# Docket No. R2001-1
# USPS-LR – J – 113

# Parcel Post Weight Study

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## Introduction

Parcel Post weight distributions are needed for product costing purposes. RPW estimates of permit imprint Parcel Post activity are based on data from postage statements (through the PERMIT system and CBCIS). Since postage statements do not contain weight detail by individual piece, weight distributions must draw upon another data source. The DRPW system can be used to obtain weight distributions but it cannot separate volumes among the various entry discounts – DBMC Zones 1 & 2, DSCF, and DDU. Separate endorsements are not required among these three rates and permit imprints prevent the use of rate tables to identify the entry discount. The original manifests that underlie the postage statements used for the permit imprint estimates of Parcel Post can distinguish volumes by entry discount. This survey collects and compiles these manifests to produce volume estimates of permit imprint, entry discounted, parcel post mail by pound step by entry discount for FY 2000. This is a Category 2 Library Reference sponsored by Witness Schenk (USPS-T-43) and is used by Witness Kiefer (USPS-T-33) to distribute costs to weight step within these rate elements. This library reference uses data from the PERMIT system, described by Witness Hunter (USPS-T-4) and in library references associated with his testimony.

## Sample Design

The universe of this survey is all permit imprint, entry discounted, Parcel Post mail in FY 2000.

The survey relies on electronic or hard-copy manifests that indicate the zone and weight characteristics of each parcel in a mailing. Mailers who send permit imprint, entry discounted Parcel Post are divided into two groups for the sample.

The first group comprises members of the Parcel Shippers Association (PSA). This trade association has asked it members to provide manifests directly, without the need to contact the local Post Offices.

The second group consists of all non-PSA mailers. Local Post Offices for selected mailers in this group provided a sample of available manifests.

PSA members as well as 20 large non-PSA mailers,were chosen with certainty. To preserve unbiased estimates, a random sample of the remaining mailers was taken. In this group, DBMC mailers were divided into two strata based on average parcel weight. DSCF and DDU mailers make up two additional strata. Four mailers were chosen from each of these four strata (16 in all) with selection

probability equal to within-stratum volume share. The sample was drawn during FY 2000. AP 10 FY 2000 year-to-date activity was used to compute average weight for the DBMC strata spilt and to compute volume shares for random selection probabilities.

**Survey Response and Inflation**

Survey responses were obtained either directly from mailers or from the Post Office administering a selected mailer's permit imprint. Data are in the form of hard copy or machine readable mailing manifests. One mailer sent the compiled weight distribution instead of any mailing manifests. The request for data was sent to PSA members by the PSA office. The request for mailing manifests from non-PSA mailers was made through district offices that relayed the request to the local Post Office. The letter of notification to the district offices is found in Appendix A. It also includes the brief instructions for the survey. There are no forms necessary for the survey. All the collected survey data describe mail volume and characteristics for individual customers. To insure confidentiality, the data is not included in this report.

Inflation of the survey data involves two stages. First, survey data for each mailer are inflated to a mailer specific control total. The control total for each mailer in any certainty stratum is their FY 2000 volume as reported in the PERMIT system. The control total for mailers in any of the random draw strata is equal to their AP 10 FY 2000 year-to-date volume. Mailers in the random draw strata must be inflated by this amount, equal to their probability of selection, to retain an unbiased overall estimate. For any mailer, this first stage control is computed for each entry discount type – DBMC, DSCF, and DDU. In the second inflation stage, each stratum is controlled to its FY 2000 volume, separately for each entry discount type.

Table 1 details the survey response. Sample volumes are reported by stratum before and after the first stage inflation factor is applied to each mailer's volume. The reported first stage factor is an average of the individual mailers' first stage factors. Computation of first stage inflation factors is not presented by individual mailer to protect the identity of the mailers. Even if mailer names are not listed, the large volume of some parcel mailers is sufficient to identify them.

In the PSA stratum, sample volume is greater than the sum of the mailer control volumes for DDU mail. This is due to a single mailer that reported its own weight distribution for calendar year 2000, and did not provide manifests. It is essentially used here as a distribution key on FY 2000 volume. Strong growth in DDU volume at the end of the calendar year produces the anomaly in the first stage control factor.

The second stage stratum control factors are reported. Non-respondent PSA mailers are represented by the respondent PSA members. Similarly, non-respondent, non-PSA, certainty mailers are represented by respondent, non-PSA certainty mailers.

Of 49 PSA mailers only 3 responses were received. However, the volume of these respondents holds the second stage inflation factors in this stratum down to a reasonable level.

Response among the non-PSA certainty mailers was better, with 11 of 20 mailers reporting. While there is good representation of DBMC and DDU volume, there are no respondents in this group with DSCF volume. DSCF volume in this stratum is represented in the inflation process by the combination of PSA respondents and respondents in the DSCF random draw stratum.

There is at least one response in each of the random draw strata. In the DSCF random stratum, 3 of 4 selected mailers responded. However, this stratum represents a small share of DSCF volume and does not contribute significantly to the overall DSCF estimate.

## Results

The complete weight distributions are reported in Table 2. Because not all mailers separated Zone 1 from Zone 2 or one pound pieces from two pound pieces, these two elements are combined in the table.

Table 3 contains a comparison of average weight estimates from the survey to RPW permit imprint average weight. The survey estimate of DBMC average weight is 9.9 ounces below RPW while the DDU estimate is 3.8 ounces above RPW. Although the DSCF estimate is based on only a few observations, the difference from RPW is only 2.4 ounces. The survey estimates are reasonably close to the RPW estimates. The differences are attributable to the survey sampling error.

## Standard Errors

Due to the complexity of the stratification and inflation process, a simple computation of the variance of the estimates is not possible. Normally in such a case, a bootstrapping routine that randomly redraws the sample over a large number iterations would be applied to the estimates. The standard error of the estimates across these iterations is an unbiased estimate of the sample standard error. However, with the low response rate there is an insufficient number of mailers to estimate a proper variance of the weight distribution across mailers. These survey estimates are the first estimates available for permit imprint parcel

weight distributions based on postage statement data that is also the source for published RPW estimates. Their quality lies in the closeness of their average weight to the RPW average weight and in the reasonableness of the survey inflation factors.

**Table 1**
**Parcel Post Weight Study**
**Survey Piece Coverage by Stratum**

| Stratum | Rate | Respondent Mailer Pieces | Respondent Mailer Pieces With First Stage Inflation | Average First Stage Inflation Factor | Stratum Pieces PFY 2000 | Second Stage Inflation Factor |
|---|---|---|---|---|---|---|
| PSA | DBMC | 54,942,561 | 62,127,741 | 1.13 | 135,516,783 | 2.18 |
| 3 of 49 Responding | DSCF | 23,690 | 48,139 | 2.03 | 1,272,349 | 26.43 |
| | DDU | 34,052,895 | 26,379,571 | 0.77 | 28,004,030 | 1.06 |
| NonPSA Certainty | DBMC | 1,807,509 | 21,743,798 | 12.03 | 52,776,981 | 2.43 |
| 11 of 20 Responding | DSCF | 0 | 0 | NA | 2,724,551 | NA |
| | DDU | 2,220,721 | 3,265,638 | 1.47 | 9,145,081 | 2.80 |
| DBMC - 1 Random | DBMC | 21,382 | 392,423 | 18.35 | 4,930,354 | 12.56 |
| 2 of 4 Responding | | | | | | |
| DBMC - 2 Random | DBMC | 12,117 | 32,576 | 2.69 | 951,513 | 29.21 |
| 1 of 4 Responding | | | | | | |
| DSCF Random | DSCF | 5,870 | 5,870 | 1.00 | 70,134 | 11.95 |
| 3 of 4 Responding | | | | | | |
| DDU Random | DDU | 2,341 | 25,263 | 10.79 | 228,049 | 9.03 |
| 1 of 4 Responding | | | | | | |
| All | DBMC | 56,783,569 | 84,296,538 | 1.48 | 194,175,631 | 2.30 |
| | DSCF | 29,560 | 54,009 | 1.83 | 4,067,034 | 75.30 |
| | DDU | 36,275,957 | 29,670,472 | 0.82 | 37,377,160 | 1.26 |

**Table 2**
**Parcel Post Weight Study**
**Volume Estimates by Entry Discount and Pound Increment**

| Pounds | DBMC Zone 1-2 | DSCF | DDU |
|---|---|---|---|
| 1-2 | 53,078,004 | 356,837 | 8,572,651 |
| 3 | 33,368,837 | 290,195 | 7,911,767 |
| 4 | 17,264,786 | 151,655 | 5,246,164 |
| 5 | 12,636,855 | 86,793 | 3,572,090 |
| 6 | 9,197,925 | 75,353 | 2,503,291 |
| 7 | 6,463,972 | 60,476 | 1,851,130 |
| 8 | 4,616,956 | 52,419 | 1,444,856 |
| 9 | 3,563,365 | 40,926 | 1,052,285 |
| 10 | 2,778,055 | 37,059 | 819,073 |
| 11 | 2,333,612 | 27,069 | 623,999 |
| 12 | 2,030,322 | 20,194 | 479,785 |
| 13 | 1,469,358 | 16,542 | 383,463 |
| 14 | 1,387,932 | 14,448 | 376,266 |
| 15 | 1,132,293 | 12,568 | 309,346 |
| 16 | 832,902 | 11,332 | 232,247 |
| 17 | 776,328 | 9,614 | 194,229 |
| 18 | 691,448 | 8,969 | 169,558 |
| 19 | 1,062,146 | 6,660 | 137,475 |
| 20 | 649,381 | 4,887 | 129,948 |
| 21 | 520,064 | 4,941 | 115,412 |
| 22 | 472,048 | 3,598 | 94,270 |
| 23 | 437,794 | 4,243 | 86,019 |
| 24 | 615,509 | 2,954 | 94,314 |
| 25 | 290,036 | 3,061 | 72,136 |
| 26 | 309,014 | 2,578 | 74,938 |
| 27 | 249,822 | 1,933 | 63,886 |
| 28 | 352,046 | 6,982 | 82,873 |
| 29 | 258,310 | 3,867 | 53,205 |
| 30 | 213,022 | 2,739 | 188,478 |
| 31 | 428,960 | 5,049 | 63,761 |
| 32 | 257,965 | 1,611 | 37,378 |
| 33 | 177,673 | 1,558 | 30,979 |
| 34 | 111,786 | 1,396 | 25,110 |
| 35 | 113,184 | 1,128 | 23,156 |
| 36 | 89,790 | 1,343 | 22,096 |
| 37 | 69,293 | 537 | 18,264 |
| 38 | 70,949 | 967 | 15,841 |
| 39 | 68,293 | 483 | 15,201 |
| 40 | 77,315 | 806 | 14,430 |
| 41 | 96,140 | 806 | 13,136 |
| 42 | 116,244 | 483 | 13,553 |
| 43 | 118,354 | 322 | 10,589 |
| 44 | 110,886 | 322 | 9,895 |
| 45 | 81,655 | 644 | 10,988 |
| 46 | 60,987 | 322 | 9,041 |

**Table 2, Continued**
**Parcel Post Weight Study**
**Volume Estimates by Entry Discount and Pound Increment**

| Pounds | DBMC Zone 1-2 | DSCF | DDU |
|---|---|---|---|
| 47 | 45,900 | 322 | 9,338 |
| 48 | 33,216 | 107 | 7,076 |
| 49 | 26,660 | 215 | 5,473 |
| 50 | 23,369 | 269 | 5,674 |
| 51 | 28,965 | 644 | 9,379 |
| 52 | 23,746 | 269 | 5,849 |
| 53 | 41,921 | 161 | 8,701 |
| 54 | 32,743 | 161 | 7,071 |
| 55 | 22,953 | 161 | 5,370 |
| 56 | 31,537 | 54 | 6,728 |
| 57 | 28,135 | 161 | 6,056 |
| 58 | 13,293 | 54 | 3,041 |
| 59 | 30,835 | 161 | 3,176 |
| 60 | 118,269 | 161 | 2,490 |
| 61 | 35,741 | 215 | 5,736 |
| 62 | 22,830 | 537 | 5,784 |
| 63 | 8,776 | 0 | 2,117 |
| 64 | 9,407 | 54 | 2,009 |
| 65 | 8,284 | 0 | 1,827 |
| 66 | 7,778 | 54 | 1,953 |
| 67 | 16,350 | 54 | 1,601 |
| 68 | 28,160 | 0 | 818 |
| 69 | 3,200 | 0 | 635 |
| 70 | 2,012 | 0 | 691 |
| Total | 161,745,695 | 1,342,483 | 37,377,160 |

**Table 3**
**Parcel Post Weight Study**
**Comparison of Permit Imprint Weight per Piece Estimates**
**Ounces**

| | DBMC | DSCF | DDU | Total |
|---|---|---|---|---|
| RPW FY 2000 | 99.1 | 96.5 | 90.8 | 97.7 |
| Survey Estimates - FY 2000 * | 89.2 | 98.9 | 94.6 | 90.1 |
| RPW FY 2000 Difference | 9.9 | -2.4 | -3.8 | 7.6 |

* Includes Zones 3, 4, and 5 for proper comparison to RPW weight per piece.

## Appendix A

## District Notification Letter and Instructions

UNITED STATES
POSTAL SERVICE

August 2, 2000

TO: MANAGERS, BUSINESS MAIL ENTRY

| | |
|---|---|
| APPALACHIAN DISTRICT | LOS ANGELES DISTRICT |
| ATLANTA DISTRICT | NEW HAMPSHIRE DISTRICT |
| CENTRAL FLORIDA DISTRICT | NORTH FLORIDA DISTRICT |
| COLUMBUS DISTRICT | NORTHLAND DISTRICT |
| CONNECTICUT DISTRICT | RIO GRANDE DISTRICT |
| DALLAS DISTRICT | SALT LAKE CITY DISTRICT |
| ERIE DISTRICT | SANTA ANA DISTRICT |
| GREATER INDIANA DISTRICT | SEATTLE DISTRICT |
| HARRISBURG DISTRICT | SOUTH GEORGIA DISTRICT |
| HAWKEYE DISTRICT | SOUTH JERSEY DISTRICT |
| KENTUCKIANA DISTRICT | SPOKANE DISTRICT |
| LAKELAND DISTRICT | SUNCOAST DISTRICT |
| LANCASTER DISTRICT | TENNESSEE DISTRICT |

SUBJECT: Parcel Post Study

This is to notify you that one or more business mail entry units (BMEU) within your district have been selected to participate in a study of the weight and zone distribution of Parcel Post. This important study is sponsored by the Pricing office at headquarters to develop a better understanding of our Parcel Post volume and to support Postal Service initiatives in future rate cases. The Pricing office has contracted with Christensen Associates, a private consulting group, to identify a sample of manifest mailing system (MMS) mailers who use the Parcel Post rates and to coordinate this data collection effort.

As information, Pricing has shifted to the use of new, and what they believe to be better data for reporting Parcel Post volume, revenue, and weight. The old data came from samples of the mail stream, whereas the new data are derived directly from postage statements filed for permit imprint mailings. It is believed that the data from the postage statements are more accurate. However, information on weight distribution by zone, which is needed for rate case support and forecasting, is not currently available from postage statements. Therefore, these data are being sought by collecting electronic manifests (or hard copy manifests) from a sample of MMS mailers. For locations participating in this effort, data need only be collected for the MMS mailer(s) who are using Parcel Post rates in the finance numbers identified on Attachment A.

To make this effort a success, your assistance is needed. We ask that you designate a contact person at your office to coordinate this effort. Please provide the name and phone number of that person to Jeff Carroll of Christensen Associates at (608) 231-2266 (or via email to jeffrey@Lrca.com), no later than August 11, 2000. Your contact person will be working directly with personnel from Christensen Associates to coordinate this data collection effort.

For the study, Parcel Post Manifest data are needed for both FY00 and FY01. Ideally, we would like to obtain all electronic manifests from September 1, 1999 through the end of FY01. However, we are aware that some mailers and local post offices do not keep past electronic or hard copy

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Washington DC 20260

manifests on file. In cases where electronic manifests are not available, any electronic file the mailer can produce would be helpful provided that it contains weight per piece and zone, as well the rate category and the other items required on a Parcel Post manifest. These files can be produced as ASCII text files, or Excel or Lotus spreadsheets. The simplest form might be to write an image of the hardcopy manifest report to a diskette. Files can be transmitted to Christensen Associates from you, the local BMEU, or the mailer by mail, email or FTP. Hard copy manifests should be sent only if electronic manifest are not available.

I ask that you please give this survey your full support. It is through efforts such as these that we develop the cost data necessary to implement our long-run strategies. Questions regarding this effort should be directed to Virginia Mayes, Pricing, at (202) 268-2661 or Jeff Carroll of Christensen Associates at (608) 231-2266.

John J. Sadler
Manager

cc: Managers, RCSCs
Managers, Marketing Support (Area Offices)
Manager, Pricing, Room 6670