysis of the effect on IOCS of a shift to an automated environment, and (4) questions about break time and not-handling time. (Op. R94-1 at III-8). The Commission urged the Postal Service to perform "a careful evaluation of the IOCS, with attention to all the questions outlined above. Such an evaluation is needed to provide assurance that rates are fair and equitable and in the best interests of the mailers and the Nation." (Id. at III-10).

Rather than thoroughly addressing the Commission's concerns, witness Degen completely ignored all but the second one, which he treated in a merely superficial

manner. Unfortunately, his proposed solution to this concern actually exacerbates some of the problems described by the Commission in R94-1 by significantly increasing the number of distribution keys (renamed "distributing sets") as compared with R94-1 and FY 1996. This approach vastly decreases the statistical reliability of his results. Moreover, witness Degen's solution is based on new and untested implicit assumptions which result in extremely speculative cost distributions.

Because of the severe shortcomings of witness Degen's new method of distributing mail processing costs to classes and subclasses, I recommend that the Commission reject it and use for this task the method it approved in R94-1. While this method could certainly be improved, it is the best currently available and it is superior to witness Degen's approach. Alternatively, and as a very poor second choice, if the Commission uses any part of witness Degen's approach, it should correct the most obvious flaws. I present an alternative distribution of mail processing costs to classes and subclasses which does so.

PART ONE - REVENUE REQUIREMENT

III. CORRECTING AN OBVIOUS ERROR IN COST REDUCTIONS FOR SUPERVISORS AND TECHNICIANS WILL REDUCE THE TEST YEAR COST ESTIMATE BY $51 MILLION

The Commission should correct an obvious flaw in the cost reduction portion of the rollforward program as it applies to Cost Segment 2. The rollforward program incorporates a number of upward adjustments in mail volume, nonvolume workload and other programs that increase the costs of supervisors when clerks' and mailhandlers' and carriers' costs increase. However, the cost reduction portion of the rollforward program does not contain a corresponding downward adjustment in supervisors' costs to reflect savings in direct labor when costs for clerks, mailhandlers and carriers decrease. (Exhibit USPS-9B). This is illogical and should be corrected.

The volume workload and nonvolume workload adjustments in the rollforward program adjust Supervisors and Technicians costs to maintain a constant ratio of supervisors' costs to the cost of the craft supervised. For example, the ratio of supervision of mail processing costs to mail processing costs in the rollforward from FY 1997 to FY 1998 was .07595 before the volume workload and nonvolume workload effects (LR-H-12, Chapter XII, Section D, at 437-438) and .07595 after these adjustments. The purpose of the adjustment to supervisors' costs is to ensure that the number of supervisors is commensurate with the number of workers in the cost component supervised.

In the cost reduction programs step, however, the rollforward program does not make a similar adjustment to the supervisors' costs, because "[c]ost reduction amounts are developed by program managers... This development is external to the CRA/Rollforward model..." (Tr. 13/7194). It appears that program managers simply did not realize that they were supposed to adjust supervisors' and technicians' costs downward as they did for the costs for mail processing clerks and mailhandlers and city carriers due to the cost reduction programs. Witness Patelunas confirmed that program managers were not specifically instructed to "determine whether reductions in Clerks and Mailhandlers and City Carrier work hours would reduce the amount of supervisor and technician work hours needed to manage the craft workers when they estimated cost savings." (Tr. 13/7211). However, unlike cost reduction programs, program managers did adjust supervisors' and technicians' costs upward in the other programs step.

I recommend that the Commission correct this obvious flaw and reduce supervision of mail processing costs by $31 million and supervision of city delivery carrier costs by $20 million so that the ratio of costs for supervisor cost components to the costs of the components supervised after the cost reduction program adjustment is the same as the ratio before the cost reduction program adjustment. Table 1, below, shows how I developed these cost reductions.

Table 1. Supervisors Adjustment to Rollforward From FY 1997 to Test Year 1998 (000s)

Calculation of Supervisors Adjustment	Before Cost Reduction Programs		After Cost Reduction Programs	
	Mail Processing [a]	City Carriers [a]	Mail Processing [b]	City Carriers [b]
Rollforward Component Supervised [1]	$14,310,963[1]	$12,341,000[3]	$13,908,052[1]	$11,998,659[3]
Rollforward Supervisor Component [2]	$1,086,934[2]	$735,097[4]	$1,086,934[2]	$735,097[4]
Ratio [3] = [1] / [2]	.07595	.05957	.07815	.06126
Adjusted Supervisor Cost to Maintain Ratio [4] = [1b] * [3a]	N.A.	N.A.	$1,056,332	$714,705
Adjustment to Supervisor Cost to Maintain Ratio [5] = [4] - [2]	N.A.	N.A.	($30,602)	($20,392)

[1] LR-H-12, Chapter XII, Section D, page 438, Line "Mail Processing"

[2] LR-H-12, Chapter XII, Section D, page 437, Line "Supervision of Mail Processing & Window - Direct Labor & Overhead"

[3] LR-H-12, Chapter XII, Section D, page 440, Line "Total," and page 441, Line "Total"

[4] LR-H-12, Chapter XII, Section D, page 437, Line "Supervision of City Delivery Carriers Total"

PART TWO - MAIL PROCESSING COSTS

IV. COMPARING THE POSTAL SERVICE'S FY 96 AND BY 96 METHODS FOR DETERMINING MAIL PROCESSING COSTS, FORMING COST POOLS, DETERMINING VOLUME VARIABILITY, AND DISTRIBUTING VOLUME-VARIABLE MAIL PROCESSING COSTS TO CLASSES AND SUBCLASSES

This section of my testimony describes the Postal Service's FY 96 and BY 96 methods for calculating mail processing costs, creating cost pools, determining the volume variability of mail processing costs, and distributing volume-variable mail processing costs to classes and subclasses.

A. Determining Mail Processing Costs and Forming Cost Pools

IOCS Question 18 identifies the activity (e.g., platform operations, collection and preparation of mail, distribution and related mail processing, miscellaneous operations, window service, administrative and other activities) that a Postal Service employee is actually performing at the time a tally is taken. (See LR-H-49, In-Office Cost System, Field Operating Instructions, Handbook F-45, January 1995, p.56). In R94-1 and in FY 1996, as well as in previous rate cases, the Postal Service used the responses to Question 18 to partition the accrued costs of Cost Segment 3, Clerks and Mailhandlers, into its three components: mail processing (3.1), window service (3.2), and administration (3.3).

In this case as well, witness Degen used responses to IOCS Question 18 to assign mail processing costs to cost components (3.1, 3.2, 3.3) for BMCs and non-MODS offices. For MODS offices, however, which make up 78 percent of total mail processing costs,[1] and in contrast to previous cases, witness Degen partitioned Base Year 1996 costs for Cost Segment 3 into its three components using cost data from the Payroll Data System, based upon the MODS operation into which employees are clocked. This new method for partitioning costs to

[1]Calculated from USPS-T-12, Table 5, at 16-23.

component has shifted $792 million of costs to mail processing, of which $685 million came from administrative activities and $107 million came from window service. (Tr.12/6590-6595).[2]

Witness Degen also used data from the MODS operation into which employees are clocked to disaggregate further mail processing costs among 39 cost pools[3] of similar operations at MODS offices. In addition, he used data on the PIRS operation into which employees are clocked to disaggregate mail processing costs among 6 pools of similar operations at BMCs.

Using additional information from Question 18, witness Degen assigned IOCS tallies to cost components and cost pools based upon the MODS operation into which employees were clocked when tallied. He used this method despite the well-known fact that workers are sometimes recorded in IOCS tallies working in operations other than those into which they are clocked. (USPS-T-12 at 6-7). In fact, IOCS itself explicitly acknowledges this inconsistency. The instructions to Question 18 state, "At a PSDS (Postal Source Data System) or ETC (Electronic Time Clock) office, enter the MODS (Management Operating Data System) work center that the employee is clocked into at the time of the reading. The MODS work center number may not necessarily match the employees's activity at the time of the reading." (LR-H-49, Handbook F-45, Chapter 11, at 56).[4]

B. Determining Volume Variability

Previously, based on no empirical analysis, the Postal Service assumed that

---

[2]Migration of costs at MODS offices from window service and administration to mail processing is due to three primary reasons: (1) clocking error, (2) migration of clocking in and out costs from administration to mail processing, and (3) migration of mail processing administration costs from administration to mail processing.

[3]Witness Degen later created a 40th MODS cost pool, LDC15. I generally exclude LDC 15 as a cost pool because IOCS contains no subclass information for LDC 15.

[4]I will refer to the situation where an employee is clocked into an operation in which he is not working as "clocking error" or "misclocking."

mail processing costs were completely volume variable. In this case, much to its credit, the Postal Service has relied on sophisticated econometric analysis to estimate volume variability, rather than continuing to rely on an old untested assumption. Witness Bradley used regression analysis on 25 of the cost pools developed by witness Degen, above, to determine their volume variability. For the remaining pools, he developed volume variability estimates through analogy to the pools he analyzed. His analysis yielded an average volume variability for mail processing costs of 76.4 percent in Base Year 1996. (USPS-T-12, Table 4). Volume variability in individual operations ranged from 0.0 percent for LDC 48 - Customer Service/Admin to 100.5 percent for LDC 15. My testimony does not address the merits of witness Bradley's methodology.

C. Distributing Mail Processing Costs to Classes and Subclasses

Section 3622(b)(3) of the Postal Reorganization Act requires that "each class of mail or type of mail service bear the direct and indirect postal costs attributable to that class or type." With more than $13 billion of accrued costs in BY 1996, more than 409 million hours of clerk and mailhandler time, and more than 180 billion pieces of mail,[5] determining the mail processing cost by class and subclass is a formidable task.

Given the scope and nature of mail processing, it would be impractical for clerks and mailhandlers to fill out time sheets identifying the amount of time they spend processing mail by subclass or special service. Further, even if clerks and mailhandlers did fill out these time sheets, much of their time would still be difficult to associate with any particular class or subclass of mail because much of the time clerks and mailhandlers do not handle individual pieces of mail. Rather, they

[5]Calculated from the Postal Service's response to DMA/USPS-T4-24(c)-(e) and FY 1996 Cost Revenue and Analysis report at 3.

handle mixed mail[6] or do not handle mail at all.[7] Any costing methodology must address the issue of how to treat the costs of the time clerks and mailhandlers spend handling mixed mail and the time they spend not handling mail at all. In the Base Year, more than 50 percent of the time spent by clerks and mailhandlers is spent handling mixed mail or not handling mail at all. (USPS-T-12, Table 6, at 24).

1. Fiscal Year 1996 Distribution Method

The Postal Service traditionally has used the IOCS to measure the amount of time that clerks and mailhandlers spend processing particular pieces of individual classes and subclasses of mail, the amount of time they are handling mixed mail, and the amount of time they are not handling mail at all. The Postal Service then has used the LIOCATT distribution program, which makes a small number of simple assumptions, to distribute the mixed mail and not-handling costs to subclasses of mail.

The IOCS system is based on two basic principles. First, it is based on the proposition that the sample reflects the universe, which means that the random instants in time when the tallies are taken are representative of all instants in time. Thus, within a CAG and craft,[8] if 10 percent of the tallies are for a particular class of mail, then 10 percent of all mail processing time for the craft in the CAG is spent on that class of mail. Second, the IOCS system is based on the proposition that cost is directly proportional to time. Thus, within a CAG and craft, for example, if 10 percent of the tallies are for a particular class of mail, then 10 percent of mail

---

[6]In general, "mixed mail" is non-identical mail in items (e.g., bundles, sacks, trays) or containers (e.g., BMC-OTRs, hampers, wiretainers). For more complete definitions of the types of mixed mail, see Exhibit DMA-1.

[7]In general, not-handling activities include breaks, clocking in and out of operations at MODS offices, moving empty equipment, working at windows, and other activities such as training.

[8]To make the sampling system more efficient, sampling is stratified by CAG and craft. For any sample size, stratification produces more accurate estimates by dividing the population into subgroups that are internally more homogenous. (George W. Snedecor & William G. Cochran, Statistical Methods 434 (7th ed. 1982)).

processing costs are deemed to be caused by that class of mail.

In R94-1 and FY 1996, the weighted cost for direct tallies (about 50 percent of mail processing costs in FY 1996)[9] was assigned to the subclass of mail that the employee was observed to be handling by the IOCS data collector.[10]

The costs for mixed mail tallies (tallies where the employee was handling mail of various classes but for which the IOCS data collector could not determine the subclass of mail being handled) - about 22 percent of mail processing costs in FY 1996[11] - were then distributed to subclasses of mail in proportion to corresponding direct tally costs within CAG and basic function (e.g., incoming, outgoing). For example, the cost for a mixed flat outgoing tally was distributed to classes and subclasses based on all direct tallies where the employee was observed to be handling a flat piece of mail in an outgoing mail processing operation. If fifty percent of direct tallies where the employee was seen handling a flat piece of mail in an outgoing operation were for the Standard A Regular subclass, fifty percent of the cost for a mixed flat tally was distributed to the Standard A Regular subclass.

Finally, mail processing overhead costs (e.g., breaks/personal needs, clocking in and out, moving empty equipment) - about 27 percent of total mail processing costs in FY 1996[12] - were distributed to subclasses in proportion to the distribution of all other mail processing costs.

2. <u>Base Year 1996 Distribution Method</u>

Witness Degen's analysis changed the distribution keys substantially for Base Year 1996. The changes were not, however, based on additional information. They were based simply on a large number of new and untested implicit

---

[9]USPS-T-12, Table 2, at 13.

[10]The dollar weighted cost, or "weighted cost," of a tally is equal to the accrued costs for a CAG and craft divided by the number of tallies for that CAG and craft.

[11]USPS-T-12, Table 2, at 13.

[12]Id. These costs also include some window service and administrative/support costs.

assumptions pertaining to the subclass composition of mixed mail and the causality and resulting distribution of not-handling costs.

a. Direct Tally Costs

In Base Year 1996, witness Degen again assigned the cost for direct tallies to the subclass of mail that the employee was observed to be handling by the IOCS data collector.[13] He also assigned tallies to subclass for which the class, but not the subclass, was known. This assignment was made in proportion to direct tally costs for subclasses within that class. For BY 1996, weighted direct tally costs comprised approximately 46 percent of total weighted tally costs.[14]

Witness Degen, however, made two adjustments to the cost assigned by each tally. He first reweighted the cost for a tally so that the sum of all weighted tally costs within a cost pool was equal to the total accrued cost for the cost pool derived from the Payroll Data System. He then multiplied this new tally cost by the pool-specific volume variability factor developed by witness Bradley to determine what I refer to as the "volume-variable MODS pool cost."[15]

b. Mixed Mail Tally Costs

Witness Degen then made a long series of implicit assumptions which allowed him to distribute mixed mail costs (approximately 11 percent of weighted tally costs)[16] to subclass using a three-step process.[17] He first assumed that the

---

[13]Direct tallies are tallies where the IOCS data collector records the subclass of mail being handled. These include tallies for direct piece handlings, counted items, top-piece rule items, and identical items and containers. See Exhibit DMA-1 for more complete descriptions of the various types of direct tallies.

[14]Calculated from LR-H-23.

[15]Because these adjustments are different for each cost pool, the volume-variable tally cost for a tally for a specific CAG and craft will differ across cost pools.

[16]Calculated from LR-H-23.

[17]Witness Degen has redefined mixed mail and mixed mail tallies. His definition of mixed mail shifts the activity of moving empty items or containers from overhead (now termed "not-handling" mail) to mixed mail.

subclass composition of mixed items by item type and cost pool is the same as the subclass composition of direct items of the same item type and cost pool.[18] Consequently, within each pool, witness Degen distributed costs for mixed items to subclasses in proportion to direct tally costs of the same cost pool (of which there are 49, excluding LDC 15) and item type (of which there are 16); he, therefore, used 784 distinct distribution keys to perform this distribution.[19] For example, if ten percent of direct tallies where an employee was observed to be handling a flat tray and was clocked into a Letter Sorting Machine MODS operation were assigned to the Standard A Regular subclass, then witness Degen assigned ten percent of costs for mixed mail tallies where the employee was handling a flat tray and was clocked into a Letter Sorting Machine MODS operation to the Standard A Regular subclass.

After distributing the costs for mixed items, witness Degen distributed the costs for identified mixed containers. Identified mixed containers are containers where the IOCS data collector observed the employee handling a container of nonidentical mail and identified the percentage of container volume taken up by specific types of items and loose shapes of mail. Witness Degen disaggregated the tally cost by item or loose shape using this information, replacing each identified mixed container tally with a number of new, pro-rated item tallies equal to the number of unique item types and loose shapes observed within the container. By doing so, witness Degen used 1,029 distinct direct tally keys to distribute

[18]Mixed item tallies occur when an employee is observed handling either (1) an item consisting of nonidentical mail and the item is neither top-pieced nor counted, or (2) an empty item.

[19] The 49 cost pools include 39 at MODS offices, six at BMCs, and four at non-MODS offices (which Degen developed by disaggregating non-MODS costs by basic function). When there were no direct tallies for a specific item type (e.g., letter tray) within a cost pool, witness Degen used direct volume-variable tally costs for the item type across all cost pools within the facility type (e.g., MODS 1 and 2 facilities) as his distribution key.

identified mixed container tally costs to subclasses.[20] Thus, he assumed that the subclass composition of items in identified mixed containers by item type and cost pool is the same as the composition of items outside of such containers by item type and cost pool. He also assumed that the subclass composition of loose shapes inside identified mixed containers by cost pool was the same as the subclass composition of loose shapes outside of these containers by cost pool. For example, if 25 percent of the filled space within a container is taken up by letter trays, witness Degen assigned 25 percent of the volume-variable MODS pool cost for the identified mixed container to a new letter tray item tally within the same cost pool. The new tallies thus created were then assigned to subclass or special service in the manner described above for mixed items.

After distributing the costs for identified mixed containers, witness Degen distributed the costs for unidentified and empty mixed containers.[21] For these containers, the Postal Service has no data regarding container contents. Therefore, witness Degen assumed that the distribution of their contents by subclass is the same as the distribution of the contents of identical and identified containers of the same container type in the same cost pool. In so doing, witness Degen developed another 490 distribution keys (10 container types and 49 cost pools) to distribute unidentified and empty containers to subclasses.

c. <u>Not-Handling Mail Tally Costs</u>

Finally, witness Degen defined all other tallies, which account for approximately

---

[20]Note that if the new tally developed through this method is for a loose shape (e.g., loose card, letter, flat, parcel, or IPP), the tally will be distributed based upon direct tallies of the same shape within cost pool. This results in the creation of 245 additional distribution keys (5 loose shapes x 49 cost pools). The 1029 direct tally keys consist of the 245 distribution keys for loose shapes plus the 784 distribution keys for items.

[21]These are tallies where the data collector observed the employee handling (1) a container of non-identical mail for which the data collector did not identify container contents or (2) an empty container.

43 percent of total weighted tally costs,[22] as "not-handling mail" tallies and distributed their volume-variable MODS pool costs to subclasses in proportion to the distribution of all other mail processing costs (direct and mixed mail) within each cost pool.[23] This distribution implicitly assumed that not-handling costs in each of the 50 cost pools are caused by, and are directly proportional to, the direct and distributed mixed mail costs within each cost pool. Exhibit DMA-1 summarizes the Postal Service's mail processing cost distribution methods for FY 96 and BY 96 and shows costs distributed by each method.

V. WITNESS DEGEN'S MAIL PROCESSING COST DISTRIBUTION METHODS ARE FATALLY FLAWED

This section of my testimony describes several fatal flaws in witness Degen's methods for distributing mail processing costs to classes and subclasses. Any one of these flaws is serious enough to warrant discarding his entire method.

In Op. R94-1, the Commission expressed its concerns about (1) the lack of resources devoted to IOCS, (2) the increase in the number and proportion of mixed mail tallies, (3) the lack of analysis about the effect on IOCS of a shift to an

---

[22]Calculated from LR-H-23.

[23]There are several exceptions to witness Degen's method for distributing mixed mail and not-handling mail costs to subclasses or special service:

- For the MODS Platform cost pool, all MODS Allied labor cost pools are used to distribute mixed items in containers to subclass/special service.
- For the MODS 1MISC and 1Support cost pools, all function 1 cost pools are used to distribute not-handling mail costs to subclass/special service.
- For the MODS 1EEQPT (Empty Equipment) cost pool, all MODS mail processing cost pools are used to distribute not-handling mail costs to subclass/special service.
- For the MODS LDC48OTH cost pool, all MODS function 4 cost pools are used to distribute not-handling mail costs to subclass/special service.
- For the BMC Platform cost pool, all BMC cost pools are used to distribute mixed item costs to subclass/special service.
- For non-MODS cost pools, activity codes 6XXX (except 6521-23) are distributed by IOCS operation code.
- For several cost pools, not-handling mail costs are assigned to subclasses of mail but not types of special services.

automated environment, and (4) questions about break time and not-handling time (Op. R94-1 at III-8). Although more than three years have passed since the decision in R94-1, witness Degen has not addressed the first, third, and fourth concerns and has addressed the second in a very superficial way.

Under the circumstances, one might have expected the Postal Service to address the Commission's concerns in a serious manner. One might have expected them to increase significantly the number of tallies and improve training to satisfy the first concern. To satisfy the second concern, one might have expected the Postal Service to count much of the uncounted mail and investigate whether the kinds of tallies that are counted are representative of those that are not counted. To address the third concern, one might have expected a study on "automation refugees," employees displaced by the increase in the use of automated equipment. Finally, to satisfy the fourth concern, one might have expected a study on why break time and not-handling time continue to increase and how to distribute this time to reflect causal relationships.

Although witness Degen's complex methods and distribution keys make it appear as if he has addressed the Commissions's second concern with additional information regarding the activities being performed by clerks and mailhandlers and the subclasses of mail which cause the clerks and mailhandlers to perform these activities, he actually has no more information than the Postal Service had in R94-1. In both R94-1 and this case, the only information available to the Postal Service concerning mail processing cost distribution are the tallies that can be directly associated with a particular class, subclass, or special service. In this case, only 88,000 of the total 201,000 mail processing tallies can be so associated. (Tr.12/6226-6228).

The difference between witness Degen's methods and those used in R94-1 is that, as described above, witness Degen's methods make a large number of unsubstantiated adjustments reweighting tally costs, and unsupported implicit assumptions regarding the subclasses of mail comprising mixed mail and the

subclasses of mail causing not-handling mail costs. In R94-1, the Postal Service made simple assumptions, consistent with the common-sense notion that, in the absence of information, simpler assumptions are better.[24] The remainder of this section outlines the implications of the major adjustments and assumptions made by witness Degen in this case.

A. Witness Degen's Reweighting of Tallies Produces Internal Inconsistencies and Implies Flawed Distribution Keys

As described in Section IV above, witness Degen formed cost pools using MODS data and the Payroll Data System and then generally distributed the accrued costs within each pool using the IOCS tallies in the pool. Because the weighted tally costs in each pool do not sum up to the accrued costs within each pool, witness Degen's distribution within each pool reweighted (sometimes substantially) the value of a tally. For example, in the Bulk Presort cost pool, weighted IOCS tally costs are $16,345,000 and MODS pool costs are $11,667,000. Thus, a reweighted tally in BY 96 is "worth" only 71 percent of the value of an original IOCS weighted tally in FY 96. This not only is illogical, but also violates a basic underpinning of the entire IOCS sampling system: that cost (within a CAG and craft) for an activity is directly proportional to the number of tallies for that activity.

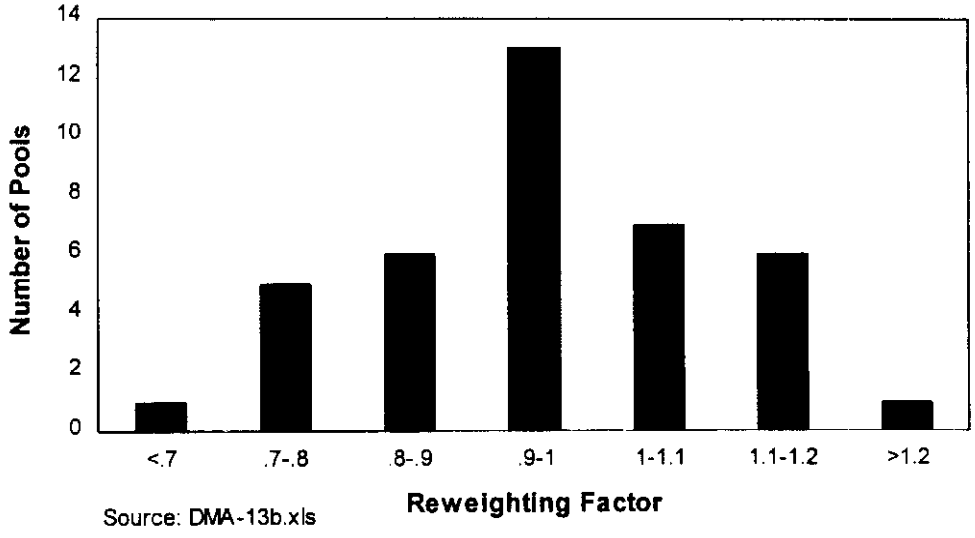
Excluding LDC15, Degen's reweighting changed the weighted tally cost for individual MODS operations by an average of about 13 percent and an average of about 7 percent if each cost pool is weighted by its respective cost in calculating the average. (Tr.17/8134-8135). There is, however, substantial variation around these averages. Figure 1 shows the distribution of the ratio of accrued cost in a cost pool to the weighted IOCS cost in the cost pool. This ratio is the factor by

[24]This principle, known to philosophers of science as "Ockham's Razor" after the famous 14th century philosopher and theologian William of Ockham, holds that simpler explanations are preferable to complicated ones.

which the IOCS tally cost within a MODS pool must be multiplied so that the sum of all weighted tally costs within the pool equals the accrued cost. As the figure shows, there is a wide variation in the reweighting factors, with almost half of them (19 out of 39) less than .9 or greater than 1.1.

An implication of this reweighting is that the weighted tally cost for two tallies for the same craft and activity taken in the same CAG can be very different if the observed employees are clocked into different MODS operations. For example, if during the course of a year the same clerk were sampled twice while sorting flats at a CAG A office, but once was clocked into a MODS manual letter sorting operation and once into a MODS parcel sorting operation, the weighted tally cost, for each, before applying witness Bradley's volume variability, would be different. As Figure 1 shows, in six cost pools under witness Degen's method, a dollar of IOCS tally cost is worth less than 80 cents while in seven other cost pools a dollar of tally cost is worth more than 110 cents.

Figure 1: Ratio of MODS Pool Cost to IOCS Weighted Tally Cost (Reweighting Factor) by Number of MODS Pools



Source: DMA-13b.xls

There are at least three reasons for the need to reweight tallies, none of which witness Degen can quantify: (1) clocking error, (2) sampling error, and (3) implicit wage rate differences between workers in the same craft. (Tr. 17/8154-8159). Clocking error is known to occur[25] and causes a discrepancy between data based on operations being performed and data based on operations into which the worker is clocked. Witness Degen confirmed that clocking error could contribute to the need for reweighting and has conceded that sampling error alone, or in combination with the implicit differences in wage rates, is probably not large enough to explain the extent to which IOCS tally costs must be reweighted within MODS cost pools. (Tr. 17/8154-8159).

Clocking error not only will result in the need to reweight, but also causes inappropriate distribution keys. For example, assume that an employee is clocked into an FSM operation, but is actually working in an LSM operation. If an IOCS data collector tallies this employee, records his MODS number as FSM (which is the correct number to record), and indicates that the tally is a direct tally, mixed mail and not-handling costs in the FSM cost pool will be at least partly distributed based on work actually performed in an LSM operation. Because of misclocking, there are direct tallies and hence distributing sets with, for example, flats and

---

[25]Page 19 of the Inspection Service report "ALLIED WORKHOURS", which was filed as part of LR-H-236, indicates that Clerks and Mailhandlers systematically clocked into the wrong operation for many reasons. For example, "Supervisors had employees clock into a non-distribution operation at the beginning of their tour until the supervisor made individual work assignments. Employees then were supposed to report in their work area and initiate a 'move' to the correct operation number. Many employees did not make this 'move.' Employees used any timeclock and operation number that was convenient. In order to get 'on the clock' as soon as possible, employees used the first timeclock they came to when beginning their tour and returning from lunch..." Also, because the MODS operation number on the IOCS tally has never before been used for ratemaking purposes and IOCS data collectors may not have known the prevalence of employees working in a MODS operation different than the one into which they were clocked, the logical presumption should be that IOCS data collectors did not always record the operation into which the employee was clocked as opposed to the MODS operation which the employee was actually performing.

Witness Degen provides further proof of misclocking where he shows that there are costs for clerks performing window service activities while clocked into mail processing operations. He also indicates that there are mixed mail tallies for flats and IPPs and parcels in manual letter operations and tallies for flats and parcels in letter sorting machine operations. (Tr. 12/6400-6413).

parcels in letter operations and parcels in flat operations.[26]

B. Witness Degen's Untested Assumptions Produce Unreliable Distribution Keys for Mixed Mail with Huge Coefficients of Variation

Witness Degen's approach used a very large number of distributing sets to perform the distributions of mixed mail and not-handling costs. Because he has used so many distributing sets, a large number of them contain only a small number of tallies. The resulting "thinness" of the distributing sets renders them unreliable and unsuitable for ratemaking purposes.

To examine the thinness of the distributing sets, I first analyzed uncounted and empty item mixed tallies. Excluding LDC 15, there are 49 cost pools and 16 item types; if each possible combination were populated with uncounted or empty item mixed mail tallies, there would be 784 distributing and 784 distributed sets. Because only 467 of these 784 possible combinations are populated with costs to be distributed, witness Degen needed only 467 distributing sets. Of these 467 distributing sets, 111 contained no direct tallies.[27] With a few exceptions, witness Degen distributed the remaining 356 distributed sets using distributing sets within the appropriate cost pool. (Tr.17/8151-8153).

Figure 2 shows the cumulative percentage of the costs distributed and the number of distributing sets by the number of tallies in the distributing set for empty and uncounted items. Over ten percent of the distributing sets contain only one direct tally, almost 30 percent contain five or fewer tallies, and almost 40 percent contain 10 or fewer tallies. Even more disturbing, over three percent of the tally cost is distributed on the basis of one tally, almost ten percent of the cost is

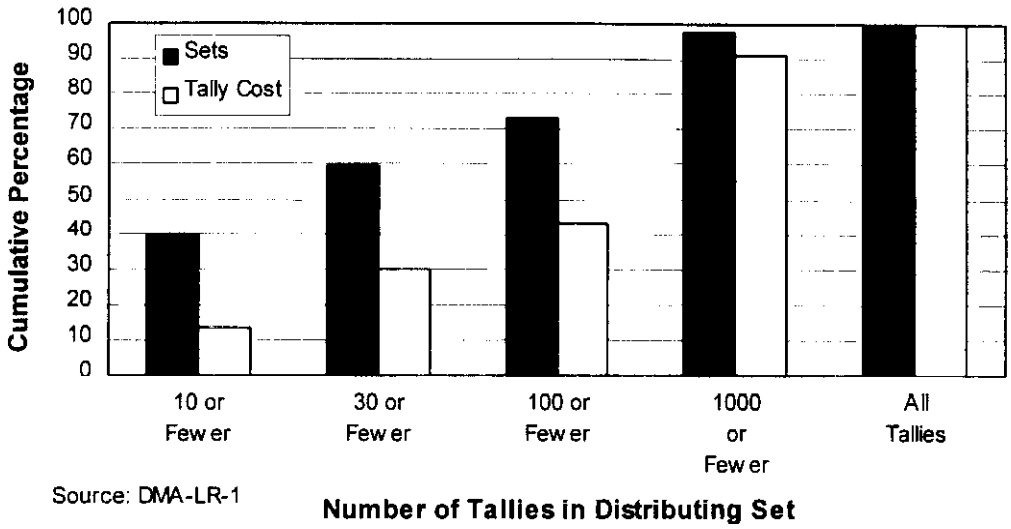
---

[26]See LR-H-305, dma17.xls.

[27] Although witness Degen distributed mixed mail uncounted/empty item tallies based on distributing sets comprising only one direct tally, no possible assumption would allow him to distribute uncounted or empty items within a pool without at least one direct tally. Consequently, when what would be the distributing set was empty, he performed the distribution across all pools by item type rather than within pool.

distributed on five or fewer tallies, and over 13 percent of the cost is distributed on 10 or fewer tallies. Finally, almost 30 percent of the cost is distributed on the basis of 30 or fewer tallies. (See DMA-LR-1).

Figure 2: Cumulative Percentage of the Number of Distributing Sets and the Costs Distributed by the Number of Tallies in the Distributing Set: Empty/Uncounted Items

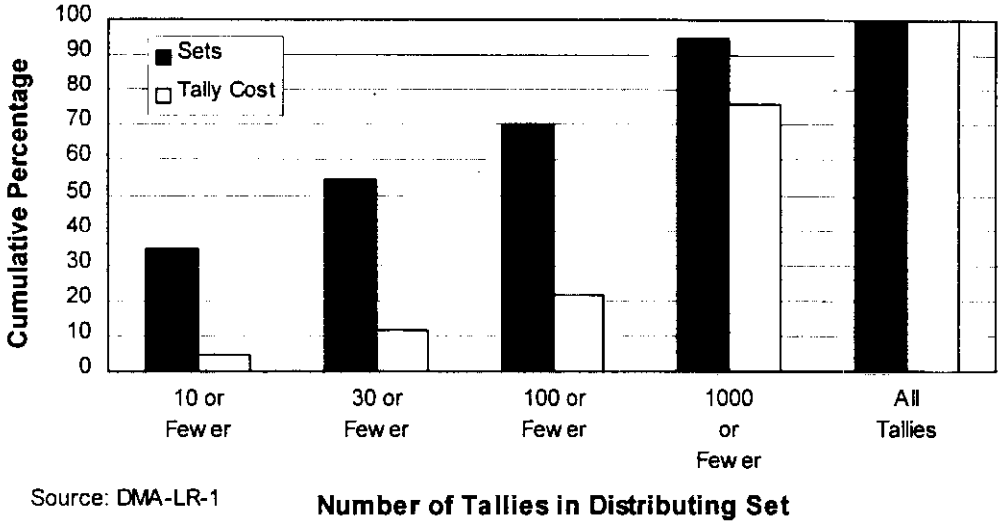


Source: DMA-LR-1

I next examined the thinness of data for identified mixed mail containers. What is true for items is also generally true for these containers. As described earlier, witness Degen assumed that the subclass composition of items and loose shapes in identified mixed containers by cost pool was the same as the subclass composition of these items and loose shapes outside of containers by cost pool. Therefore, he distributed the costs for items in identified mixed containers using the same distribution keys that he used to distribute the costs for uncounted and empty items to subclasses. For this reason, they are subject to the same uncertainties as the distributing sets for uncounted and empty items. Figure 3 shows the cumulative percentage of the costs distributed and the number of

distributing sets by the number of tallies in the distributing set for identified mixed mail containers. About nine percent of the distributing sets for identified mixed containers contain only one tally, more than 25 percent contain five or fewer tallies, and almost 35 percent contain 10 or fewer tallies. Also, almost five percent of the cost is distributed on ten or fewer tallies and about ten percent of the cost is distributed on 25 or fewer tallies. (See DMA-LR-1). Moreover, not only are the data thin, but there is also reason to question their precision. Witness Degen himself confirmed that data collectors merely "eyeball" identified mixed containers to record their contents. (Tr. 12/6297-6299).

Figure 3: Cumulative Percentage of the Number of Distributing Sets and the Costs Distributed by the Number of Tallies in the Distributing Set: Identified Mixed Containers

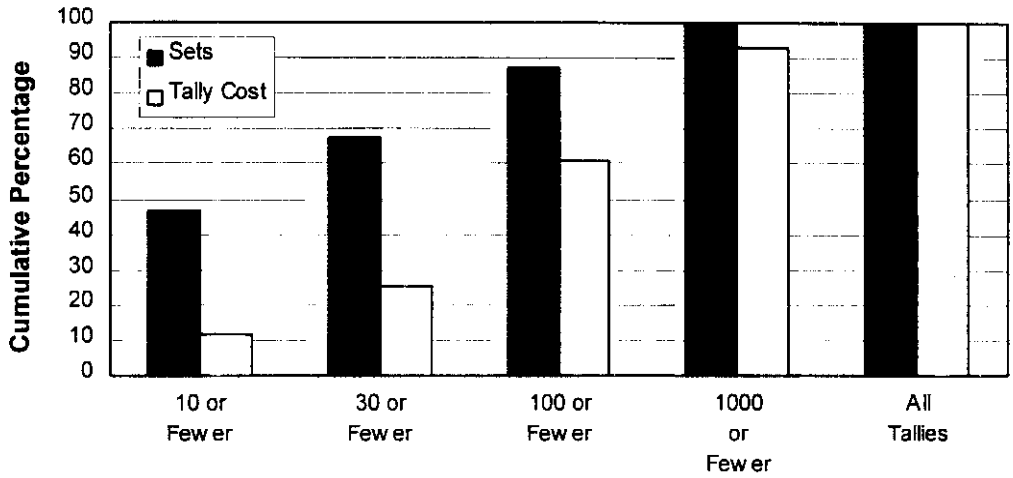


Source: DMA-LR-1

Finally, I examined the thinness of data for unidentified and empty containers. Figure 4 shows the cumulative percentage of the costs distributed and the number of distributing sets by the number of tallies in the distributing set for unidentified and empty containers. About nine percent of the distributing sets contain only one tally, almost 30 percent contain five or fewer tallies, and almost 47 percent contain

10 or fewer tallies. Even more disturbing, almost six percent of the cost for unidentified and empty containers is distributed on five or fewer tallies and over 11 percent of the cost is distributed on 10 or fewer tallies. Finally, more than 25 percent of the cost is distributed on the basis of 30 or fewer tallies. (See DMA-LR-1).

Figure 4: Cumulative Percentage of the Number of Distributing Sets and the Costs Distributed by the Number of Tallies in the Distributing Set: Unidentified/Empty Containers



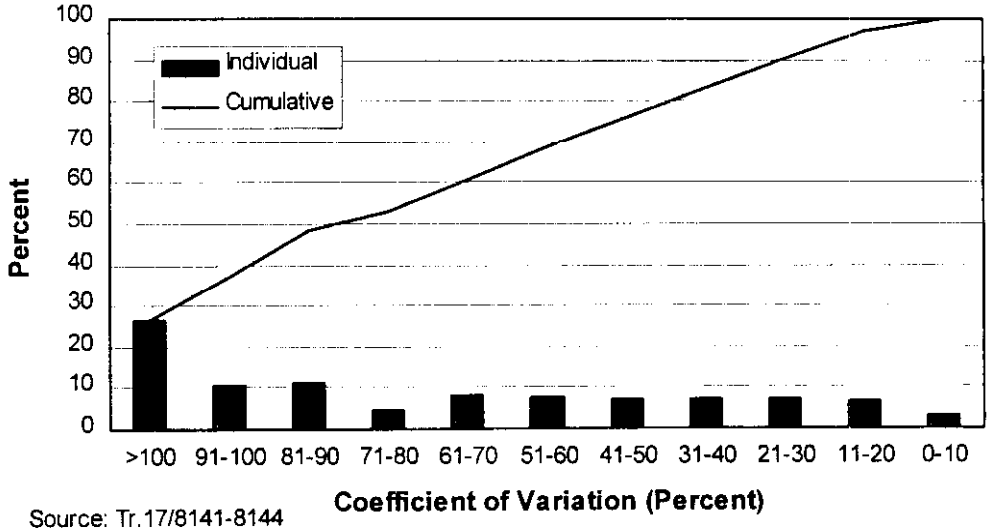
Source: DMA-LR-1

The "data thinness" problem described above yields distribution keys with a significant amount of sampling error; all else being equal, distribution keys based on a smaller number of direct mail tallies have larger sampling errors than those based upon a larger number of direct mail tallies. Witness Degen provided a measure of sampling error: the coefficients of variation (CV) around subclass costs by item type/loose shape and cost pool, which constitute the subclass costs underlying most of witness Degen's distribution keys for mixed mail costs. (Tr. 17/8141-8144).

The coefficient of variation expresses the standard deviation as a percentage of

the mean; it is often used as a measure of the precision of the estimate.[28] A coefficient of variation of 50 percent or more indicates that the 95 percent confidence interval for a normal distribution overlaps zero. With a coefficient of variation this large, the estimate consequently does not differ significantly from zero. Figure 5 shows the distribution of the subclass costs of the distributing sets with respect to the coefficient of variation. As the bar graph shows, most have a large coefficient of variation; in fact, almost 25 percent of them have a CV greater than 100 percent. The line graph in the figure is the cumulative graph of the bar graph. Thus, it shows the total percentage of subclass costs with coefficients of variation below any given percentage. As the graph shows, 70 percent of the subclass costs have CVs greater than 50 percent. A CV this large indicates that the underlying cost data are too uncertain to be used as a basis for distributing costs to subclasses.

Figure 5: Distribution and Cumulative Distribution of Subclass Costs Underlying Distributing Sets for Items and Identified Mixed Containers by Coefficient of Variation



Source: Tr.17/8141-8144

[28]George W. Snedecor and William G. Cochran, Statistical Methods 37 (7th ed. 1982).

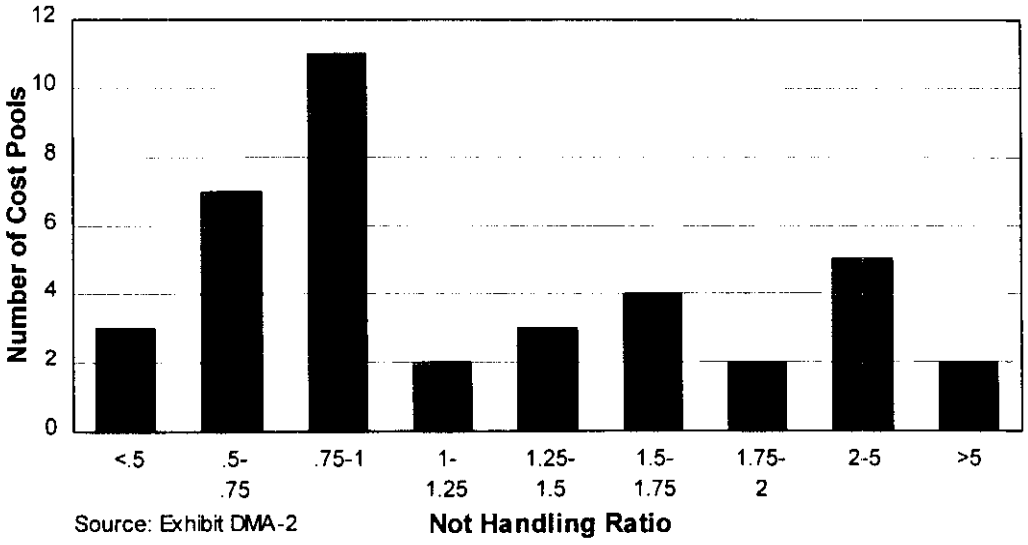
C. Witness Degen's Distribution of Not-Handling Mail Costs Within Cost Pools Is Unfounded

Almost 43 percent of all mail processing cost in the base year ($5.4 billion) is not-handling mail cost. The majority of this cost is for breaks and personal needs, clocking in and out of operations, and handling empty equipment other than items and containers. The remainder of the costs are for training, window service, and general administration services. Unfortunately, witness Degen's distribution of these costs within cost pools is grounded neither in economic theory nor in postal operational logic.

Witness Degen's distribution of not-handling costs implicitly assumes that not-handling costs within each of 50 different cost pools are "caused" by the amount of mail processed within the pool and that they are directly proportional to the direct and distributed mixed mail costs in each of the 50 pools. He has not tested the validity of this assumption of causality, (Tr.12/6666), but only speculates that such a causal relationship exists.

Not-handling mail costs as a percentage of the sum of direct plus mixed mail costs varies widely across MODS cost pools. Figure 6 shows the distribution of these percentages across MODS pools. As the figure shows, 36 of the 39 MODS pools have a not-handling cost percentage of over 50 percent and two have a percentage of over 500 percent. Only three of the MODS pools have a not-handling percentage of under 50 percent. Indeed, not-handling costs are over half the costs in 18 of the 39 MODS cost pools. Given that the Postal Service has yet to develop a fully satisfactory explanation of why not-handling costs are so large and why they differ so dramatically across operations, there is insufficient proof to support the assumption that they are caused by activities within individual cost pools.

Figure 6: Distribution of Not-Handling Costs to the Sum of Direct Plus Mixed Mail Costs, by MODS Cost Pool



Source: Exhibit DMA-2

An alternate, and equally plausible, hypothesis of why not-handling mail costs are higher in some operations than in others is that the Postal Service assigns excess labor to specific operations, for example, where productivity is not measured or where there is little marketplace competition for the mail being handled (or not handled) in the operation.[29] This implies that there will be higher not-handling mail costs for those operations. If this hypothesis were true, then witness Degen's methodology would unfairly assign high not-handling mail costs to certain cost pools while assigning low not-handling mail costs to other cost pools. In this case, a less speculative distribution method would distribute not-handling mail costs across all cost pools as was done in R94-1 and as witness Degen does for certain exceptions to his methods.

[29]The Inspection Service report "ALLIED WORKHOURS" described above concludes that there is excess labor in allied operations where productivity is not measured. By increasing productivity, allied work hours would decrease by nearly 13 percent. (LR-H-234, Executive Summary, at 2).

VI. WITNESS DEGEN'S METHODS IMPROVED

Because witness Degen's reweighting of tallies violates the principles of statistical sampling, because he has not sufficiently addressed the four areas of concern articulated by the Commission with respect to IOCS, because he bases the distribution of mixed mail on unsupported implicit assumptions and thin data, and because his distribution of not-handling costs is not grounded in causality, I recommend that the Postal Rate Commission reject his approach. In the absence of a better alternative, I further recommend that the Commission use the method applied in R94-1. This approach is not perfect; there is no reason why the Postal Service cannot count more of the mixed mail; there is no reason why the Postal Service cannot design and implement a study to determine the best distribution keys for what is currently uncounted mixed mail; there is no reason why the Postal Service cannot examine the number and ramifications of employees displaced by the increase in automation; and there is no reason why the Postal Service cannot address the distribution and level of not-handling costs. All of these measures would improve the method the Commission approved in R94-1.

If the Commission decides, however, to accept part of witness Degen's approach - which, I believe, would be a serious mistake - it should correct his most egregious flaws. I propose improvements to his mail processing distribution methodology which would distribute volume-variable IOCS weighted tally costs rather than volume-variable MODS pool costs, distribute mixed mail costs across pools and item or container types rather than within them, and distribute not-handling costs across MODS pools rather than within them.

Distributing IOCS weighted tally costs would obviate the need for reweighting. Thus, in my system, a dollar of cost is always a dollar of cost. Distributing mixed mail costs across pools and item and container types necessitates fewer and simpler assumptions regarding unknown subclass composition. It also produces distributing sets with significantly larger numbers of tallies, resulting in cost distributions of greater reliability. Finally, distributing not-handling costs across

cost pools requires fewer and simpler assumptions about causality within these pools. Because the Postal Service has not yet performed a study exploring the high level and growth of not-handling costs and has provided no information concerning the causality of these costs, there is no reason to distribute them within cost pools.

I have performed the computations to support the distributions I recommend above. My results appear in Exhibit DMA-3, which compares witness Degen's and my proposed mail processing cost distributions for MODS offices, non-MODS offices, BMCs, and in total.[30] The SAS program underlying the computations is filed in DMA-LR-2.

[30]Note that Exhibit DMA-3 presents the mail processing cost distribution of witness Buc and witness Degen before the premium pay adjustment and the redistribution of clocking in and out costs for BMCs and non-MODS facilities from C/S 3.3 to C/S 3.1.

EXHIBIT DMA-1

FY 96 and BY 96 Methods for Distributing Mail Processing Costs to Subclass/Special Service

Tally Type	FY 96[1]	BY 96[2]
Direct. ($5.8 billion) Tallies where IOCS data collector recorded subclass/special service and shape of mail being handled. **Piece Handlings** – Tallies where data collector observed employee handling single piece of mail. **Counted Items** – Tallies where data collector counted all subclasses and shapes of mail in item (e.g., bundle, tray, con-con, pallet, or sack). **Top-Piece Rule Items** – Tallies where employee was handling nonidentical mail that is loose, in a bundle, or in a tray, and data collector applied top-piece rule. **Identical Items and Containers** – Tallies where employee was handling an item or container (e.g., wiretainer) containing identical mail.	Distributed to subclass/special service based upon subclass information recorded by IOCS data collector.	Distributed to subclass/special service based upon subclass information recorded by IOCS data collector.
Direct - Class Specific. (Costs included above) Tallies where employee was observed handling specific class of mail but where the subclass of the mail was not recorded.	Distributed to subclass/special service in proportion to direct tally costs of same class.	Distributed to subclass/special service in proportion to direct tally costs of same class.
Mixed – Uncounted/Empty Items. ($400 million) Tallies where employee was observed handling item containing nonidentical mail, and for which data collector did not record any information regarding the subclasses of mail in the item. This category also includes tallies where the employee was handling empty items.	Mixed shape tallies (e.g., mixed letter tallies) in the old method include costs for activity codes 5600-5750. They are distributed to subclass/special service in proportion to direct tally costs of the same shape.	Distributed to subclass/special service in proportion to direct item tally costs of the same item type (16 item types).
Mixed – Identified Containers. ($600 million) Tallies where data collector observed an employee handling a container of nonidentical mail, and for which the data collector identified the contents (e.g., items and loose shapes) of the container.	See "Mixed – Uncounted/Empty Items."	1. Distributed to 21 item types/loose shapes based upon identified container contents. 2. Distributed to subclass/special service in proportion to direct item tally costs of same item type/loose shape.
Mixed – Unidentified/Empty Containers. ($500 million) Tallies where data collector observed employee handling (1) a container of nonidentical mail but container contents were not identified or (2) an empty container.	See "Mixed – Uncounted/Empty Items."	Distributed to subclass/special service in proportion to identical and identified container tally costs of the same container type (10 types).
Not-Handling. ($5.4 billion) Tallies where employee was not-handling pieces of mail, items, or containers.	Distributed to subclass/special service in proportion to distribution of all other mail processing costs across all basic functions and CAGs. In old method, this category only included overhead costs (6521-23).	Distributed to subclass/special service in proportion to distribution of all other mail processing costs.

[1]Except where noted, distributions are within CAG and basic function.
[2]With a few exceptions, distributions are within cost pool unless there are no direct tallies within the cost pool to be used as a distribution key, in which case distributions are made across cost pools. The exceptions are listed on page 15, note 23.

EXHIBIT DMA-2

Ratio of Not-Handling Tally Cost to Direct and Mixed Tally Cost by MODS Cost Pool[31]

Cost Pool	Cost Pool Name	Not Handling Tally Cost	Direct & Mixed Tally Cost	Ratio of Not Handling Costs to Direct/Mixed Costs
OCR/	OCR	$ 2,302	$ 156,411	0.53
BCS/	BCS, BCS on OCR	248,067	456,017	0.54
LSM/	LSM, MPLSM, & SPLSM w/BCR	165,721	466,926	0.35
FSM/	SPFSM, FSM, & FSM/BCR	216,459	452,096	0.48
MECPARC	Mechanized Parcels	4,846	6,616	0.73
SPBS OTH	SPBS - Non Priority	83,868	103,251	0.81
SPBSPRIO	SPBS - Priority	26,389	28,675	0.92
1SACKS_M	Mechanical Sort - Sack Outside	30,027	19,189	1.56
MANL	Manual Letters	426,102	937,849	0.45
MANF	Manual Flats	179,480	347,505	0.52
MANP	Manual Parcels	29,584	37,204	0.80
PRIORITY	Manual Priority	80,708	99,928	0.81
1CANCMPP	Cancellation & Mail Preparation - metered	126,646	189,584	0.67
1OPBULK	Opening Unit - BBM	132,519	140,398	0.94
1OPPREF	Opening Unit - Preferred Mail	342,981	363,247	0.94
1POUCHNG	Pouching Operations	210,272	217,138	0.97
1BULK PR	Bulk Presort	8,721	7,624	1.14
1SCAN	Air Contract DCS and Incoming	35,468	26,375	1.34
1SACKS_H	Manual Sort - Sack Outside	87,702	64,750	1.35
1PLATFRM	Platform	561,192	328,558	1.71
INTL	International	56,899	76,664	0.74
BUSREPLY	Business Reply/Postage Due	13,980	18,489	0.76
REGISTRY	Registry	80,785	63,016	1.28
1EEQMT	Empty Equipment	26,203	15,577	1.68
EXPRESS	Express Mail	55,888	32,760	1.71
REWRAP	Damaged Parcel Rewrap	9,166	4,998	1.83
MAILGRAM	Mailgram	379	140	2.71
1MISC	Miscellaneous Activity	91,895	21,512	4.27
1SUPPORT	Mail Processing Support	171,495	12,743	13.46
LD44	LDC 44 - Post-Office Box Distribution	51,321	81,429	0.63
LD49	LDC 49 - Computerized Forwarding Syst.	116,318	151,896	0.77
LD42	LDC 42 - Unit Distribution - Mechanized	4,544	5,428	0.84
LD43	LDC 43 - Unit Distribution - Manual	269,073	316,278	0.85
LD41	LDC 41 - Unit Distribution - Automated	13,396	11,551	1.16
LD48_SSV	LDC 48 - Customer Service / Spec. Svc.	65,074	34,428	1.89
LD48 OTH	LDC 48 - Customer Service / Other	84,609	40,636	2.08
LD48 EXP	LDC 48 - Customer Service / Express	3,513	1,058	3.32
LD79	LDC 79 - Mailing Req' & Bus. Mail Entry	116,641	24,760	4.71
LD48_ADM	LDC 48 - Customer Service / Admin	139,438	23,184	6.01
Total		**$ 4,449,671**	**$ 5,385,888**	**0.83**

[31]Source: LR-H-23.

EXHIBIT DMA-3

DMA's Alternative Methodology and Witness Degen's Proposed Methodology for Distributing Volume-Variable Mail Processing Costs to Subclasses ($000s)

Class	Subclass	DMA Alternative BY 96 Cost Distribution				Degen	Difference
		MODS	Non-MODS	BMC	Total	Total	Total
		[1]	[2]	[3]	[4]	[5]	[6]
First Class	Letters & Parcels	$ 3,855,329	$ 783,002	$ 4,806	$ 4,643,137	$ 4,651,746	$ -8,609
First Class	Presort Letters & Parcels	807,673	212,044	538	1,020,255	1,063,109	-42,854
First Class	Single Piece Cards	123,978	26,170	87	150,236	139,939	10,297
First Class	Presort Private Cards	30,915	7,707	0	38,621	36,425	2,196
Priority		256,413	57,074	1,588	315,076	477,897	-162,821
Express		40,562	10,853	17	51,431	84,169	-32,738
Mailgrams		110	0	0	110	74	36
Periodicals	Within County	9,439	5,058	68	14,566	15,161	-595
Periodicals	Regular	303,621	82,934	13,163	399,718	461,712	-61,994
Periodicals	Nonprofit	55,461	14,009	3,097	72,567	80,739	-8,172
Periodicals	Classroom	2,266	1,132	586	3,984	5,684	-1,700
Standard (A)	Single Piece Rate	52,158	11,376	12,175	75,708	78,662	-2,954
Standard (A)	ECR	137,739	68,017	15,225	220,981	266,254	-45,273
Standard (A)	Regular	1,035,708	290,569	140,491	1,466,767	1,545,319	-78,552
Standard (A)	Nonprofit ECR	17,847	5,309	1,357	24,513	28,948	-4,435
Standard (A)	Nonprofit Regular	278,727	58,339	19,998	357,063	367,512	-10,449
Standard (B)	Parcels - Zone Rate	39,643	14,378	71,863	125,883	159,880	-33,997
Standard (B)	Bound Printed Matter	21,273	10,655	35,196	67,124	74,506	-7,382
Standard (B)	Special Rate	16,697	7,525	45,917	70,139	68,491	1,648
Standard (B)	Library Rate	4,884	1,390	9,203	15,478	16,350	-872
USPS		54,914	14,424	3,479	72,816	77,658	-4,842
Free for Blind/Handicapped		5,924	744	2,105	8,773	10,100	-1,327
International		163,543	5,252	27,232	196,027	209,018	-12,991
Special Services	Registry	34,640	8,884	330	43,854	42,162	1,692
Special Services	Certified	8,777	15,837	0	24,615	18,473	6,142
Special Services	Insurance	304	609	29	942	771	171
Special Services	COD	1,091	1,782	0	2,873	1,815	1,058
Special Services	Special Delivery	300	0	0	300	243	57
Special Services	Money Orders	0	0	0	0	0	0
Special Services	Stamped Envelopes	0	0	0	0	0	0
Special Services	Special Handling	165	157	0	322	200	122
Special Services	Post Office Box	0	0	0	0	0	0
Special Services	Other	68,859	25,001	395	94,255	76,063	18,192
Total Volume-Variable		**$ 7,428,960**	**$ 1,740,229**	**$ 408,946**	**$ 9,578,135**	**$ 10,059,080**	**$ -480,945**

[1] DMA-LR-2 at page 84.
[2] DMA-LR-2 at page 119.
[3] DMA-LR-2 at page 38.
[4] = [1] + [2] + [3].
[5] USPS-T-12, Table 5, page 23, Column "Total."
[6] = [4] - [5].