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

POSTAL RATE AND FEE CHANGES, 2006	Docket No. R2006–1

RESPONSE OF THE UNITED STATES POSTAL SERVICE TO INTERROGATORIES OF VALPAK (VP/USPS-T14-13 – 14, 18 - 19), REDIRECTED FROM WITNESS BRADLEY (USPS-T-14) (September 22, 2006)

The United States Postal Service hereby provides its response to the following interrogatories of ValPak, Inc.: VP/USPS-T14-2-4, 6-7, filed on June 21, and VP/USPS-T14-18 and 19, filed on July 10, all redirected from witness Bradley (USPS-T-14). As indicated in earlier pleadings, these questions could not be answered until the responses to POIR No. 4, Items 4-12, filed today and addressing related matters, had been completed.

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

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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September 22, 2006

Response of the United States Postal Service
To Interrogatories of Valpak, Redirected from Witness Bradley

VP/USPS-T14-13.

Please refer to POIR No. 4, and the 2004 City Carrier Street Time Study ("CCSTS") referred to in Questions 4 through 10 thereof. With respect to the 2004 CCSTS:

a. Over what time period were the data collected?

b. How many ZIP areas did the study include?

c. How many carrier routes did the study include?

d. What was the total number of observations (route-days) in the study prior to any editing?

e. Of the ZIP areas included in the 2004 study, what percentage also was included in the 2002 study? That is, what was the extent of overlap, if any, between the ZIP areas and routes in the 2002 CCSTS and the ZIP areas and routes in the 2004 CCSTS?

Response:

a. April 17, 2004 – April 30, 2004.

b-d. The 2004 Survey included 122 Zip Codes encompassing 3,595 routes.

These routes recorded scans over a total of 35,238 route days.

e. Of the 122 Zip Codes in the 2004 survey, 7, or 5.7%, were included in the

2002 CCSTS. Of the 3,595 routes, 432 or 12% were included in the 2002

CCSTS.

Response of the United States Postal Service
To Interrogatories of Valpak, Redirected from Witness Bradley

VP/USPS-T14-14.

With respect to the CCSTS discussed in your response to VP/USPS-T14-12:

a. Were the raw data from the 2004 CCSTS edited in any way?

b. If your response to part a is in the affirmative, over what time period were the data edited?

c. Was the editing process completed? If so, when?

d. Were the criteria used to edit the 2002 CCSTS also used to edit the 2004 CCSTS? If not, please describe each way in which the criteria used to edit the 2004 CCSTS differed from the criteria used to edit the 2002 CCSTS.

e. How many observations were deleted, or rejected, from the 2004 CCSTS, and what were the bases for such rejections?

f. What was the total number of usable observations (route-days) in the study after all editing was complete?

g. If size or quality of the edited data base from the 2004 CCSTS differed materially, or in any critical way, from the size or quality of the edited data base in the 2002 CCSTS, please describe all such differences.

Response:

a-c. Yes. As was the case in the 2002 CCSTS, some of the records on the scan-time file received from the field reported route numbers did not match up with route numbers on the volume and possible delivery files. These mismatches were reported to the delivery units, and, in many cases, the route number conflicts were subsequently resolved. This resulted in changes to the scan-time file route numbers that allowed them to be successfully matched with corresponding volume and possible-delivery records. This editing was implemented over various time periods beginning in April 2004. The editing effort ceased in August 2006.

d. Yes.

e. 9,294 observations were deleted prior to the formation of the regression datasets. Of these, 499 were deleted because they were exact duplicates of immediately preceding records. Another 8,795 were deleted as a result of the following problems: not matching up with volume and possible delivery records; from the deletion of Zip Codes that failed to provide any data on sequenced mail volumes, parcel-accountable volumes, or route density; and from the deletion of ZIP Codes that failed to report scan-time records and parcel-accountable volumes for more than a very small percentage of their total routes.

f. 25,944.

g. As shown below, the 2004 Survey is smaller.

2002 Survey

Regular-delivery regression dataset: 1,545 ZIP-dates, 145 ZIPs

Parcel-accountable regression dataset: 1,535 ZIP-dates, 149 ZIPs

2004 Survey

Regular-delivery regression dataset: 1,239 ZIP-dates, 104 ZIPs

Parcel-accountable regression dataset: 1,294 ZIP-dates, 112 ZIPs

Response of the United States Postal Service
To Interrogatories of Valpak, Redirected from Witness Bradley

VP/USPS-T14-18

This interrogatory relates to the 2004 survey data for updating the CCSTS to be discussed in your forthcoming response to POIR No. 4, items 4 to 12. The purpose of this interrogatory is to inquire about the data for sequenced mail data in that data set.

a. What was the total number of observations in the CCSTS data set used for the carrier street time cost variability model (*i.e.*, that is, the number of observations after completion of all editing)?

b. In how many of those observations was the volume of sequenced mail greater than zero?

c. In how many of those observations was the volume of sequenced mail equal to zero?

Response:

a. The regular delivery equation was estimated on 1,239 observations.

b. 642.

c. 597.

Response of the United States Postal Service
To Interrogatories of Valpak, Redirected from Witness Bradley

VP/USPS-T14-19.

Please compare your responses to preceding interrogatories VP/USPS-T14-14 and 17, and discuss the extent to which the data for sequenced mail in the 2002 and 2004 data sets differ, including whether the differences are statistically significant.

Response:

The nature of the question is unclear. As presented in the response to POIR No 4, Item 11, the mean sequenced volume per ZIP Code day is 3,528.40 in the 2002 CCSTS and 3,641.89 in the 2004 survey. Investigating whether the difference in those mean values (approximately 113) is statistically significant can be done by applying a two-sample two tailed t-test with unequal variances. This statistical test assumes that the sample means are normally distributed, but since the sample sizes are so large, the sampling distribution of the sample means approaches a normal distribution by the Central Limit Theorem. The null hypothesis and corresponding t-statistic needed for the test are the following:

$$H_0 : \overline{X}_{seq(2004)} = \overline{X}_{seq(2002)}$$
$$H_A : \overline{X}_{seq(2004)} \neq \overline{X}_{seq(2002)}$$

$$t^1_{stat} = \frac{\overline{x}_{seq(2004)} - \overline{x}_{seq(2002)} - 0}{SE}, \quad where \quad SE = \sqrt{\frac{s^2_{2004(seq)}}{n_{2004(seq)}} + \frac{s^2_{2002(seq)}}{n_{2002(seq)}}}$$

[1]In cases with small sample sizes (usually under 30) another calculation is needed to determine the degrees of freedom for the t-distribution. However that has been omitted since the sample sizes are large enough that a standard normal table will be used to find the critical value.

Now applying that formula at a five percent significance level to the actual values from 2002 and 2004, one can surmise if there is sufficient evidence to reject the null hypothesis.

$$t_{stat} = \frac{3{,}641.89 - 3{,}528.40}{\sqrt{\frac{(6{,}164.13)^2}{1{,}239} + \frac{(6{,}333.08)^2}{1{,}545}}} = \frac{113.49}{237.96} = 0.48$$

Source: Descriptive statistics can be found in USPS-LR-L-179.

To see if there is enough evidence to reject the null hypothesis the calculated t-statistic of 0.48 is compared with the corresponding critical value, at the five percent level, from the standard normal table, which is 1.96. Since $|t_{stat}| < t_{critical}$ there is not sufficient evidence to reject the null hypothesis that the mean sequenced volume per ZIP Code day are equal between the 2002 CCSTS and the 2004 survey.

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.

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