

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

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OFFICE OF THE SECRETARY

POSTAL RATE AND FEE CHANGES, 2000

Docket No. R2000-1

UNITED STATES POSTAL SERVICE
INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS TO
UNITED PARCEL SERVICE WITNESS SELICK
(USPS/UPS-T4-1-16)
(June 1, 2000)

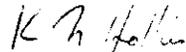
Pursuant to rules 25 and 26 of the Rules of Practice and procedure, the United States Postal Service directs the following interrogatories and requests for production of documents to United Parcel Service witness Sellick: USPS/UPS-T4-1-15.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Ratemaking



Kenneth N. Hollies

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.



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UNITED STATES POSTAL SERVICE FIRST SET OF INTERROGATORIES
TO UNITED PARCEL SERVICE WITNESS SELICK (UPS-T-4)

USPS/UPS-T4-1. Refer to your testimony in the Introduction where you describe your educational background and job experience. For the purposes of this question, define the field of statistics to be the presentation, discussion and treatment of the following subject matter: measures of central tendency, measures of dispersion, statistical inference, mathematical statistics, finite population sampling, survey sampling, regression analysis, time series analysis, analysis of variance, design of experiments, and multivariate analysis.

- a. Please list the title of each academic course taken while pursuing your undergraduate and graduate degrees that related to the field of statistics. Briefly discuss, for each course, the course content and how the presentation of the identified statistical concepts were incorporated.
- b. If not mentioned in part (a), list the each course taken specifically related to finite population sampling and survey sampling. This topic area is best described as the material covered in the following textbooks: Sampling Techniques by William G. Cochran (3rd Edition, 1977, John Wiley & Sons, New York, New York), and Model Assisted Survey Sampling by Sarndal et. al. (1992, Springer-Verlag, New York, New York). Also, if not discussed in part (a), briefly discuss, for each sampling course, the content as it related to treatment of such topics as population, random sampling, ratio estimation, and sources of error in surveys.
- c. If your background includes any course work subsequent to your two degrees that involves the subject areas identified in the body of this interrogatory or parts (a) and (b), please describe them in the terms prescribed in parts (a) and (b).
- d. Related to your job experiences, please provide, in the format of "Situation-Task-Analysis-Results" (STAR), your role in the review of any data system that involved finite population sampling or a survey of a population. In the STAR approach, describe your contribution and distinguish it from that of the task group.
- e. Related to your job experiences, please provide, using the STAR approach, your contributions, if any, in the review of finite population sampling estimation methodologies, such as stratified random sampling, ratio, and multi-stage estimators (point and variance). Distinguish your contributions from that of the task group.

USPS/UPS-T4-2. Please refer to your testimony on page 2, line 20 where you question Parcel Post volume and revenue estimates.

- a. What is the true volume of Standard Mail (B) permit imprint Parcel Post pieces in the nation in BY1998? Please explain how you arrived at this number.
- b. Please confirm that the BRPW Standard Mail (B) permit imprint Parcel Post pieces provided by witness Hunter in Table 2 of the attachment to UPS/USPS-T5-2 is a statistical estimate with an estimated coefficient of variation of 0.97 percent. If you do not confirm please explain.

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- c. Please confirm that it is your understanding the USPS could compute the number of DRPW Standard Mail (B) permit imprint Parcel Post pieces from the DRPW system for BY 1998.
- d. If you confirm part c, please confirm that this would also be a statistical estimate and that a coefficient of variation could be computed. If you do not confirm, please explain.
- e. Please confirm that Hansen, Hurwitz, and Madow in Sample Survey Methods and Theory (Vol. 1, John Wiley & Sons, New York, New York, 1953) define the bias of a survey estimate to be "difference between the expected value of the estimate and the true value being estimated." (page 17). If you do not confirm, please explain fully.
- f. Using the definition in part (e), please provide an estimate of the bias in the BRPW estimate of Standard Mail (B) permit imprint Parcel Post pieces. If you cannot provide, please explain if it would be possible to compute this number, and how it might be computed.
- g. Using the definition in part (e) and assuming the Postal Service provided a DRPW estimate of permit imprint Parcel Post pieces, then please provide an estimate of the bias in the DRPW estimate of Standard Mail (B) permit imprint Parcel Post pieces. If you cannot provide, please explain if it would be possible to compute this number, and how it might be computed.

USPS/UPS-T4-3. Refer to your testimony as it relates to the use of the words reliable, unreliable, and reliability in the following places: page 2, line 19; page 3, line 1; page 18, line 15; page 18, line 19; page 19, line 17; page 24, line 8; page 25, line 1; page 29, line 13, and page 31, line 6.

In formulating your response, please consider the following standard statistical sampling definitions as perhaps first defined by Hansen, Hurwitz and Madow (Sample Survey Methods and Theory, Vol 1., John Wiley & Sons, 1953), where they say:

"The difference between a sample result and the result from a complete count taken under the same conditions is measured by what we will refer to as the *precision* or the *reliability* of the sample result. The difference between the sample result and the true value, we call the *accuracy* of the sample survey" (pg. 10)."

Answer the following questions for each identified reference.

- a. Confirm that your use of the word reliable is the same as the Hansen et. al. definition of reliability.
- b. If you are unable to confirm part (a), confirm that your use of the word reliable is the same as the Hansen et. al. definition of accuracy.
- c. If you are unable to confirm part (b), please define what you mean by reliability in terms of statistical measures that include the true value, sampling error, and bias.

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USPS/UPS-T4-4. Please refer to your testimony on page 11, lines 14-18, where you say that the BRPW estimate may be wrong, in need of adjustment, and controlling to trial balance provides a "check" on the BRPW estimates.

- a. Please confirm that if a random sample is drawn from a population such that every unit in the population has a known, non-zero probability of selection, that an estimate of the population mean and variance can be constructed from the data obtained from that survey. If not confirmed, please explain fully why not, and under what circumstances a sample estimate (point and variance) can be constructed from a population based on a survey of a population.
- b. Please confirm that one can construct a confidence interval around the estimated mean for a sample drawn as described in part (a). If not confirmed please explain why a confidence interval cannot be constructed around an estimate of a sample mean.
- c. Please confirm that the numbers produced from the BRPW system as described by witness Hunter in USPS-LR-I-26 are statistical estimates with point estimator Y_{st} , and variance estimator $V(Y_{st})$. If not confirmed, please explain why these estimators as presented in USPS-LR-I-26 are not accurate, and why the BRPW estimates can not be constructed from these formulae.
- d. Please confirm that your interpretation of the statistical estimator referenced in part (c) is that of a combined ratio estimate. If not confirmed please explain fully.
- e. Please reconcile the difference between your statement on page 11 that an estimate can be wrong with that of the definition of a point estimate with estimated variance as discussed in parts (a) through (d).
- f. In reference to your use of the term 'wrong', under what circumstances is an estimate from a sample survey 'right'?
- g. Please define your use of the term 'wrong' as it relates to the confidence interval which can be constructed around the BRPW estimate(s).
- h. Please explain how an estimate taken from a sample survey can be 'wrong' given that an estimate taken from a sample survey has an estimated mean and variance.

USPS/UPS-T4-5. Refer to your testimony at page 12, lines 16-19, where you state, the DRPW system "... continues to be the sole source of revenue... for a number of mail categories, including First Class Single Piece Mail, Standard (A) Single Piece Mail, Standard (B) Special Standard Mail, and Standard (B) Library Mail." Please confirm that the estimates for these categories as described in witness Pafford's testimony in footnote 2, Tables 1, 2 and 3, includes DRPW data and other source data. If you cannot confirm, please explain why you say that the estimates from these categories come exclusively from DRPW, when footnote 2 of these tables clearly indicate the presence of other source data.

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USPS/UPS-T4-6. Please refer to your testimony at page 17, lines 1-3, where you claim that there was no investigation as to the discrepancy in the estimates between the methodology that incorporates BRPW estimates and the earlier methodology that did not. Please indicate the basis for your claim, including any statements by the Postal Service to this effect. Please identify specific efforts on your part or that of UPS (if necessary, check with UPS) to determine what, if any, investigation of this issue was made.

USPS/UPS-T4-7. Please refer to your testimony at page 18, lines 9-10, where you use the term 'scrubbed'.

- a. Define the term 'scrubbed' and provide any authoritative source for your definition in statistical literature.
- b. Explain your understanding of how Mr. Hunter 'scrubbed' the input BRPW data.

USPS/UPS-T4-8. Please refer to your testimony at page 18, line 14-16, where you state that "it is impossible to evaluate with any degree of confidence how reliable the aggregated postage statement data is [sic]."

- a. Define what you mean by the phrase 'degree of confidence'.
- b. Confirm that this phrase (see part (a)) is a statistical term meant as the measure of the confidence interval around sample survey point estimate. If you do not confirm please explain.
- c. Relate the phrase 'degree of confidence' to the word 'reliability' used in this sentence.

USPS/UPS-T4-9. Please refer to your testimony at page 20, lines 11-12, where you criticize a supposed lack of adjustment to the Parcel Post estimates to a trial balance, at the same time ignoring the fact that the BRPW estimates are adjusted based on a survey of post offices as documented by witness Hunter in USPS-LR-I-230. The following sequence of questions relies upon a hypothetical survey in time t-1 where the sample size is equal to the population (i.e., a census with no sampling variance), the survey has no non-response, the measurement variable is known with certainty (no measurement error) and is the true value. The survey (census) is done to establish the relationship (ratio) between the revenue in the population and the revenue of a portion of the population. Assume for the purposes of this example that this relationship or ratio is 0.99. That is, the portion of the population represents 99% of the total revenue in the population. Assume further that the count of the population and the revenue in each population member is relatively unchanged in time t.

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- a. Confirm that with the goal to have the lowest possible sampling error for the estimated revenue at time t-1, that a census is preferable to a sample. If you do not confirm, please explain.
- b. Confirm that with the goal of having the best possible revenue estimate at time t-1 that a 100 percent response rate is preferable to a response rate of less than 100 percent. If you do not, please explain.
- c. Confirm that it is preferable to have no measurement error for the variable of interest, in this case revenue at time t-1, than to have measurement error. If you do not, please explain.
- d. Confirm that the portion of the population that represents 99% of the total revenue in the population in time t-1 is a good predictor of the population revenue in time t-1. If you are unable to confirm, provide an example demonstrating poor prediction.
- e. Confirm that if the population members and associated revenue in time t remain relatively unchanged from time t-1 that the portion of the population that represents 99% of the population in time t-1 would also be a good predictor of the population in time t. If you do not confirm please explain fully.

USPS/UPS-T4-10. Please refer to your testimony at page 21, lines 3-9, where you state that the same factor of 0.9414 would have been applied to the BRPW estimate if it were to be book revenue adjusted.

- a. To the best of your understanding please define what you believe to be the inputs or components of the numerator of the Book Revenue Adjustment factor.
- b. To the best of your understanding please define what you believe to be the inputs or components of the denominator of the Book Revenue Adjustment factor.
- c. Show how that if the BRPW estimate were not to be treated as a census number, and therefore removed from the numerator of the Book Revenue Adjustment Factor and included in the denominator of said factor, how the same value would be derived. For the purposes of this request, use PQ 2 FY 1998.
- d. If you cannot show this requested result in part (c) please explain how you can make the statement that revenue would be lowered by \$37 million and pieces by approximately 14 million.

USPS/UPS-T4-11. Please refer to your testimony at page 23, lines 16-17, where you say that ..."not only does BRPW provide no additional detail, but it in fact provides less detailed information than does DRPW."

- a. Confirm that the USPS rate schedule effective January 10, 1999 for Standard Mail (B) Destination Entry Parcel Post defines three discount rate categories of DDU, DSCF, and DBMC. If you do not confirm, please explain fully.
- b. Please confirm that it is your understanding that the required markings beginning January 10, 1999 for DDU, DSCF, and DBMC mailpieces as described in the USPS

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Domestic Mail Manual 54, Chapter M, Section 3.0 included Drop Ship (D/S), DBMC Parcel Post, or DBMC PP. If you do not confirm, please explain fully.

- c. If you confirm part (b), please explain how DRPW, beginning January 10, 1999 can provide accurate estimates of DDU, DSCF, and DBMC discount categories.
- d. Confirm that beginning with the new rate schedule effective January 10, 1999, that BRPW can provide estimates at the DDU, DSCF and DBMC level. If you do not confirm, please explain fully.
- e. If you confirm part (d), please explain how the BRPW and DRPW, beginning January 10, 1999 can provide the same level of detail relating to DDU, DSCF, and DBMC discount categories.

USPS/UPS-T4-12. Please refer to your testimony at page 24, lines 17-18 and page 25, lines 1-2.

- a. Please identify each audit report that is referenced that attempted to provide a national estimate of the bias (bias as defined as the difference between the expected value of the estimate (audit) and the true value) in the postage statement data?
- b. If no audit report can be identified, please provide the basis for your projecting the findings to the national level. Please provide and explain the methodology and assumptions you use to make this projection.

USPS/UPS-T4-13. Please refer to your testimony at page 25, lines 7-8, where you state that the audit reports indicate that BMAU personnel often do not do tasks such as deriving the total number of pieces in a mailing correctly.

- a. Please identify each audit report that attempted to quantify the effect and/or estimate of the bias (defined as the difference between the expected value of the estimate (audit) and the true value) of these incorrectly applied procedures.
- b. If no audit report can be identified, please provide the basis for your projecting the findings to the national level. Please provide and explain the methodology you use to make this projection.

USPS/UPS-T4-14. Please refer to your testimony at page 29, lines 13-15, where you question the reliability of the estimates because of the heavy reliance upon "one data collection question" in the CODES RPW data collection instrument.

- a. Please provide any evidence which would a change in difficulty beginning in FY1998 or thereafter for data collectors to distinguish between a permit and stamped/metered mailpiece.
- b. Please provide any estimates of bias that you are aware of regarding the effect of mis-recording permit indicia.

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USPS/UPS-T4-15. Refer to your testimony on page 14, lines 11-22, where you compute a GFY 98 Book Revenue Adjustment Factor as derived from USPS-LR-I-30, USPS-LR-I-249, and USPS-LR-I-302.

- a. Please provide specific paragraph and page number citations from any USPS documentation that indicates that the BY 1998 estimates were developed using a "GFY" Book Revenue Adjustment Factor of 0.9414.
- b. Please confirm that as provided in LR-I-30 (Section 2. System Methodology/Process Flow) GFY RPW data are developed by summing quarterly RPW data. If you do not confirm, please explain fully.

USPS/UPS-T4-16. Refer to your testimony at page 15, lines 1-3, where you state that the "Book Revenue Adjustment Factor of 0.9414 is applied to DRPW estimates to reduce the DRPW portion of the revenue estimate for each class of mail so that the total RPW revenue estimate matches the Postal Service's actual total revenue."

- a. Please confirm that LR-I-23 contains the quarterly Book Revenue Adjustment Factors used to develop the quarters (PQs 0, 2, 3, and 5) that were summed to produce USPS GFY 98 RPW data.
- b. Please confirm that the GFY 98 Book Revenue Adjustment Factor of 0.9414 does not correspond to any of the quarterly Book Revenue Adjustment Factors provided in LR-I-23 which were used to develop the quarters that were summed to produce USPS GFY 98 RPW data.