DOCKET SECTION

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

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97–1

UNITED STATES POSTAL SERVICE
INTERROGATORIES AND REQUESTS FOR PRODUCTION OF DOCUMENTS TO
UNITED PARCEL SERVICE WITNESS NEELS
(USPS/UPS–T1—1–32)

Pursuant to rules 25 and 26 of the Rules of Practice and Procedure and rule 2 of the Special Rules of Practice, the United States Postal Service directs the following interrogatories and requests for production of documents to United Parcel Service witness Neels: USPS/UPS–T1—1–32.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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USPS/UPS-T1-1. Do you consider yourself to be a professional econometrician?

USPS/UPS-T1-2. In what disciplines do you hold your B.A. and Ph.D. degrees?

USPS/UPS-T1-3. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. Please provide definitions for the following undefined terms listed in the workpaper:

(a) Bf

(b) Bd

(c) Var(Xit - XMean)

(d) Var(Xit - Xit-1)

(e) T

(f) Numerator

(g) Denominator

(h) Beta

(i) Variance

(j) Bf-Beta

USPS/UPS-T1-4. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. There are a series of numbers listed under the column entitled "Bd." For example, for the row entitled "Manual Letter Sorting" the number is "0.7586". The only citation in footnote 2 is "Bradley, WP I". Please

provide an exact citation to Bradley Workpaper WP-1 for each of the 11 numbers listed in the column entitled "Bd."

USPS/UPS-T1-5. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. There are a series of numbers listed under the column entitled "Bf." For example, for the row entitled "Manual Letter Sorting" the number is "0.6266". The only citation in footnote 2 is "Bradley, WP I". Please provide an exact citation to Bradley Workpaper WP-1 for each of the 11 numbers listed in the column entitled "Bf."

USPS/UPS-T1-6. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. There are a series of numbers listed under the column entitled "Var(Xit - XMean)." For example, for the row entitled "Manual Letter Sorting" the number is "0.0716". The only citation in footnote 2 is "Bradley, WP I". Please provide an exact citation to Bradley Workpaper WP-1 for each of the 11 numbers listed in the column entitled "Var(Xit - Xmean)."

USPS/UPS-T1-7. Please provide a list of all Postal Rate Commission Opinions and Recommended Decisions that you reviewed prior to preparing your written testimony. If you reviewed only part(s) of a document, please provide page numbers for each part that you reviewed.

USPS/UPS-T1-8. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. There are a series of numbers listed under the column entitled "Var(Xit - Xit-1)." For example, for the row entitled "Manual Letter Sorting" the number is "0.0327". The only citation in footnote 2 is "Bradley, WP I". Please provide an exact citation to Bradley Workpaper WP-1 for each of the 11 numbers listed in the column entitled "Var(Xit - Xit-1)."

USPS/UPS-T1-9. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper.

(a) There is apparently a formula listed in footnote 6. Please provide a mathematical representation of this formula along with a definition for each term used in the formula.

(b) There is apparently a formula listed in footnote 7. Please provide a mathematical representation of this formula along with a definition for each term used in the formula.

(c) There is apparently a formula listed in footnote 8. Please provide a mathematical representation of this formula along with a definition for each term used in the formula.

(d) There is apparently a formula listed in footnote 9. Please provide a mathematical representation of this formula along with a definition for each term used in the formula.

USPS/UPS-T1-10. Please refer to Workpaper III. Please refer to the single un-numbered page in the workpaper. Please provide the source for the number "81" which is listed in the column entitled "T".

USPS/UPS-T1-11. For the purposes of this question, assume that the data for a particular site (a unique IDNUM) has the following pattern: continuous data for 5 periods, a one-period break, continuous data for 25 periods, a three period break, continuous data for 45 periods.

(a) In your proposed method of using "all useable data," how many observations from this site would be included in a fixed effects regression?

(b) Would you consider the data for this site to be continuous or discontinuous?

USPS/UPS-T1-12. Please refer to your Workpaper IV at the program log entitled "wpivmd.log." Please refer to page 30 of the log:

(a) Please confirm that the following code appears on page 30. If the code is not correct, please provide the correct code.

```
DATA LAGSET;
RETAIN RUN 0;
SET OPER;
IF (IDNUM NE IDNUM1) THEN RUN = RUN+1;
ELSE (IF DIFAP NOT IN (1,88) AND (IDNUM-IDNUM1)) THEN RUN=RUN+1;
RUN;
```

(b) Please provide definitions for the variables "RUN", "IDNUM1", and "DIFAP".

(c) Please document each line of code by describing what operation you intended the code to perform.

USPS/UPS-T1-13. Please refer to the program "wpivmd.sas" contained in your Workpaper IV. Please provide definitions of the following variables that are contained in the program. Please provide both a mathematical and an intuitive definition for each variable:

(a) idnum1

(b) fyap1.

(c) difap

(d) n3

(e) ri1

(f) ri2

(g) rin1

(h) rin2

(i) frstid

USPS/UPS-T1-14. Please refer to Table 5 on page 32 of your testimony. Please refer to the column entitled "All Useable Observations."

(a) For each row in the table, there is a percentage provided. For each row in the table, please provide the number of observations used in estimating that percentage.

(b) Please confirm that you discarded some data in estimating these percentages. If you did not confirm, please explain the source of the numbers of observations provided in part a above.

(c) If you did discard some data, please provide, for each estimated equation, the number of observations discarded and the reasons for discarding the data.

(d) If you did discard data, for each estimated equation implied by Table 5 please provide a complete mapping from the data frame to the number of observations used in estimating the equation. That is, please provide the number of observations deleted for each individual reason listed in response to subpart (c) above.

USPS/UPS-T1-15. Suppose that a data set had 15 observations. Suppose that one of the data points was known to contain erroneous data. Would it be appropriate to drop that data point from the econometric regression? Please explain fully.

USPS/UPS-T1-16. Please refer to page 30, line 1 of your testimony where you discuss the estimation of seasonal effects.

(a) Suppose that data are collected at the accounting period frequency with 13 observations per year. Suppose that one wishes to estimate a translog econometric regression for a single mail processing site by regressing the variable ln(hours) on the variable ln(TPH) and ln(MANR). Please confirm that it would be impossible to estimate "accurate seasonal effects" for that site with only 13 observations. If you do not confirm, please explain how "accurate seasonal effects" could be estimated for the single site using only 13 observations.

(b) Please provide what you believe to be the minimum number of observations required to accurately estimate seasonal effects for an individual site when the data are collected on an accounting period frequency.

USPS/UPS-T1-17. Please provide a list of all studies containing econometric analyses that you performed.

USPS/UPS-T1-18. Please provide a list of all studies containing econometric analyses that you directed but did not perform.

USPS/UPS-T1-19. Please describe a description and documentation of all alternative analyses you considered but did not use in your testimony.

USPS/UPS-T1-20. Please refer to page 5, line 9 of your testimony where you refer to the "Commissions's well-established determination that mail processing costs are fully volume variable."

(a) Please provide the exact citations to Postal Rate Commission Opinions and Recommended Decisions that determined that mail processing costs are fully volume variable.

(b) Please provide copies of all studies of the variability of mail processing labor costs that you reviewed in preparation of your testimony.

USPS/UPS-T1-21. Please refer to Table 1 on page 7 of you testimony. Please provide the number of observations used to estimate each of the volume variability estimates provided in that table.

USPS/UPS-T1-22. Please refer to page 10, line 9 of your testimony where you state:

> While one might argue that the schedule of wage rates is determined largely by general labor market conditions rather than mail volume, the same cannot be said for the mix of types of time.

(a) Please provide your understanding of the process by which wages for United States Postal Service mail processing workers are set.

(b) Please provide your understanding how often this wage schedule is changed.

(c) Are you familiar with the terms "clerk" and "mailhandler"? If you are familiar with these terms, please provide your understanding of each.

(d) Do you understand how the Postal Service staffs its mail processing operations? If you answer is anything but an unqualified no, please provide all documents that you relied upon to form your understanding.

USPS/UPS-T1-23. Suppose that a BCS mail processing activity is in long run equilibrium. Now suppose that there is a sustained increase in mail volume flowing through that activity. Please confirm that the Postal Service is more likely to use overtime labor in its short run response to the volume increase than in its long run response the volume increase. If you do not confirm, please explain how the Postal Service would be more likely to use overtime labor in its long run response than in its short run response.

USPS/UPS-T1-24. Please refer to page 12 of your testimony. Please confirm that it is your testimony that the number of times a piece is handled is a function of volume.

USPS/UPS-T1-25. Please refer to page 33, line 3 were you refer to the term "scientific method." Please provide a precise definition of that term.

USPS/UPS-T1-26. Please refer to pages 46-49 of USPS-T-13 and Table 15 on page 50, of USPS-T-13 (copies attached).

(a) Please confirm that there are two sets of variabilities presented in that table. If you do not confirm, please indicate how many sets of variabilities are presented.

(b) Please confirm that the first set of variabilities are based upon a set of data before some unusual observations are eliminated. If you do not confirm please explain.

(c) Please confirm that the second set of variabilities are based upon a set of data after some unusual observations are eliminated. If you do not confirm, please explain.

(d) Please confirm that the approach that you espouse in your testimony of using "all useable data" and avoiding "subjective judgement calls" would require recommending use of the first set of variabilities (based upon the large data set) as opposed to the second set of variabilities (with the unusual observations deleted). If you do not confirm, please explain your justification for recommending the use of the second set of variabilities.

USPS/UPS-T1-27. Please refer to your testimony at page 34 where you discuss the complexity of the time trend in USPS-T-14.

(a) Are you familiar with the econometric term "segmented trend"? If so, please provide a mathematical definition of the term.

(b) Are you familiar with the econometric term "shifting trend"? If so, please provide a mathematical definition of the term.

(c) Are you familiar with the term "broken trend'? If so, please provide mathematical definition of the term.

USPS/UPS-T1-28. Please refer to Figure 4 on page 37 of your testimony. The only documentation of that figure is the note that says "Source: WP VI."

(a) Please confirm that there are no plots or listings of data presented in your Workpaper VI. If you do not confirm, please provide exact citations where the data listings or plots are included in your Workpaper VI.

(b) Please confirm that Figure 4 was not produced by the SAS program listed in Workpaper VI, entitled, "wpvimd.sas." If you do not confirm, please provide the exact code that generates Figure 4. Also, please show where Figure 4 appears in the SAS listing.

(c) Please provide, in electronic format, the data points that were plotted in Figure 4.

(d) The program in your Workpaper VI appears to create a data set entitled, "trend.csv.' Please provide a copy of the data set along with appropriate documentation.

USPS/UPS-T1-29. Please refer to Figure 3 on page 36 of your testimony. The only documentation of that figure is the note that says "Source: WP VI."

(a) Please confirm that there are no plots or listings of data presented in your Workpaper VI. If you do not confirm, please provide exact citations where the data listings or plots are included in your Workpaper VI.

(b) Please confirm that Figure 3 was not produced by the SAS program listed in Workpaper VI, entitled, "wpvimd.sas." If you do not confirm, please provide the exact code that generates Figure 3. Also, please show where Figure 3 appears in the SAS listing.

(c) Please provide, in electronic format, the data points that were plotted in Figure 3.

USPS/UPS-T1-30. Please provide electronic versions of the following programs.

(a) WPIMD.SAS

(b) WPIMA.SAS

(c) WPIBD.SAS

(d) WPIBA.SAS

(e) WPIIMD.SAS

(f) WPIVMD.SAS

(g) WPIVMA.SAS

(h) WPIVBD.SAS

(i) WPIVBA.SAS

(j) WPVMD.SAS

(k) SPVIMD.SAS

USPS/UPS-T1-31. Please provide an electronic version of the spreadsheet entitled "WPIII.XLS."

USPS/UPS-T1-32. Please refer to Table 1 of your testimony.

(a) Please confirm that this table is based upon what you call a "cross-sectional" data set. If you do not confirm, please explain.

(b) Please confirm that the cross-sectional values are found by calculating the average values for the variables like HOURS, MANR and TPH for each site. If you do not confirm, please explain how the cross-sectional values are formed.

(c) Please confirm that on lines 4-5 of page 6 you state: "I have rerun Bradley's cross-sectional analysis on a dataset that uses all of the data." If you do not confirm, please explain.

(d) Please refer to page 17, lines 11-22. Please confirm that you claim that the MODS data includes multiple instances in which there is only a single observation for a site for a given mail processing activity. If you do not confirm, please explain the statement on lines 17 and 18 of page 16: "There are, for

example, hundreds of instances in which a site reports piece handlings for a specific activity for only a single period."

(e) Please confirm that this means that some of the observations - used in the cross sectional analysis presented are based upon a single observation, while other are based upon more than 100 observations. If you do not confirm, please explain.

(f) Please provide the number of observations that went into forming the average value for each of the cross-sectional observations used to estimated the Table 1 variabilities for:

(1) BCS Sorting

(2) OCR Sorting

(3) LSM Sorting

(4) Manual Letter Sorting

(5) Manual Flat Sorting

(6) Manual Parcel Sorting

(7) Manual Priority Mail Sorting

(8) SPBS-Priority Mail Sorting

(9) SPBS Non Priority Mail Sorting

(10) Cancellation and Mail Prep

(11) Opening - Pref Mail

(12) Opening - BBM

(13) Pouching

(14) Platform

lowest calculated chi-square statistic is for the intra-BMC cost account. Its value is 6.0137. The critical value for the chi-square distribution with one degree of freedom at the 95 percent level is 3.481.

Table 14
Chi Square Tests for Significance of the Region Dummy Variables

Equation	Degrees of Freedom	Calculated χ^2 Statistic
Box Route	7	1,053.37
Intra-City	1	9.98
Intra-SCF Van	10	334.47
Intra-SCF Trailer	6	142.97
Inter-SCF Van	6	37.93
Inter-SCF Trailer	6	68.66
Intra-BMC	1	6.01
Inter-BMC	4	12.35
Plant Load	5	55.33

F. Accounting for Unusual Observations

The HCSS replaced the system of paper contracts. Because of availability of data in electronic form, the current variability analysis did not require collecting and keypunching the data from more than two thousand hard copy contracts. This allowed a more complete data set to be constructed and allowed more detailed analyses to be performed. However, the absence of hard copy contracts precluded review of the specific characteristics of each contract cost segment. This raises the possibility that some of the contract cost segments

may be atypical of the general cost-generating function.

To investigate this possibility, I manually reviewed the data used in each of the econometric equations presented above. That review revealed that there are a small number of observations in each account category that seem to be quite different from the other observations.

These observations are different along the following dimensions. They have:

a. Extremely low annual cost;

b. Extremely low annual CFM;

c. Extremely short or long (for the account) route length;

d. Extremely low annual miles;

e. Extremely low or high cost per CFM;

f. Extremely low or high cost per mile.

The existence of these observations raises a difficult problem. The fact they are different does not imply that they are necessarily wrong or contain incorrect data. Yet, if their characteristics are not common to the general population, their inclusion in the econometric equation *could* cloud the identification of the true cost variability.[20]

Eliminating data from an analysis should only be done with great caution. On

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[20] A request was made to the DNO's to provide feedback on these contracts. The DNO's were asked to verify the information, submit any corrected information or provide an explanation of the unusual nature of the contracts. Review of those response shows that these contracts do indeed contain some unusual circumstances like the transportation of baby chicks, the use of windsled transportation, short-length plant load contracts and low cost, "as needed" contracts. See Library Reference H-181, Responses Concerning Unusual Observations in the HCSS Data Set.

one hand, there should always be a presumption for using valid observations, even if the values for a particular observation are not typical of the rest of the data. On the other hand, if the data are from special cases, or do include data entry errors, their use could, potentially, lead to misleading results.

Finally, there is the issue of identifying what are "unusual" observations, a process which should always be done *before* the effect on the estimated equations is known. In addition, care should be taken that only truly unrepresentative observations are removed.

After examining the data and identifying the small number of unusual observations in each cost pool, I re-estimated all of the econometric equations. The complete results are presented in Workpaper WP-7, but a summary of those results is presented in Table 15.

In five cases, Box Route, Intra-City, Intra-SCF trailers, Inter-SCF trailers, and inter-BMC, the elimination of these observations did not affect the results. In these cases, the new estimated variability was within 2 percentage points of the old estimated variability. Elimination of the unusual observations is not important in these cases. The remaining four cases, Intra-SCF vans, Inter-SCF vans, Intra-BMC, and Plant Load, were quite different because elimination of a small number of observations has a large impact. In each case, the estimated variability rises by a large amount. The most extreme case was the intra-SCF van category where the elimination of 30 observations out of 5,464 observations caused the variability to rise by 10.5 percentage points. In addition, in three of these four cases, the fit of the equation was significantly improved by eliminating

the unusual observations. In the last case, the fit was improved but not by a large amount.

Although both the previously reported results and these results have merit, I recommend that the Commission use the variabilities calculated on the data set with the unusual observations removed. My judgment is based upon three factors: the great difference between the characteristics of the omitted observations and the rest of the data, the material increase in certain of the variabilities from omitting the observations, and the material increase in the goodness of fit of several equations from omitting the observations.

Table 15
Effects of Eliminating a Small Number of Unusual Observations

	# Of Observations			R^2			Variabilities		
Category	Before	After	Change	Before	After	Change	Before	After	Change
Box Route	5,503	5,474	-29	0.7341	0.7184	-0.0157	27.76%	29.51%	1.75%
Intra-City	421	385	-36	0.6100	0.8274	0.2174	63.52%	64.88%	1.36%
Intra-SCF Vans	5,464	5,434	-30	0.7772	0.8515	0.0743	51.04%	61.51%	10.47%
Intra-SCF Trailers	570	559	-11	0.8604	0.8514	-0.0090	86.34%	87.73%	1.39%
Inter-SCF Vans	997	982	-15	0.6311	0.8437	0.2126	56.90%	65.74%	8.84%
Inter-SCF Trailers	683	669	-14	0.9420	0.9073	-0.0347	93.49%	95.34%	1.85%
Intra-BMC	344	328	-16	0.8597	0.9520	0.0923	93.21%	97.43%	4.22%
Inter-BMC	177	172	-5	0.9727	0.9473	-0.0254	94.85%	94.88%	0.03%
Plant Load	510	476	-34	0.6948	0.8790	0.1842	87.84%	94.66%	6.82%

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.

Susan M. Duchek

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January 21, 1998