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

POSTAL RATE AND FEE CHANGES
PURSUANT TO PUBLIC LAW 108-18

Docket No. R2005-1

RESPONSE OF POSTAL SERVICE WITNESS BRADLEY
TO INTERROGATORIES OF THE OCA (OCA/USPS-T14-28 - 37)
(June 24, 2005)

The United States Postal Service hereby provides the response of witness Bradley to the following interrogatories of the OCA, filed on June 10, 2005: OCA/USPS-T14-28 - 37.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Ratemaking

Eric P. Koetting

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260-1137
(202) 268-2992, Fax -5402
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Response of Postal Service Witness Michael D. Bradley
To Interrogatories Posed by OCA

OCA/USPS-T14-28. This question references the Timepool data set and the SAS program "Estimating the Delivery Equations". The SAS program is found in USPS-LR-K-81 – Econometric Analysis of City Carrier Street Time. A small number of observations have non-numeric route ids (please see lines 23-32 of the "Attachment to Interrogatory OCA/USPS-T14-28"). Please explain why the route ids are non-numeric and the significance of the designation.

- (a) Why are the routes recoded as 11.1?
- (b) Do the recoded routes ever match any data in the volume data sets? If so, please provide information on which data items match.

OCA/USPS-T14-28 Response

In a small number of instances, the carrier recorded a non-numeric route id. There is no particular significance to the designation.

- a. The routes were recoded to change the alphanumeric character to a numeric character. This allowed tracing their data path along with the other observations.
- b. No.

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OCA/USPS-T14-29. This question references the Timepool data set. How was the delivery mode variable assigned a value (C,D,F,O,P,X) for a route if the route used more than one delivery method?

OCA/USPS-T14-29 Response:

Delivery mode was not assigned a value within the study. Delivery mode was taken from the designation of the route within the Postal Service's Address Management System.

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OCA/USPS-T14-30. In the Letters/Flats volume data there are 686 observations for Sundays or Memorial Day. Please explain why these observations are included. In addition, approximately 650 observations appear to have inconsistently coded dates (i.e. 4-Jun rather than 06/04/02).

- (a) Is it correct that these observations were dropped in your analysis?
- (b) Can these observations be used in the analysis if the date codes are corrected? Please explain in detail.

OCA/USPS-T14-30 Response

- a. Yes.
- b. The fact that there are 686 observations for Sundays or Memorial Day does not mean volume data were recorded for all these route days. The overwhelming majority of these observations come from of Zip Codes sending in zero volumes for the day. Of the 686 observations, only 79 observations have positive values for volume. As it turns out, these observations are from just 3 Zip Codes across just two days, Memorial Day and June 2. Please note that no scan times were recorded for those days, so these observations were not included in the regression analysis.

There are 662 observations that have apparently mis-coded dates (i.e. 4-Jun or 06/04/200 instead of 06/04/2002.) These observations come from three Zip Codes. If one were to assume that the dates were otherwise correct, these could be recovered. Doing so increases the analysis data set for the regular delivery equation from 1,545 Zip Code day observations to 1,601 (an increase of 56). If

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the regular delivery model is estimated on the 1,601, it produces the following variabilities:

**Variabilities for Regular
Delivery**

Shape	Based upon 1601 Obs. Variability
Letters	23.19%
Flats	7.90%
Sequenced	1.23%
Collection	8.52%
Small Parcels	1.88%

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OCA/USPS-T14-31. In the Parcels/Accountables volume data there are 9639 observations for Sundays and holidays. Most, but not all, data values are zero.

- (a) What is the purpose/cause of origination of these observations?
- (b) Can/should the observations be dropped from the analysis?

OCA/USPS-T14-31 Response:

- a. The letter/flat data collection effort followed the established Postal Service protocol which designated collecting volume data for only business days (6 days or during holiday weeks, 5 days). This protocol does not include collecting parcel and accountable data and that data was collected by hand form. All these data were keypunched (double entry). The parcel/accountable forms include spaces for Sundays so the parcel/accountable data were recorded as zeros for the Sunday spaces and thus entered for all seven days. As your question points out only 82 of the 9,639 observations have positive values for parcels or accountables.
- b. There were no scan times collected for Sundays and holidays, so these observations were not and could not be included in the analysis.

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OCA/USPS-T14-32. There appears to be inconsistency in the route codes between the Letters/Flats and Parcels/Accountables data sets. Approximately 6,000 out of 42,000 route/date observations only appear in one of the output data sets. For example, ZIP 275455 has 43 routes in common, 2 routes that are unique in the PA data set and 17 that are unique in the LF data set. What are the reasons for the discrepancies? Please explain in detail.

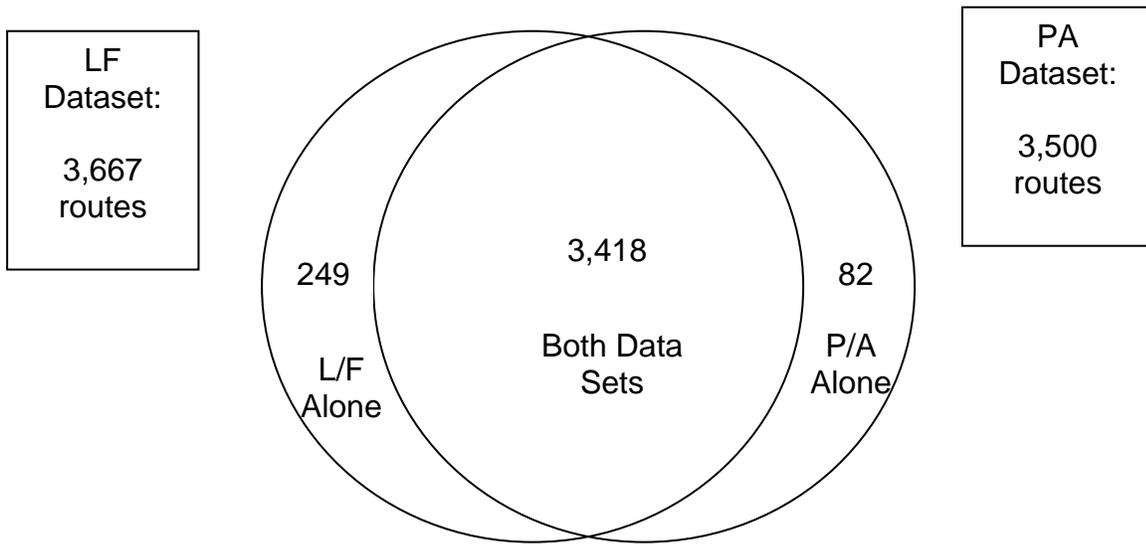
OCA/USPS-T14-32 Response:

I think the main reason for mismatch is problems on the date, instead of problems with the route number. As you point out in OCA/USPS-T14-31, there are 9,639 observations on the parcel/accountable data set for Sundays and Holidays. Almost none of these observations show up on the letter/flat volume data set leading to a large number of route days showing up on only the parcel/accountable data set.

To further investigate the route vs. date issue, consider the results of merging the data sets on route number alone. There are 3,667 unique route numbers in the letter/flat data set and 3,500 on the parcel/accountable data set. The reason fewer routes show up on the parcel accountable data set is because this submission required hand counting the volume, completing paper forms, and successfully getting those paper forms back to Postal Service Headquarters. It is reasonable to believe that this reduced the number of routes that successfully supplied the data. (Also, Zip Codes are familiar with counting parcels and accountables, on a day-to-day basis, like they are for letters and flats.) Merging the data sets on route number provides 3,418 common route numbers, 82 which are unique to the parcel/accountable data set and 249 which are

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unique to the letter flat data set. The following Venn diagram illustrates the merge on route number alone:



This pattern is also illustrated by the Zip Code that you cite in the question, although the problem is worse, in proportion, for that particular Zip Code. Specifically, the Zip Code did not report parcel/ accountable data for certain routes. The following table shows that there is a concordance between the route numbers, but there are 17 instances in which the Zip Code simply failed to report its parcel/accountable data. This most likely occurred for the reasons discussed above. The two routes for which only parcel/accountable data were provide are different from the other routes and could, for example, represent a misreporting of some special purpose routes.

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Please also note that just 7 Zip codes account for two thirds of the instances in which there was no parcel/accountable data reported. Also, just 3 Zip Codes account for 60 percent of the times no letter/flat data were reported for a route.

**Reporting Pattern for Volume Data Across Routes
ZIP Code 275455**

Route Number	LF Data	PA Data	Route Number	LF Data	PA Data
1	Yes	No	34	Yes	Yes
2	Yes	Yes	35	Yes	Yes
3	Yes	Yes	36	Yes	Yes
4	Yes	Yes	37	Yes	No
5	Yes	No	38	Yes	Yes
6	Yes	Yes	39	Yes	Yes
7	Yes	Yes	40	Yes	No
8	Yes	Yes	41	Yes	Yes
9	Yes	Yes	42	Yes	Yes
10	Yes	No	43	Yes	Yes
11	Yes	Yes	44	Yes	Yes
12	Yes	Yes	45	Yes	Yes
13	Yes	Yes	46	Yes	Yes
14	Yes	Yes	47	Yes	Yes
15	Yes	Yes	48	Yes	Yes
16	Yes	Yes	49	Yes	No
17	Yes	Yes	50	Yes	Yes
18	Yes	Yes	51	Yes	Yes
19	Yes	Yes	52	Yes	No
20	Yes	Yes	53	Yes	Yes
21	Yes	Yes	54	Yes	No
22	Yes	No	55	Yes	Yes
23	Yes	No	56	Yes	Yes
24	Yes	Yes	57	Yes	No
26	Yes	No	58	Yes	No
27	Yes	Yes	59	Yes	Yes
28	Yes	No	60	Yes	No
29	Yes	Yes	61	Yes	Yes
30	Yes	Yes	62	Yes	No
32	Yes	Yes	75	No	Yes
33	Yes	No	99	No	Yes

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OCA/USPS-T14-33. In the parcels delivery equation, an observation is only kept if the number of large parcels (PCL) and accountables (ACT) are both >0. (Please refer to lines 389, 390 in "Attachment to Interrogatory OCA/USPS-T14-28"). Why don't you use observations where only one of these is positive?

OCA/USPS-T14-33 Response:

I decided to eliminate the observations in this way because I felt it unusual for an entire Zip Code to receive no parcels on a given day. I made a similar assumption about accountables. This means the logic of the program required dropping a Zip Code day observation if large parcels or accountables were zero for that day. As the question points out, an alternative approach would be to specify the logic of the program to drop an observation only if large parcels and accountables were zero for that day. This alternative approach yields more Zip Day observations (and increase of 77 over the 1,535) variabilities and slightly lower variabilities for parcels (28.5% vs. 26.4%). The accountable variability stays about the same (25.0% vs. 25.8%).

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OCA/USPS-T14-34. When the Letters/Flats and Parcels/Accountables volume data sets are merged, only the ZIP/route/date observations that are present in both volume data sets are kept. Since no data from the Letters/Flats volume data set is used to estimate the “parcel delivery” equations, why are these data points eliminated when estimating the parcel delivery equation? Please explain in detail why this occurs.

OCA/USPS-T14-34 Response

In pursuing this research, I first created the analysis data set by combining the time data set and the two volume data sets. This analysis data set included Zip Code days for which we had received matching data from all three of the data collection efforts.

Subsequent to creation of the analysis data set, I began the estimation analysis and it proceeded on the complete data set. As the question points out, an alternative approach would have been to go back on create a separate parcel/accountable data set. However, because the primary reason for mismatch is misalignment between the time data set and the volume data set, this would have produced only a small number of additional work days and would likely not have a material impact on the estimated variabilities.

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OCA/USPS-T14-36. There is a group of ZIP codes (1660939, 8365476, 3341404, 8885626, 3333330, 6617639) that is dropped because of data problems. Please explain for each ZIP Code what the problems were and why the ZIP Codes were dropped.

OCA/USPS-T14-36 Response:

These Zip Codes were dropped because of concern that for certain days a number of the route numbers on the time data set were either missing or inconsistent with standard route number designations. To evaluate the concern, the equation was estimated with them omitted. However, please note that the equation was also estimated with these Zip Codes included. Those results are presented on page 54 of my testimony. As I state there:

This table shows that omitting the potentially problematic Zip Codes had little impact on the estimated variabilities. There are sufficient data without their inclusion to successfully estimate the equations and their omission does not cause material movements in the estimated variabilities. Thus, because of potential data problems, the preferred approach is to drop them from the regression analysis.

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OCA/USPS-T14-37. In the SAS program "Estimating the Delivery Equation.sas" provided in LR-K-81 a variable "pdelt" is constructed on lines 294 and 337 and then used in the calculation of the volume elasticities. The formula for pdelt has a term "spr2*mspr". The SAS log file provided in response to ADVO-USPS-T14-2 instead contains the term "spr2*mspr*mspr" in this formula.

- (a) Please state whether the formula in the program or the log file is correct.
- (b) Which formula was used to construct the elasticity estimates reported in the output file "Estimating the Delivery Equation.lst" provided in LR-K-81? If the incorrect formula was used, please provide corrected output.

RESPONSE:

- a. Please see my response to Question 4 of Presiding Officers Information Request #6.

- b.

Variabilities for Regular Delivery

Shape	Corrected Variability	Original USPS-T14 Variability
Letters	22.27%	22.28%
Flats	7.12%	7.12%
Sequenced	1.29%	1.29%
Collection	8.81%	8.82%
Small Parcels	1.58%	1.58%

CERTIFICATE OF SERVICE

I hereby certify that I have this date served the foregoing document in accordance with Section 12 of the Rules of Practice and Procedure.

Eric P. Koetting

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260-1137
(202) 268-2992, FAX: -5402
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