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

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POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS BARON TO INTERROGATORIES OF UNITED PARCEL SERVICE (UPS/USPS-T17—2-8)

The United States Postal Service hereby provides responses of witness Baron to the following interrogatories of United Parcel Service: UPS/USPS-T17—2-8, filed on August 19, 1997.

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 2, 1997

UPS/USPS-T17-2. Please refer to page 6, line 7, of your testimony.

(a) Please confirm that the fixed time at each stop is equal to a period of time that does not vary from stop to stop. If not, please explain.

(b) Have you analyzed the extent to which a carrier's time to prepare for loading and collecting mail does not vary from stop to stop? If so, explain your analysis and provide copies of any supporting workpapers or other documentation. If not, on what basis do you assume that time to prepare for loading and collecting mail is fixed?

RESPONSE:

(a) Fixed-time at stop measures the same activity that the previous concept of accrued coverage-related load time measures. Both concepts are defined as time that does not vary as the volume loaded and collected at a given stop or given set of stops changes, and that only varies as the number of actual stops changes. Based on my understanding of the record from previous rate cases, beginning with Docket No. R87-1, the previous load-time methodology always assumed that the magnitude of coverage-related load time did not vary from stop to stop. I see no theoretical or empirical basis for changing this assumption.

(b) As stated on page 10, lines 18-22, of my testimony, the most effective method for estimating fixed-time at stop is direct measurement of the time carriers spend prior to loading and collecting mail. No such measurements have been taken. This lack of data also precludes any direct analysis of the extent to which carrier time spent in preparing to load and collect mail varies from stop to stop.

I assume that the time to prepare for loading and collecting is fixed from stop to stop because I see no basis for expecting any systematic increase or decrease to occur as the number of actual stops changes. Note also that the time period being analyzed here is very short - only about one second. This leaves very little room for any measurable, significant change in the amount of time that is being expended per stop as the number of actual stops increases or decreases.

UPS/USPS-T17-3. Please refer to page 10, lines 10-12 of your testimony, where you state "Of these 1,373 tests, the lowest recorded load time was 0.4 seconds. However, load times at one-letter stops varied from this low to a high of 6.34 seconds." Please reconcile this statement with the data contained in USPS-LR-H-140 wherein the load time at SDR stops receiving only one letter range from 4 tenths of a second, to 634 tenths of a second (i.e. 0.4 seconds to 63.4 seconds).

RESPONSE:

The section cited from page 10 of the testimony contains an error. The number 6.34 should be 63.4. Lines 8 through 11 should therefore read as follows:

> Of these 1,373 tests, the lowest recorded load time was 0.4 seconds. However, load times at one-letter stops varied from this low up to a high of 63.4 seconds. Now, clearly, 63.4 is too high as an approximation of the amount of time spent prior to loading a single letter.

Note that this correction further supports the point I am making about measuring fixed-time at stop - namely, that only the lowest observed times recorded at stops receiving one letter should be used to estimate this fixed time.

UPS/USPS-T17-4. Please refer to the paragraph beginning at page 11, line 6, of your testimony.

(a) What statistical/econometric theory have you relied upon to support using the lowest 20th percentile of load times for one letter deliveries to determine the upper bound of fixed-time per stop?

(b) If not based on statistical/econometric theory, what is your rationale for using the lowest 20th percentile of the tests of load times for one letter deliveries to determine the upper bound of fixed time per stop? Please explain and provide supportive documentation.

(c) Have you determined that using the lowest 20th percentile of the tests versus the lowest single observation (i.e., 0.4 seconds) yields a more accurate estimate of the fixed time at stop? If so, please explain.

(d) Please explain why the lowest 10th percentile of the tests would not serve as an appropriate estimate of the upper bound of fixed-time per stop.

(e) Please confirm that, by definition, the load time relating to 20% of all one letter deliveries would be considered fixed under the proposed treatment of the fixed-time at stop. Please explain any nonconfirmation.

(f) Please explain why you consider it inappropriate to rely on the load time of 0.4 seconds as observed in 5 out of 1,373 SDR tests conducted at one-letter stops.

(g) Have you determined that the 5 observations of 0.4 seconds referred to in (f) above are outliers? If so, please provide all analyses demonstrating this fact.

(h) Please identify all evidence suggesting that the 5 observations of 0.4 seconds referred to in (f) above are not an accurate representation of the upper bound on fixed-time at stop.

(i) Please explain why a subset of tests representing the lowest load times is more accurate that the lowest observation in estimating the upper bound on fixed-time per stop.

RESPONSE:

(a) The rationale for choosing the lowest 20th percentile of load times for one-letter stops (not deliveries) is presented at page 9, line 18 through page 11, line 10. This rationale is not derived from statistical/econometric theory. It is derived from common sense. Any given record of time spent loading one letter piece is bound to contain measurement error. This error results from the inherent imprecision in the measurement tool being used (namely, the OS-3 Event Recorder equipment described in Docket No. R87-1, Exhibit USPS-7C and USPS LR-E-4), and the application of that tool by the data collector.

Consider, for example, the five tests that produced the lowest observed measurement - 0.4 seconds - of the time spent loading a letter at an SDR stop. Suppose an second observer had recorded times for these same five tests. The resulting second set of five time measurements would almost certainly have been different from the set actually recorded. It would be no surprise if, for example, the second observer had recorded a time of, say, 0.8 seconds for any of these five tests, instead of 0.4 seconds.

The logical response to this inherent measurement error problem is to not rely on only one observation or on a very few observations to derive estimates of the fastest times to be expected at one-letter stops. Instead, a much larger sample of observations is selected to minimize the impact of measurement error on the final estimate.

(b) Please see my response to part (a).

(c) The choice of the lowest 20th percentile of the tests instead of just the single lowest observation was based on the view that the number of sample observations required to produce a reliable measure of fixed-time per stop across all stops in the population is greater than one. Also, see my response to part (a).

(d) The lowest 10th percentile of the tests is an alternative to the lowest 20th percentile of tests. However, as explained at pages 9-11 of my testimony, the lowest 20th percentile, 275 SDR tests, was judged to be an appropriate sample size for calculating a reliable estimate of fixed-time at stop.

(e) It is not clear what is meant by the word fixed in this context. If what is meant is that the time measured at 20% of the one-letter stops tested in the 1985 study would not have increased in response to increases in volumes above one letter piece, then clearly the block of time is not fixed. Obviously, if more than one letter had been loaded, load time would have been higher.

The correct interpretation of the load times measured in this 20th percentile subset of test stops is that they provide a basis for estimating the upper bound on the amount of time that **would have been expended** had the carrier stopped activity just prior to the handling of mail pieces, bundles, or mail-related equipment. The data are used for this purpose because of the lack of any other empirical basis for directly measuring a time interval that is supposed to be fixed with respect to total volumes loaded and collected at a stop.

(f) The reason I did not choose to use 0.4 seconds was my concern over estimation accuracy. Only 5 observations out of 1,373 reported 0.4 seconds. Such a sample appeared to me to be much too small to produce a defensible estimate of fixed-time at stop, especially in view of the fact that such an estimate affects the determination of how hundreds of million of dollars in carrier costs should be split between the volume-variable and institutional cost pools. See also my response to part (a).

(g) These 5 observations are outliers in the sense that they represent the lowest 0.4% (5/1,373) of load times observed at one-letter SDR stops.

(h) There is no direct evidence that these 5 observations of 0.4 seconds are inaccurate, or, for that matter, less accurate than any other subset of 5 observations. However, any subset of 5 observations must be viewed skeptically as a source of data to derive reliable estimates for an entire population of stops.

(i) Please see my answer to parts (d) through (h)..

UPS/USPS-T17-5. Please refer to the data set included as part of USPS-LR-H-140. Please confirm that each recorded load-time observation includes the fixed-time at stop plus some volume variable time relating to actual load time. If confirmed, please explain why the time recorded for 113 SDR stops (ranging from 0.4 seconds to 1 second) were less than the alleged fixed time component (e.g. 1.052 seconds for SDR stops). How does the calculation of the fixed-time at stop treat these observations (100% fixed)?

RESPONSE:

Confirmed. The estimate of 1.052 seconds for SDR stops was based on load time at one-letter stops, because there are no available data directly measuring the time spent at "zero volumes" loaded. Some one-letter stop observations recorded total load times less than this estimate of 1.052 seconds. The calculation of fixed-time at stop treats these observations as evidence, along with all other observations from the lowest 20th percentile, of the expected minimum time that is expended at one-letter stops just prior to the initiation of loading and collecting.

UPS/USPS-T17-6. Please refer to Page 13 of your testimony.

(a) Please confirm that in the CATFAT study, at each stop the carrier was required to refer to a pre-numbered checklist and to check off the corresponding stop number. If not, please explain.

(b) Please confirm that the activities referred to in (a) are unique to the testing process and not normal carrier delivery activities. If not, please explain.

(c) Please confirm that the time required to perform the activities referred to in (a) are included as part of access time. If not, please explain.

(d) Are you aware of any estimates of the time required to perform the activities in (a)? If so, please elaborate on such estimates, including an identification of all associated data sources, estimation methods, and results.

(e) Please explain the extent to which the time related to the activities in (a) already account for the fixed-time at a stop.

RESPONSE:

(a) Confirmed.

(b) Confirmed.

(c) Not confirmed. The time expended during the 1989 CATFAT study activities described in part (a) are not used to derive the pool of running time costs that include the access time costs calculated for time periods relevant to this Docket, such as base year 1996 and fiscal year 1996. Instead, the street-time sampling system (STS) proportions are used to break street time costs into this running time cost pool, as well as the other basic components: load time, street support, and collection. See Summary Description of USPS Development of Costs by Segments and Components, FY 1996, USPS LR-H-1, pages 7-2 through 7-8. The access cost portion of running time costs is then determined through application of the elasticities of running time with respect to actual stops. See my testimony at pages 44-67. The 1989 CATFAT data are used only to derive these elasticities, not the running time costs they are multiplied by.

(d) No.

(e) Fixed-time at stop applies to one of the carrier's normal delivery activities. The activities in part (a) are unique to the CATFAT test, and are not part of the carrier's normal activities.

UPS/USPS-T17-7. Please refer to page 16, line 18, of your testimony.

(a) What is the level of correlation between possible deliveries and actual deliveries? Please identify the data used to test the level of correlation.

(b) Beyond the fact that possible deliveries and actual deliveries are highly correlated, did you test the extent to which possible deliveries operates as an effective proxy for actual deliveries in the regression estimation? If so, please explain your results.

(c) Based on the fact that changes in possible deliveries do not precisely measure changes in actual deliveries, to what extent does using possible deliveries as a proxy for actual deliveries either overstate or understate the actual deliveries effect? If there is an overstatement or understatement, have you evaluated various means to correct it?

RESPONSE:

(a) For MDR stops, the coefficient of correlation is 91.7%. For BAM stops, the coefficient of correlation is 90.7%. The 1996 CCS data file TPANL96.WEIGHT.DISK, documented in USPS LR-H-136, was used to derive these correlations.

(b) No. Also, it is unclear what is meant by the phrase "extent to which possible deliveries operates as an effective proxy for actual deliveries." If what is meant is that the partial derivatives of load time with respect to possible deliveries (derived from the available load-time regressions) are good estimates of the corresponding partial derivatives of load time with respect to actual deliveries, then there is no way to conduct a direct test. There are no available data sets containing observations on both load time and actual deliveries recorded at different stops. However, the high degree of correlation between actual and possible stops is strong evidence that these partial derivative estimates are, indeed, accurate.

(c) Because possible deliveries and actual deliveries are so highly correlated, the use of possible deliveries in place of actual deliveries does not significantly overstate or understate the actual deliveries effect.

UPS/USPS-T17-8. Please refer to page 35, lines 1-17 of your testimony.

(a) Please confirm that the volume elasticities, as calculated using equation (1) at page 7 of your testimony, would be different if the mean volumes used to calculate the elasticities were increased by 1%. If so, please explain why these elasticities would not be more appropriate to use in place of the 61% aggregate elasticity referenced in your illustration at page 35.

(b) To what extent is the "flaw" referred to in your illustration caused by the fact that the volume elasticities are calculated at the mean? Please explain your answer.

(c) Did you evaluate any alternative methods to estimate coverage-related costs that would eliminate the problem? If so, please explain your results and provide copies of your workpapers and other documentation.

RESPONSE:

(a) Confirmed. I agree with the rationale for calculating elasticities at the mean values of the right-hand side variables (rather than at values one percent above the means) that is presented by the Postal Rate Commission in Docket No. R87-1, Appendices to Opinion and Recommended Decision, Appendix J, pages 26-27.

(b) The "flaw" is not caused by the fact that the volume elasticities are calculated at the mean. The "flaw" is in the method used to calculate accrued coverage-related load time cost. This method produces a coverage-related load-time cost estimate that is not fixed with respect to volume loaded and collected at a stop.

(c) Yes. Please see my testimony at pages 9-13. The new load-time methodology presented in this section refers to what was traditionally called coverage-related load-time cost as the cost of fixed-time at stop. This cost is explicitly calculated as a cost that increases only as the number of actual stops increases, and that remains constant at a given stop or set of actual stops no matter how much volume is loaded and collected at those stops.

DECLARATION

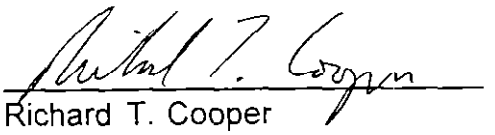
I, Donald M. Baron, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Donald M. Baron

Dated: 9-2-97

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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